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**Department of Defense
Fiscal Year (FY) 2017 President's Budget Submission**

February 2016



Air Force

Justification Book Volume 3a of 3

Research, Development, Test & Evaluation, Air Force

Vol-III Part 1

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Air Force • President's Budget Submission FY 2017 • RDT&E Program

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 Total Obligational Authority
 (Dollars in Thousands)

27 Jan 2016

Appropriation	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Research, Development, Test & Eval, AF	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156

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Summary Recap of Budget Activities -----	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Basic Research	538,586	530,253		530,253	500,024		500,024
Applied Research	1,090,419	1,240,141		1,240,141	1,260,152		1,260,152
Advanced Technology Development	606,365	710,377		710,377	725,805		725,805
Advanced Component Development & Prototypes	1,362,546	1,561,351		1,561,351	2,847,833		2,847,833
System Development & Demonstration	3,516,726	3,907,650		3,907,650	4,075,804	425	4,076,229
Management Support	1,495,139	1,184,667		1,184,667	1,245,577		1,245,577
Operational Systems Development	15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156
Summary Recap of FYDP Programs -----							
Strategic Forces	458,400	606,099		606,099	636,723		636,723
General Purpose Forces	1,504,009	1,608,728	300	1,609,028	2,203,903		2,203,903
Intelligence and Communications	1,634,882	1,568,630		1,568,630	1,850,451	4,715	1,855,166
Mobility Forces	223,007	303,822		303,822	505,020		505,020
Research and Development	8,505,587	8,808,727		8,808,727	9,680,261	425	9,680,686
Central Supply and Maintenance	89,056	111,467		111,467	105,997		105,997
Training Medical and Other	2,538	3,272		3,272	3,114		3,114
Administration and Associated Activities	108,250	110,346		110,346	30,441		30,441
Support of Other Nations	3,790	2,315		2,315	4,784		4,784
Classified Programs	11,090,409	12,071,051	16,800	12,087,851	13,091,557	27,765	13,119,322
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156

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Advanced Component Development & Prototypes	1,362,546	1,561,351		1,561,351	2,847,833		2,847,833
System Development & Demonstration	3,516,726	3,907,650		3,907,650	4,075,804	425	4,076,229
Management Support	1,495,139	1,184,667		1,184,667	1,245,577		1,245,577
Operational Systems Development	15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536
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Intelligence and Communications	1,634,882	1,568,630		1,568,630	1,850,451	4,715	1,855,166
Mobility Forces	223,007	303,822		303,822	505,020		505,020
Research and Development	8,505,587	8,808,727		8,808,727	9,680,261	425	9,680,686
Central Supply and Maintenance	89,056	111,467		111,467	105,997		105,997
Training Medical and Other	2,538	3,272		3,272	3,114		3,114
Administration and Associated Activities	108,250	110,346		110,346	30,441		30,441
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Classified Programs	11,090,409	12,071,051	16,800	12,087,851	13,091,557	27,765	13,119,322
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Appropriation: 3600F Research, Development, Test & Eval, AF
 Program

Line No	Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	S e c
1	0601102F	Defense Research Sciences	01	382,332	374,721		374,721	340,812		340,812	U
2	0601103F	University Research Initiatives	01	142,752	141,754		141,754	145,044		145,044	U
3	0601108F	High Energy Laser Research Initiatives	01	13,502	13,778		13,778	14,168		14,168	U
		Basic Research		538,586	530,253		530,253	500,024		500,024	
4	0602102F	Materials	02	114,302	133,734		133,734	126,152		126,152	U
5	0602201F	Aerospace Vehicle Technologies	02	101,053	122,969		122,969	122,831		122,831	U
6	0602202F	Human Effectiveness Applied Research	02	95,727	110,221		110,221	111,647		111,647	U
7	0602203F	Aerospace Propulsion	02	168,628	185,926		185,926	185,671		185,671	U
8	0602204F	Aerospace Sensors	02	118,654	152,175		152,175	155,174		155,174	U
9	0602601F	Space Technology	02	96,425	109,122		109,122	117,915		117,915	U
10	0602602F	Conventional Munitions	02	86,328	99,851		99,851	109,649		109,649	U
11	0602605F	Directed Energy Technology	02	126,189	115,105		115,105	127,163		127,163	U
12	0602788F	Dominant Information Sciences and Methods	02	146,951	169,183		169,183	161,650		161,650	U
13	0602890F	High Energy Laser Research	02	36,162	41,855		41,855	42,300		42,300	U
		Applied Research		1,090,419	1,240,141		1,240,141	1,260,152		1,260,152	
14	0603112F	Advanced Materials for Weapon Systems	03	38,262	46,665		46,665	35,137		35,137	U
15	0603199F	Sustainment Science and Technology (S&T)	03	14,900	18,378		18,378	20,636		20,636	U
16	0603203F	Advanced Aerospace Sensors	03	34,100	42,001		42,001	40,945		40,945	U
17	0603211F	Aerospace Technology Dev/Demo	03	86,275	100,622		100,622	130,950		130,950	U

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18	0603216F	Aerospace Propulsion and Power Technology	03	126,729	178,594		178,594	94,594		94,594	U
19	0603270F	Electronic Combat Technology	03	45,548	46,946		46,946	58,250		58,250	U
20	0603401F	Advanced Spacecraft Technology	03	65,207	61,813		61,813	61,593		61,593	U
21	0603444F	Maui Space Surveillance System (MSSS)	03	13,185	12,853		12,853	11,681		11,681	U
22	0603456F	Human Effectiveness Advanced Technology Development	03	21,142	25,448		25,448	26,492		26,492	U
23	0603601F	Conventional Weapons Technology	03	41,385	43,036		43,036	102,009		102,009	U
24	0603605F	Advanced Weapons Technology	03	33,681	35,195		35,195	39,064		39,064	U
25	0603680F	Manufacturing Technology Program	03	51,613	52,630		52,630	46,344		46,344	U
26	0603788F	Battlespace Knowledge Development and Demonstration	03	34,338	46,196		46,196	58,110		58,110	U
		Advanced Technology Development		606,365	710,377		710,377	725,805		725,805	
27	0603260F	Intelligence Advanced Development	04	5,408	5,032		5,032	5,598		5,598	U
28	0603438F	Space Control Technology	04	5,799	4,057		4,057	7,534		7,534	U
29	0603742F	Combat Identification Technology	04	10,606	21,790		21,790	24,418		24,418	U
30	0603790F	NATO Research and Development	04	2,309	4,736		4,736	4,333		4,333	U
31	0603791F	International Space Cooperative R&D	04	806							U
32	0603830F	Space Security and Defense Program	04	30,592	30,771		30,771	32,399		32,399	U
33	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	30,388	39,765		39,765	108,663		108,663	U
34	0603859F	Pollution Prevention - Dem/Val	04	965							U
35	0604015F	Long Range Strike - Bomber	04	883,363	736,228		736,228	1,358,309		1,358,309	U

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36	0604257F	Advanced Technology and Sensors	04					34,818		34,818	U
37	0604317F	Technology Transfer	04	4,683	7,612		7,612	3,368		3,368	U
38	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04		54,637		54,637	74,308		74,308	U
39	0604422F	Weather System Follow-on	04	30,890	56,044		56,044	118,953		118,953	U
40	0604425F	Space Situation Awareness Systems	04					9,901		9,901	U
41	0604776F	Deployment & Distribution Enterprise R&D	04					25,890		25,890	U
42	0604857F	Operationally Responsive Space	04	20,000	18,437		18,437	7,921		7,921	U
43	0604858F	Tech Transition Program	04	79,887	266,514		266,514	347,304		347,304	U
44	0605230F	Ground Based Strategic Deterrent	04		75,166		75,166	113,919		113,919	U
45	0201184F	Counter Narco-Terrorism Program Office	04	650							U
46	0207110F	Next Generation Air Dominance	04	18,224	8,830		8,830	20,595		20,595	U
47	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	85,832	8,139		8,139	49,491		49,491	U
48	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	04	152,144	141,861		141,861	278,147		278,147	U
49	0305236F	Common Data Link Executive Agent (CDL EA)	04					42,338		42,338	U
50	0306250F	Cyber Operations Technology Development	04		81,732		81,732	158,002		158,002	U
51	0306415F	Enabled Cyber Activities	04					15,842		15,842	U

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52	0901410F	Contracting Information Technology System	04					5,782		5,782	U
		Advanced Component Development & Prototypes		1,362,546	1,561,351		1,561,351	2,847,833		2,847,833	
53	0604233F	Specialized Undergraduate Flight Training	05	12,903							U
54	0604270F	Electronic Warfare Development	05	7,815	843		843	12,476		12,476	U
55	0604281F	Tactical Data Networks Enterprise	05	30,282	59,996		59,996	82,380		82,380	U
56	0604287F	Physical Security Equipment	05	3,926	5,973		5,973	8,458		8,458	U
57	0604329F	Small Diameter Bomb (SDB) - EMD	05	66,374	29,083		29,083	54,838		54,838	U
58	0604421F	Counterspace Systems	05	22,654	24,134		24,134	34,394	425	34,819	U
59	0604425F	Space Situation Awareness Systems	05	9,031	29,288		29,288	23,945		23,945	U
60	0604426F	Space Fence	05	191,708	240,692		240,692	168,364		168,364	U
61	0604429F	Airborne Electronic Attack	05	26,555	8,358		8,358	9,187		9,187	U
62	0604441F	Space Based Infrared System (SBIRS) High EMD	05	308,788	291,510		291,510	181,966		181,966	U
63	0604602F	Armament/Ordnance Development	05	28,667	37,654		37,654	20,312		20,312	U
64	0604604F	Submunitions	05	2,543	2,506		2,506	2,503		2,503	U
65	0604617F	Agile Combat Support	05	41,857	56,178		56,178	53,680		53,680	U
66	0604618F	Joint Direct Attack Munition	05					9,901		9,901	U
67	0604706F	Life Support Systems	05	14,697	8,187		8,187	7,520		7,520	U
68	0604735F	Combat Training Ranges	05	9,812	11,795		11,795	77,409		77,409	U
69	0604800F	F-35 - EMD	05	566,937	586,953		586,953	450,467		450,467	U

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70	0604853F	Evolved Expendable Launch Vehicle Program (SPACE) - EMD	05	225,600	227,784		227,784	296,572		296,572	U
71	0604932F	Long Range Standoff Weapon	05	3,438	16,143		16,143	95,604		95,604	U
72	0604933F	ICBM Fuze Modernization	05	57,893	142,551		142,551	189,751		189,751	U
73	0605030F	Joint Tactical Network Center (JTNC)	05					1,131		1,131	U
74	0605213F	F-22 Modernization Increment 3.2B	05	163,877	140,640		140,640	70,290		70,290	U
75	0605214F	Ground Attack Weapons Fuze Development	05	5,177	3,598		3,598	937		937	U
76	0605221F	KC-46	05	763,224	592,364		592,364	261,724		261,724	U
77	0605223F	Advanced Pilot Training	05	8,201	10,395		10,395	12,377		12,377	U
78	0605229F	CSAR HH-60 Recapitalization	05	100,000	156,085		156,085	319,331		319,331	U
79	0605278F	HC/MC-130 Recap RDT&E	05	4,497							U
80	0605431F	Advanced EHF MILSATCOM (SPACE)	05	294,455	228,095		228,095	259,131		259,131	U
81	0605432F	Polar MILSATCOM (SPACE)	05	99,788	71,867		71,867	50,815		50,815	U
82	0605433F	Wideband Global SATCOM (SPACE)	05	28,345	52,185		52,185	41,632		41,632	U
83	0605458F	Air & Space Ops Center 10.2 RDT&E	05	83,245	47,629		47,629	28,911		28,911	U
84	0605931F	B-2 Defensive Management System	05	95,440	271,961		271,961	315,615		315,615	U
85	0101125F	Nuclear Weapons Modernization	05	148,281	212,121		212,121	137,909		137,909	U
86	0207171F	F-15 EPAWSS	05		180,681		180,681	256,669		256,669	U
87	0207701F	Full Combat Mission Training	05	8,831	18,082		18,082	12,051		12,051	U
88	0305176F	Combat Survivor Evader Locator	05		993		993	29,253		29,253	U
89	0307581F	JSTARS Recap	05	70,879	44,343		44,343	128,019		128,019	U

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90	0401319F	Presidential Aircraft Replacement (PAR)	05	11,006	82,420		82,420	351,220		351,220	U
91	0701212F	Automated Test Systems	05		14,563		14,563	19,062		19,062	U
		System Development & Demonstration		3,516,726	3,907,650		3,907,650	4,075,804	425	4,076,229	
92	0604256F	Threat Simulator Development	06	24,318	23,844		23,844	21,630		21,630	U
93	0604759F	Major T&E Investment	06	45,985	73,302		73,302	66,385		66,385	U
94	0605101F	RAND Project Air Force	06	31,164	34,918		34,918	34,641		34,641	U
95	0605502F	Small Business Innovation Research	06	324,371							U
96	0605712F	Initial Operational Test & Evaluation	06	8,916	10,476		10,476	11,529		11,529	U
97	0605807F	Test and Evaluation Support	06	691,977	683,308		683,308	661,417		661,417	U
98	0605860F	Rocket Systems Launch Program (SPACE)	06	33,420	21,792		21,792	11,198		11,198	U
99	0605864F	Space Test Program (STP)	06	20,552	28,143		28,143	27,070		27,070	U
100	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	46,955	40,518		40,518	134,111		134,111	U
101	0605978F	Facilities Sustainment - Test and Evaluation Support	06	32,965	27,895		27,895	28,091		28,091	U
102	0606017F	Requirements Analysis and Maturation	06	18,673	22,507		22,507	29,100		29,100	U
103	0606116F	Space Test and Training Range Development	06	22,724	18,940		18,940	18,528		18,528	U
104	0606392F	Space and Missile Center (SMC) Civilian Workforce	06	166,727	176,196		176,196	176,666		176,666	U
105	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06	4,912	3,841		3,841	4,410		4,410	U

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106	0702806F	Acquisition and Management Support	06	16,115	15,357		15,357	14,613		14,613	U
107	0804731F	General Skill Training	06	1,425	1,315		1,315	1,404		1,404	U
108	0909999F	Financing for Cancelled Account Adjustments	06	150							U
109	1001004F	International Activities	06	3,790	2,315		2,315	4,784		4,784	U
		Management Support		1,495,139	1,184,667		1,184,667	1,245,577		1,245,577	
110	0603423F	Global Positioning System III - Operational Control Segment	07	334,631	349,181		349,181	393,268		393,268	U
111	0604233F	Specialized Undergraduate Flight Training	07		8,565		8,565	15,427		15,427	U
112	0604445F	Wide Area Surveillance	07	2,000	22,577		22,577	46,695		46,695	U
114	0604618F	Joint Direct Attack Munition	07	2,389							U
115	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	45,250	31,344		31,344	10,368		10,368	U
116	0605024F	Anti-Tamper Technology Executive Agency	07	33,775	26,718		26,718	31,952		31,952	U
117	0605117F	Foreign Materiel Acquisition and Exploitation	07		41,689		41,689	42,960		42,960	U
118	0605278F	HC/MC-130 Recap RDT&E	07		10,807		10,807	13,987		13,987	U
119	0101113F	B-52 Squadrons	07	41,072	74,520		74,520	78,267		78,267	U
120	0101122F	Air-Launched Cruise Missile (ALCM)	07	450	451		451	453		453	U
121	0101126F	B-1B Squadrons	07	4,208	2,245		2,245	5,830		5,830	U
122	0101127F	B-2 Squadrons	07	112,691	108,183		108,183	152,458		152,458	U
123	0101213F	Minuteman Squadrons	07	116,344	166,729		166,729	182,958		182,958	U

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124	0101313F	Strat War Planning System - USSTRATCOM	07	31,046	28,358		28,358	39,148		39,148	U
125	0101314F	Night Fist - USSTRATCOM	07		87		87				U
126	0101316F	Worldwide Joint Strategic Communications	07		5,315		5,315	6,042		6,042	U
128	0102110F	UH-1N Replacement Program	07					14,116		14,116	U
129	0102326F	Region/Sector Operation Control Center Modernization Program	07	1,229				10,868		10,868	U
130	0105921F	Service Support to STRATCOM - Space Activities	07	3,079	8,090		8,090	8,674		8,674	U
131	0205219F	MQ-9 UAV	07	141,528	122,731		122,731	151,373		151,373	U
132	0205671F	Joint Counter RCIED Electronic Warfare	07			300	300				U
133	0207131F	A-10 Squadrons	07		16,200		16,200	14,853		14,853	U
134	0207133F	F-16 Squadrons	07	130,376	166,297		166,297	132,795		132,795	U
135	0207134F	F-15E Squadrons	07	233,898	205,979		205,979	356,717		356,717	U
136	0207136F	Manned Destructive Suppression	07	14,413	14,860		14,860	14,773		14,773	U
137	0207138F	F-22A Squadrons	07	146,291	231,599		231,599	387,564		387,564	U
138	0207142F	F-35 Squadrons	07	39,275	53,921		53,921	153,045		153,045	U
139	0207161F	Tactical AIM Missiles	07	28,820	43,360		43,360	52,898		52,898	U
140	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	79,767	46,160		46,160	62,470		62,470	U
141	0207171F	F-15 EPAWSS	07	37,726							U
142	0207224F	Combat Rescue and Recovery	07	5,095	412		412				U

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143	0207227F	Combat Rescue - Pararescue	07	856	657		657	362		362	U
144	0207247F	AF TENCAP	07	6,974	31,428		31,428	28,413		28,413	U
145	0207249F	Precision Attack Systems Procurement	07	835	1,105		1,105	649		649	U
146	0207253F	Compass Call	07	16,480	14,187		14,187	13,723		13,723	U
147	0207268F	Aircraft Engine Component Improvement Program	07	93,160	103,942		103,942	109,859		109,859	U
148	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	12,414	9,793		9,793	30,002		30,002	U
149	0207410F	Air & Space Operations Center (AOC)	07	25,661	21,102		21,102	37,621		37,621	U
150	0207412F	Control and Reporting Center (CRC)	07		557		557	13,292		13,292	U
151	0207417F	Airborne Warning and Control System (AWACS)	07	172,785	131,812		131,812	86,644		86,644	U
152	0207418F	Tactical Airborne Control Systems	07	3,650	6,001		6,001	2,442		2,442	U
154	0207431F	Combat Air Intelligence System Activities	07	7,291	6,793		6,793	10,911		10,911	U
155	0207444F	Tactical Air Control Party-Mod	07	4,616	12,411		12,411	11,843		11,843	U
156	0207448F	C2ISR Tactical Data Link	07	1,699	1,674		1,674	1,515		1,515	U
157	0207452F	DCAPES	07	806	16,723		16,723	14,979		14,979	U
158	0207590F	Seek Eagle	07	23,472	21,564		21,564	25,308		25,308	U
159	0207601F	USAF Modeling and Simulation	07	11,687	24,945		24,945	16,666		16,666	U
160	0207605F	Wargaming and Simulation Centers	07	5,749	6,035		6,035	4,245		4,245	U
161	0207697F	Distributed Training and Exercises	07	3,251	4,358		4,358	3,886		3,886	U
162	0208006F	Mission Planning Systems	07	58,782	55,835		55,835	71,785		71,785	U

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163	0208059F	Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)	07	64,751							U
164	0208087F	AF Offensive Cyberspace Operations	07	12,928	12,874		12,874	25,025		25,025	U
165	0208088F	AF Defensive Cyberspace Operations	07	5,436	7,681		7,681	29,439		29,439	U
168	0301017F	Global Sensor Integrated on Network (GSIN)	07		5,974		5,974	3,470		3,470	U
169	0301112F	Nuclear Planning and Execution System (NPES)	07					4,060		4,060	U
175	0301400F	Space Superiority Intelligence	07	10,697	12,315		12,315	13,880		13,880	U
176	0302015F	E-4B National Airborne Operations Center (NAOC)	07	24,963	76,760		76,760	30,948		30,948	U
177	0303001F	Family of Advanced BLoS Terminals (FAB-T)	07		3,895		3,895	42,378		42,378	U
178	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	87,240	74,712		74,712	47,471		47,471	U
179	0303140F	Information Systems Security Program	07	64,972	46,303		46,303	46,388		46,388	U
180	0303141F	Global Combat Support System	07	692				52		52	U
181	0303142F	Global Force Management - Data Initiative	07		2,470		2,470	2,099		2,099	U
182	0303601F	MILSATCOM Terminals	07	57,930							U
184	0304260F	Airborne SIGINT Enterprise	07	72,910	112,775		112,775	90,762		90,762	U
187	0305099F	Global Air Traffic Management (GATM)	07	4,157	4,217		4,217	4,354		4,354	U
188	0305110F	Satellite Control Network (SPACE)	07	18,806	7,861		7,861	15,624		15,624	U
189	0305111F	Weather Service	07	19,404	29,826		29,826	19,974		19,974	U

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190	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	25,309	19,392		19,392	9,770		9,770	U
191	0305116F	Aerial Targets	07	8,537	2,515		2,515	3,051		3,051	U
194	0305128F	Security and Investigative Activities	07		472		472	405		405	U
195	0305145F	Arms Control Implementation	07	13,222	9,137		9,137	4,844		4,844	U
196	0305146F	Defense Joint Counterintelligence Activities	07	40	361		361	339		339	U
199	0305173F	Space and Missile Test and Evaluation Center	07	3,490	3,152		3,152	3,989		3,989	U
200	0305174F	Space Innovation, Integration and Rapid Technology Development	07	1,999	1,543		1,543	3,070	4,715	7,785	U
201	0305179F	Integrated Broadcast Service (IBS)	07	8,592	7,860		7,860	8,833		8,833	U
202	0305182F	Spacelift Range System (SPACE)	07	10,134	6,881		6,881	11,867		11,867	U
203	0305202F	Dragon U-2	07	5,511	34,471		34,471	37,217		37,217	U
204	0305205F	Endurance Unmanned Aerial Vehicles	07	20,000	5,000		5,000				U
205	0305206F	Airborne Reconnaissance Systems	07	37,649	60,142		60,142	3,841		3,841	U
206	0305207F	Manned Reconnaissance Systems	07	14,116	13,245		13,245	20,975		20,975	U
207	0305208F	Distributed Common Ground/Surface Systems	07	26,993	22,686		22,686	18,902		18,902	U
208	0305220F	RQ-4 UAV	07	241,828	188,053		188,053	256,307		256,307	U
209	0305221F	Network-Centric Collaborative Targeting	07	11,096	19,587		19,587	22,610		22,610	U
210	0305236F	Common Data Link Executive Agent (CDL EA)	07	32,015	43,796		43,796				U

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211	0305238F	NATO AGS	07	232,851	138,400		138,400	38,904		38,904	U
212	0305240F	Support to DCGS Enterprise	07	17,115	28,336		28,336	23,084		23,084	U
213	0305258F	Advanced Evaluation Program	07					116,143		116,143	U
214	0305265F	GPS III Space Segment	07	204,864	180,359		180,359	141,888		141,888	U
215	0305600F	International Intelligence Technology and Architectures	07	2,270	2,298		2,298	2,360		2,360	U
216	0305614F	JSPOC Mission System	07	83,277	80,669		80,669	72,889		72,889	U
217	0305881F	Rapid Cyber Acquisition	07	3,959	3,149		3,149	4,280		4,280	U
218	0305906F	NCCM - TW/AA System	07					4,951		4,951	U
219	0305913F	NUDET Detection System (SPACE)	07	20,405	14,403		14,403	21,093		21,093	U
220	0305940F	Space Situation Awareness Operations	07	11,017	20,016		20,016	35,002		35,002	U
221	0306250F	Cyber Operations Technology Development	07	7,768	11,980		11,980				U
222	0308699F	Shared Early Warning (SEW)	07	1,119	849		849	6,366		6,366	U
223	0401115F	C-130 Airlift Squadron	07		33,962		33,962	15,599		15,599	U
224	0401119F	C-5 Airlift Squadrons (IF)	07	31,772	22,864		22,864	66,146		66,146	U
225	0401130F	C-17 Aircraft (IF)	07	72,566	48,807		48,807	12,430		12,430	U
226	0401132F	C-130J Program	07	26,715	25,010		25,010	16,776		16,776	U
227	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	4,672	6,802		6,802	5,166		5,166	U
228	0401219F	KC-10s	07	2,714	1,799		1,799				U
229	0401314F	Operational Support Airlift	07	27,783	46,453		46,453	13,817		13,817	U
230	0401318F	CV-22	07	37,698	27,776		27,776	16,702		16,702	U

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231	0408011F	Special Tactics / Combat Control	07	8,081	7,929		7,929	7,164		7,164	U
232	0702207F	Depot Maintenance (Non-IF)	07	1,407	1,525		1,525	1,518		1,518	U
233	0708610F	Logistics Information Technology (LOGIT)	07	56,325	67,915		67,915	61,676		61,676	U
234	0708611F	Support Systems Development	07	15,209	12,107		12,107	9,128		9,128	U
235	0804743F	Other Flight Training	07	987	1,836		1,836	1,653		1,653	U
236	0808716F	Other Personnel Activities	07	126	121		121	57		57	U
237	0901202F	Joint Personnel Recovery Agency	07	2,523	5,911		5,911	3,663		3,663	U
238	0901218F	Civilian Compensation Program	07	2,418	3,604		3,604	3,735		3,735	U
239	0901220F	Personnel Administration	07	6,381	4,598		4,598	5,157		5,157	U
240	0901226F	Air Force Studies and Analysis Agency	07	1,346	1,103		1,103	1,523		1,523	U
241	0901279F	Facilities Operation - Administrative	07	3,666							U
242	0901538F	Financial Management Information Systems Development	07	91,766	95,130		95,130	10,581		10,581	U
9999	9999999999	Classified Programs		11,090,409	12,071,051	16,800	12,087,851	13,091,557	27,765	13,119,322	U
		Operational Systems Development		15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536	
Total Research, Development, Test & Eval, AF				23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156	

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**Fiscal Year (FY) 2017 President's Budget
RDT&E Descriptive Summaries
Budget Activities
February 2016**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL

A. 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 2017 President's Budget (PB).

- 1) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exception:
 - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
- 2) Other comments on exhibit contents in this document:
 - a) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2017 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.
 - b) The "Other Program Funding Summary portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.

2. (U) CLASSIFICATION

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

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In the Fiscal Year (FY) 2017 President's Budget

RDT&E Exhibits in Budget Activity 7

are split into two books:

Vol-III Part 1

Vol-III Part 2

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The following Program Elements are not providing RDT&E exhibits due to classification:

0101815F ADVANCED STRATEGIC PROGRAM
0207424F EVALUATION AND ANALYSIS PROGRAM
0208161F SPECIAL EVALUATION SYSTEM
0208162F ADVANCED TECHNOLOGY PROGRAM
0301310F NATIONAL AIR INTELLIGENCE CENTER
0301314F COBRA BALL
0301315F MISSILE AND SPACE TECHICAL COLLECTION
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0605798F ANALYSIS SUPPORT GROUP

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,378.898	334.631	349.181	393.268	0.000	393.268	252.530	232.783	124.860	127.073	1,387.576	5,580.800
67A021: OCX	2,276.545	278.552	288.125	331.362	0.000	331.362	189.417	168.477	74.453	75.772	1,131.744	4,814.447
67A025: <i>GPS Enterprise Integrator</i>	102.353	56.079	61.056	61.906	0.000	61.906	63.113	64.306	50.407	51.301	255.832	766.353

Program MDAP/MAIS Code: 456

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based positioning, navigation and timing distribution system which operates through all weather. GPS supports both civil and military users in air, space, sea and land operations. GPS is a satellite-based radio navigation system that serves military and civil users worldwide. GPS users process satellite signals to determine accurate position, velocity and time. GPS must comply with 10 United States Code (USC) sec 2281 which requires that the Secretary of Defense ensures the continued sustainment and operation of GPS for military and civilian purposes and 51 USC sec 50112, which requires that GPS complies with certain standards and facilitates international cooperation.

This Program Element (PE) funds the Research & Development (R&D) for the GPS next generation operational control system (OCX) and the GPS Enterprise Integrator (EI). This includes advanced concept development, systems analysis, modernized control segment development, mission planning development, training simulators, integrated logistics support products, test resources, systems engineering required to meet the government's obligations to the international, military and civil communities, and system requirements verification. OCX acquisition was established to 1) provide command and control of legacy and GPS III satellites, 2) incorporate situational awareness to support Navigation Warfare (NAVWAR) and signal monitoring, 3) enable mission capability upgrades to support a warfighter effects- based approach to operations and 4) integrate DoD information assurance and cyber security controls and capabilities. GPS Enterprise Integrator is responsible for architecture and system definition (the analysis and definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents) as well as for the planning, execution, and fielding of the GPS Enterprise.

OCX funds will support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, modernization initiatives, systems engineering, system development, test and evaluation efforts and mission operations. These activities support upgrades and product improvements for military and civil applications necessary to enable efforts to protect U.S. military and Allies' use of GPS. Additionally, funds will ensure OCX efforts meet current and future Joint Requirements Oversight Council-approved required capabilities.

The GPS Enterprise consists of Space, Ground Control, Nuclear Detonation (NUDET) Detection System (NDS) and User Equipment Segments. The government is responsible for the integration of the GPS Segments such that they provide worldwide GPS capability to support the warfighter and over a billion national security, civil, Allied, and commercial GPS users.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>
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The GPS Enterprise Integrator project includes the efforts associated with the Government's prime contract tasks necessary to accomplish this critical integrating function with the entire GPS user community. The Enterprise Integrator maintains the GPS current architecture and system definition, controls and validates interfaces, ensures compatibility of Generation II and III systems, and develops/manages plans for execution and fielding of the GPS Enterprise. Further, the Enterprise Integrator provides modeling, simulation and technical analyses of impacts for Government-directed enterprise-level trades among the GPS segments leading to definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents to build and ensure the integrity of the enterprise technical baseline, and perform system requirements verification.

In addition, the GPS Enterprise Integrator project funds the technical evolution, risk reduction, enterprise-level testing and delivery of all GPS Enterprise capabilities. Examples for Generation II include electronic protection and additional civil signals; for Generation III, additional anti-jamming protection. To accomplish this, the GPS Enterprise Integrator delivers Test and Verification capabilities, Requirements and Interface Management, and Systems Integration support across the Space, Control, and User Segments. In this capacity, the Enterprise Integrator is responsible for managing this cross-program work to provide these and other capabilities.

GPS Enterprise Integrator's analyses guide government decisions to ensure efficient and effective synchronization and execution across all Generation II and III GPS programs. For Enterprise-wide integration to be successful, the Integrator: works with the GPS and NDS prime contractor teams to develop plans for early risk reduction System Integration Demonstrations to ensure system interfaces and functionality meet user and system requirements; ensures all equipment and documentation is ready when needed; integrates and analyzes enterprise schedules; and conducts formal test and verification, including Requirement Verification Plans and System Test Plans and Procedures. GPS Enterprise Integrator performs all these efforts across all GPS programs in all acquisition phases. The government owns the Enterprise system requirements and integration, and highly leverages the Enterprise Integrator team to eliminate the need to fund a development prime contractor to perform these functions. This enhances government control, oversight and program accountability.

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

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	299.060	350.232	222.288	0.000	222.288
Current President's Budget	334.631	349.181	393.268	0.000	393.268
Total Adjustments	35.571	-1.051	170.980	0.000	170.980
• Congressional General Reductions	0.000	-1.051			
• 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	35.571	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	170.980	0.000	170.980

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	
Change Summary Explanation FY15: +\$35.571 Above Threshold Reprogramming (ATR) for OCX overrun FY17: +\$170.980M to fund OCX to the Service Cost Position (SCP)		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A021: OCX	2,276.545	278.552	288.125	331.362	0.000	331.362	189.417	168.477	74.453	75.772	1,131.744	4,814.447
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based positioning, navigation and timing distribution system which operates through all weather. This project funds the research and development for the GPS next generation operational control system (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment and mission planning, development, training simulators, integrated logistics support products, and test resources.

OCX acquisition was established to 1) provide command and control of legacy and GPS III satellites, 2) incorporate situational awareness to support Navigation Warfare (NAVWAR) and signal monitoring, 3) enable mission capability upgrades to support a warfighter effects-based approach to operations, and 4) integrate DoD information assurance and cyber security controls and capabilities. OCX funds will support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, technology development, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and Allies' use of GPS. Additionally, funds will ensure efforts to meet current and future Joint Requirements Oversight Council (JROC) approved required capabilities.

OCX Block 0 (through Iteration 1.5) is the Launch and Control System (LCS) intended to conduct Launch and Early Orbit (LEO) operations and the on-orbit checkout of all GPS III satellites. OCX Block 0 is a subset of OCX Block 1.

OCX Block 1 (adds Iterations 1.6, 1.7 and 2.1 to Block 0) fields the operational capability to control all legacy satellites and civil signals (L1C/A), military signals (L1P(Y), L2P(Y)) as well as the GPS III satellites and the modernized civil signal (L2C) and the aviation safety-of-flight signal (L5). In addition, Block 1 will field the basic operational capability to control the modernized military signals (L1M and L2M (M-Code)), and the globally compatible signal (L1C). It also fully meets information assurance/cyber defense requirements.

OCX Block 2 (adds Iteration 2.2 to Block 1) fields the advanced operational capability to control the advanced features of the modernized military signals (L1M and L2M (M-Code)).

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

	FY 2015	FY 2016	FY 2017
Title: OCX Development	262.298	250.991	287.962
Description: Development of the GPS next generation operational control system to launch GPS III and operate a mixed GPS II and GPS III constellation and provide for a robust Information Assurance system.			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Continued preparation and dry runs for qualification testing on OCX Block 0. Completed Iteration 1.6 Block 1 segment-level systems engineering for the command and control of GPS II satellites, legacy signals, and modernized signals. Conducted Iteration 1.6 Critical Design Review (CDR). Continued systems engineering for Iterations 1.7, 2.1 (Block 1), and 2.2 (Block 2).</p> <p>FY 2016 Plans: Conduct factory and site acceptance testing, receive approval to operate and connect, and certify & accept OCX Block 0 for launch and checkout operations of GPS III satellites. Continue Iteration 1.5 (Block 1) risk reduction testing, Iteration 1.6 (Block 1) software development and integration activities. Conduct Iteration 1.6 Delta CDRs, and conduct qualification testing and production for OCX Monitor Station Receiver Element (OMSRE). Continue development of the remaining modernized civil and military signals.</p> <p>FY 2017 Plans: FY17 Funding to the Service Cost Position (SCP) will allow the program to complete Iteration 1.6 software development, integration and testing, and begin Iteration 1.7 and 2.1 software development and integration activities. Complete qualification testing for system simulator and begin accreditation process. Ship, install, receive interim authority to test, and integrate the monitoring stations equipment and OMSRE. Begin final testing and integration activities for all of Block 1. Begin Iteration 2.2 (Block 2) systems engineering. Continue security certification activities leading to Authority to Operate (ATO).</p>				
<p>Title: Technical Support</p> <p>Description: Development of the Standardized Space Trainer (SST) to provide GPS III operator training. Development of Enterprise Mission Planning Systems. Facilities upgrades for Control Stations and associated equipment and servers.</p> <p>FY 2015 Accomplishments: Continued work on the SST and developed demonstration capabilities; continued development of Enterprise Mission Planning Systems. Continued work on the facility upgrades to include the Master Control Station (MCS), Alternate Master Control Station (AMCS), and remote monitor station sites.</p> <p>FY 2016 Plans: Continue work on the SST and develop demonstration capabilities; continue development of Enterprise Mission Planning Systems. Continue work and begin fielding to facilities to include the MCS, AMCS, sustainment assets and remote monitor station sites.</p> <p>FY 2017 Plans: Continue work on the SST and develop demonstration capabilities; continue development of Enterprise Mission Planning Systems. Continue work on the facility upgrades to include the MCS, AMCS, and remote monitor station sites.</p>		16.254	37.134	43.400
Accomplishments/Planned Programs Subtotals		278.552	288.125	331.362

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>			<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RDTE: BA07: PE 0305265F: <i>GPS III Space Segment</i>	204.864	180.359	141.888	0.000	141.888	110.860	43.561	78.866	80.265	464.191	1,304.854
• MPAF: BA05: Line Item # GPS <i>III: GPS III Space Segment</i>	312.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	312.326
• SPAF: BA01: Line Item # <i>GPSIII: GPS III Space Segment</i>	0.000	199.218	34.059	0.000	34.059	761.515	899.241	761.565	554.763	3,737.790	6,948.151
• DOT: <i>DOT (FAA) Civil Funding</i>	8.000	8.000	17.100	0.000	17.100	0.000	0.000	0.000	0.000	0.000	33.100

Remarks

DOT (FAA) funding in FY 2016 - 2018 is TBD. \$25.1M is required.

D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to the next generation GPS control segment (OCX) to respond to warfighter capability requirements. The strategy calls for capability (e.g., better signal maintainability, Unified S-Band (USB), Search and Rescue (SAR) GPS, and near-real time C2) on-ramps for the follow-on contract for GPS III SVs (starting no earlier than SV11) which will require updates to the OCX ground segment. Enterprise studies will ensure GPS Enterprise synchronization across space and ground segments.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX
--------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS OCX Phase B OCX Block 1 & 2 Development	C/CPAF	Raytheon : Aurora, CO	1,672.117	236.428	Dec 2014	226.834	Dec 2015	259.830	Dec 2016	0.000		259.830	1,267.897	3,663.106	2,911.600
GPS OCX Technical Mission Analysis	MIPR	Various : Various	0.000	3.063	Oct 2014	13.734	Oct 2015	14.100	Dec 2016	0.000		14.100	73.320	104.217	-
GPS OCX Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	39.349	5.700	Dec 2014	4.391	Dec 2015	3.000	Dec 2016	0.000		3.000	15.600	68.040	-
GPS OCX Modernization/ SE & Technical Support	Various	Various : Various	53.028	5.119	Jan 2015	17.550	Jan 2016	17.200	Dec 2016	0.000		17.200	89.440	182.337	-
GPS OCX AMCS Facility Dev	Various	Various : Various	0.300	0.072	Mar 2015	0.850	Mar 2016	0.600	Mar 2017	0.000		0.600	3.120	4.942	-
GPS OCX Standard Space Trainer (SST)	C/CPAF	Sonalyt, Inc : Waterford, CT	6.500	5.000	Jan 2015	5.000	Jan 2016	5.000	Dec 2016	0.000		5.000	26.000	47.500	-
GPS OCX Enterprise Mission Planning	C/CPAF	Booz Allen Hamilton Eng Services : El Segundo, CA	7.000	3.000	Jan 2015	0.000	Jan 2016	6.500	Jan 2017	0.000		6.500	33.800	50.300	-
GPS OCX Phase A Development	Various	Various : Various	289.000	0.000		0.000		0.000		0.000		0.000	0.000	289.000	-
Subtotal			2,067.294	258.382		268.359		306.230		0.000		306.230	1,509.177	4,409.442	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS OCX T&E	C/CPAF	Various : Various	1.600	0.000	Mar 2015	1.103	Mar 2016	0.730	Mar 2016	0.000		0.730	3.796	7.229	-
Subtotal			1.600	0.000		1.103		0.730		0.000		0.730	3.796	7.229	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Replan: Schedule to change					■																							
SV01 Launch (LCS support)									■																			
Monitor Station /Legacy Ground Antenna Installs									■	■	■	■																
GPS System Simulator (GSYS) CIQT													■															
Software Iteration 1.7 Incremental CDR (Include Iteration 1.6 CDR and update dates)															■													
Software Iteration 2.1 Incremental CDR															■													
GSYS Factory Qualification Test (FQT)													■															
GSYS Accreditation																	■											
Iteration 1.7/2.1 FQT TRR																					■							
OCX Blocks 1 & 2 MS C																											■	
OCX Block 1 RTO																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A021 / OCX

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Program Replan: Schedule to change	2	2016	2	2016
SV01 Launch (LCS support)	2	2017	2	2017
Monitor Station /Legacy Ground Antenna Installs	2	2017	4	2017
GPS System Simulator (GSYS) CIQT	2	2018	2	2018
Software Iteration 1.7 Incremental CDR (Include Iteration 1.6 CDR and update dates)	4	2018	4	2018
Software Iteration 2.1 Incremental CDR	4	2018	4	2018
GSYS Factory Qualification Test (FQT)	2	2018	2	2018
GSYS Accreditation	2	2019	2	2019
Iteration 1.7/2.1 FQT TRR	1	2020	1	2020
OCX Blocks 1 & 2 MS C	4	2020	4	2020
OCX Block 1 RTO	4	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>				Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A025: <i>GPS Enterprise Integrator</i>	102.353	56.079	61.056	61.906	0.000	61.906	63.113	64.306	50.407	51.301	255.832	766.353
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) Enterprise Integrator (EI) integrates, synchronizes, tests and verifies the four ACAT I Defense Acquisition Programs that constitute the GPS Enterprise to deliver reliable Positioning, Navigation, and Timing signal capability to military operators, the civil user community, and international partners. The Government Program Office owns and approves the technical baseline and is responsible for the successful fielding of all the GPS Segments. To successfully execute its responsibilities, the Government relies upon the specific expertise of the GPS Enterprise Integrator to integrate segment products and verify that system requirements are met.

The GPS Enterprise Integrator project is responsible for the development and management of the Enterprise technical baseline. The technical baseline consists of more than 6400 specifications and 330 interface documents. The technical baseline reflects the requirements of multiple stakeholder groups such as the Department of Defense (DoD), foreign governments and allies, industry, the general public (through four Interface specifications), and ensures GPS capabilities meet the needs of warfighters, civil agencies, commercial entities, international treaties, and over four billion global GPS users. The Enterprise Integrator manages the process through which the JROC requirements are matured and flowed down to the segments of the system and that interfaces are clearly defined. This enables the GPS system to meet Title 10 of the U.S. Code, Section 2281, mandated GPS capabilities as well as obligations to the international community and allied nations to provide interoperable PNT signals. The Enterprise Integrator is also responsible for all aspects of schedule and technical alignment across the segments. The Enterprise Integrator creates and manages plans that provide for early exercise of the products under development, compatibility analysis, and intersegment testing thereby reducing risk. The intersegment tests are required to prove the interoperability of OCX, GPS III, and modernized user equipment. The Enterprise Integrator's test efforts also extend to validating that GPS can be used for civil aircraft navigation.

The Enterprise Integrator activity supports the Government Program Office's GPS spectrum protection at international forums such as the International Telecommunications Union, assisting the United States when negotiating with foreign partners. In addition, the Enterprise Integrator provides technical expertise and continuity for maintaining relationships with other U.S. government agencies to include the FAA, NGA, NASA, as well as the Departments of State, Transportation, Homeland Security, and Commerce. Spectrum expertise from the Enterprise Integrator ensures GPS priority over eight essential spectrum signals such as the safety of life signal, L5, which is required for civil air navigation. Spectrum Protection prevents encroachment from commercial or foreign entities, which preserves reliable signals to warfighters and civil users, ensuring military operations and the integrity of the global economic infrastructure. The Enterprise Integrator is the GPS enterprise expert for Information Assurance (IA), Cyber Security, System Safety, and System Security, ultimately ensuring a protected GPS Signal for both the military and civil users from emerging cyber threats. The Enterprise Integrator is accountable for the development, execution, and analysis of OCX cyber security and IA test cases, which are necessary to deliver a secure, operational system, protected against adversarial cyber-attacks intended to deny, disrupt, or degrade GPS operations.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>
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The Enterprise Integrator supports the Government development and implementation of various Systems engineering documents, defines the methods of verification, conducts the analyses or tests, and assists the government in leading Integrated System Tests. The Enterprise Integrator validates the system performance in various mission threat scenarios during its development. The Enterprise Integrator provides deep, technical, highly specific expertise. The GPS EI functions enhance government control, oversight and program accountability.

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

	FY 2015	FY 2016	FY 2017
<p>Title: GPS Enterprise Integrator</p> <p>Description: The integration and technical baseline control of all elements of the GPS system (space/ground/user equipment) with one another in support of both military and civil users. Execute four major integration exercises, multiple mini-exercises, and five rehearsals between space and ground leading up to the launch of GPS III SV-01.</p> <p>FY 2015 Accomplishments: Conducted a series of mini integration exercise events, which concluded the 'exercise' portion of readiness for launch. Performed SV01 verification tests and began Launch and Checkout Capability/System (LCC/LCS) Enterprise Assessments. Conducted multiple systems integration risk reduction demos. Initiated Integrated System Test (IST) 3-3 testing (Phases 0-2) for MGUE verification. Completed GPS Enterprise End-to-End Validation (GENEVA) model. Started developing Selective Availability Anti-Spoofing Module (SAASM) Mission Planning System (SMPS) V5 and Architecture Evolution Plan (AEP)/Modernized Navigation(MODNAV) in support of M-Code Available for Use milestone.</p> <p>FY 2016 Plans: Continue IST 3-3 Phase 1 MGUE verification tests. Initiate IST 3-3 Phase 2 MGUE Field Test and IST 3-3 Phase 3. Conduct launch and early orbit operation rehearsals on the delivered system between ground and space segment in support of SV01 launch. Continue LCC/LCS Enterprise Assessments. Conduct multiple system integration demos. Support SV01 FCA/PCA. Continue developing Selective Availability Anti-Spoofing Module (SAASM) Mission Planning System (SMPS) V5 and AEP/ MODNAV in support of M-Code Available for Use milestone.</p> <p>FY 2017 Plans: Complete IST 3-3 Phase 3 MGUE verification tests. Initiate GPS III end to end testing with GPS III, LCS, and MGUE lead platform. Conduct launch and early orbit operation rehearsals on the delivered system between ground and space segment in support of SV01 launch. Initiate M-Code Available Operational Test through AEP MODNAV. Complete SMPS V5c PDR and SMPS V5b install.</p>	56.079	61.056	61.906
Accomplishments/Planned Programs Subtotals	56.079	61.056	61.906

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE: BA04: PE 0305164F: <i>NAVSTAR Global Positioning System (User Equipment) (Space)</i>	152.144	141.861	278.147	0.000	278.147	235.790	188.750	170.937	173.989	247.888	1,589.506
• RDTE: BA07: PE 0305265F: <i>GPS III Space Segment</i>	204.864	180.359	141.888	0.000	141.888	110.860	43.561	78.866	80.265	464.191	1,304.854
• RDTE: BA07: PE 0305913F: <i>NUDET Detection System</i>	20.405	14.403	21.093	0.000	21.093	31.418	19.919	17.093	14.268	Continuing	Continuing
• MPAF: BA05: Line Item # MGPS00: <i>Global Positioning System (Space)</i>	52.959	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	52.959
• SPAF: BA01: Line Item # MGPS00: <i>Global Positioning System (Space)</i>	0.000	64.135	13.171	0.000	13.171	0.000	0.000	0.000	0.000	0.000	77.306
• MPAF: BA05: Line Item # GPS III: <i>GPS III Space Segment</i>	312.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	312.326
• SPAF: BA01: Line Item # GPSIII: <i>GPS III Space Segment</i>	0.000	199.118	34.059	0.000	34.059	761.515	899.241	761.565	554.763	3,738.790	6,949.051

Remarks

D. Acquisition Strategy

In accordance with a "back to basics" acquisition approach and exercise of strong oversight of development contractors, the Air Force is required to exercise complete ownership of the architecture, system definition, and integration of the GPS space, ground, and user segments. This complex inter-segment integration is traditionally performed by a prime contractor under a systems development contract. To eliminate the need to fund a development prime contractor to perform these functions, the government leverages systems engineering and integration expertise from both Federally Funded Research and Development Center (FFRDC) contractors and a Systems Engineering & Integration (SE&I) contractor. GPS Enterprise Integrator function of the SE&I contractor is currently funded within this Program Element (PE). The SE&I effort was originally procured in 2007 through a full and open competition, as was the new follow-on SE&I contract awarded in 2015. The SE&I follow-on strategy builds in year over year cost reductions as requirements stabilize.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS EI Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	65.375	31.772	Jan 2015	19.450	Oct 2015	17.838	Jan 2017	0.000		17.838	152.132	286.567	-
GPS EI Technical Mission Analysis 1	MIPR	Aerospace : El Segundo, CA	16.135	10.020	Oct 2014	11.200	Oct 2015	11.536	Oct 2016	0.000		11.536	94.595	143.486	-
GPS EI Technical Mission Analysis 2	WR	MITRE : Bedford, MA	17.341	8.968	Oct 2014	8.975	Jan 2016	9.412	Oct 2016	0.000		9.412	77.178	121.874	-
GPS EI MRTA/MSTA	C/CPIF	Draper Labs : Cambridge, MA	0.000	0.000		4.025	Dec 2015	5.345	Dec 2016	0.000		5.345	14.214	23.584	-
GPS EI Enterprise Mission Planning	C/CPIF	TBD : El Segundo, CA	0.000	0.000		1.320	Oct 2015	1.320	Oct 2016	0.000		1.320	10.824	13.464	-
GPS EI Cybersecurity	TBD	TBD : El Segundo, CA	0.000	0.000		9.150	Oct 2015	9.550	Oct 2016	0.000		9.550	78.310	97.010	-
GPS EI Additional Product Development	Various	Various : Various, CA	0.000	1.556	Nov 2014	2.857	Oct 2015	2.570	Oct 2016	0.000		2.570	21.074	28.057	-
Subtotal			98.851	52.316		56.977		57.571		0.000		57.571	448.327	714.042	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Specifications and ICDs for GPS III Space Modernization Initiative Technical Baseline	■																											
IST 3-3/MGUE Verification Testing (Phase I)		■	■	■																								
IST 3-3/MGUE Verification Testing (Phase II)						■	■	■																				
IST 3-3/MGUE Verification Testing (Phase III)							■	■																				
IST 3-3/MGUE Verification Testing (Phase IV)										■	■	■	■	■	■	■												
GPS III SV01 Available for Launch								■																				
GPS III SV02 Available for Launch											■	■																
Support OCX Block 1 Ready to Transition to Operations (RTO)																			■	■								
Support OCX Blocks 1 & 2 Milestone C																											■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / <i>Global Positioning System III - Operational Control Segment</i>	Project (Number/Name) 67A025 / <i>GPS Enterprise Integrator</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Specifications and ICDs for GPS III Space Modernization Initiative Technical Baseline	1	2015	1	2015
IST 3-3/MGUE Verification Testing (Phase I)	2	2015	2	2016
IST 3-3/MGUE Verification Testing (Phase II)	2	2016	2	2017
IST 3-3/MGUE Verification Testing (Phase III)	3	2016	1	2017
IST 3-3/MGUE Verification Testing (Phase IV)	4	2016	1	2019
GPS III SV01 Available for Launch	4	2016	4	2016
GPS III SV02 Available for Launch	4	2017	4	2017
Support OCX Block 1 Ready to Transition to Operations (RTO)	4	2019	4	2019
Support OCX Blocks 1 & 2 Milestone C	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	8.565	15.427	0.000	15.427	11.130	4.386	4.479	4.557	Continuing	Continuing
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	0.000	0.720	0.734	0.000	0.734	0.756	0.777	0.802	0.816	Continuing	Continuing
676034: <i>Joint Primary Aircraft Training System (JPATS)</i>	-	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.683
676035: <i>T-6 Operational System Development</i>	-	0.000	4.904	1.811	0.000	1.811	3.296	2.455	2.501	2.544	Continuing	Continuing
676037: <i>T-38 Operational System Development</i>	-	0.000	2.258	12.882	0.000	12.882	7.078	1.154	1.176	1.197	0.000	25.745

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): N42

Note

This program, BA 07 PE 0604233F, project 676037, Studies and Development Efforts, is a new start.

A. Mission Description and Budget Item Justification

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

Undergraduate Remotely Piloted Aircraft Training supports Air Education and Training Command's (AETC) implementation of Undergraduate Remotely Piloted Aircraft (RPA) Training (URT). This program provides and maintains the currency of Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS).

The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and their associated Ground Based Training Systems (GBTS) with the T-6 and its GBTS. The Air Force is the Executive Service.

T-6 Operational System Development continues follow on development activities to JPATS including studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to the T-6 Aircraft, instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS. Included is development for the FAA mandated ACAT III program for ADS-B Out and associated upgrades.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>
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T-38 program will continue development in FY2017 of a replacement Mission Display Processor (MDP), refurbishment of the existing Heads-Up Display (HUD), development and integration of an Automatic Dependent Surveillance - Broadcast (ADS-B) solution as well as replacement of the Very High Frequency (VHF) Communication radio system and the VHF Navigation system. System testing is projected to begin in FY2017 and production and deployment of the replacement the systems will begin in late FY2017 and continue through FY2021.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	10.465	4.972	0.000	4.972
Current President's Budget	0.000	8.565	15.427	0.000	15.427
Total Adjustments	0.000	-1.900	10.455	0.000	10.455
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.900			
• 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	10.455	0.000	10.455

Change Summary Explanation

FY16 Congressional Directed Reduction -1.9M - Forward Financing, JPATS

FY17 Increase to support T-38 Avionics Upgrade Program for obsolescence issues and FAA mandates

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	0.000	0.720	0.734	0.000	0.734	0.756	0.777	0.802	0.816	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 Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS) to prepare undergraduate students for entry in RPA Formal Training Units (FTU). PRIME has completed 6 Phases of development and is now at baseline functionality. PRIME evolved from a Defense Advanced Research Projects Agency (DARPA) A-10 Warthog desktop trainer into a desktop similar to the Reaper training system now in use to train undergraduate RPA pilots and sensor operators. PRIME currently emulates the MQ-9 Reaper and needs to keep pace with that baseline system and expand to other RPAs in order to maintain concurrency and relevancy.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Predator Reaper Integrated Mission Environment (PRIME) support	0.000	0.720	0.734	-	0.734
Description: Add Phase 7 operational capabilities.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Extend and enhanced interoperability between PRIME and Modern Air Combat Environment (MACE) software incorporated in Phase 6 for instructor operations and entity generation. Add additional instrumentation functionality. Add record and playback functionality. Add multiple emergency missions. Add additional entity functionality.					
FY 2017 Base Plans: Continue to extend and enhanced interoperability between PRIME and Modern Air Combat Environment (MACE) software incorporated in Phase 7 for instructor operations and entity generation. Add additional instrumentation functionality. Add record and playback functionality. Add multiple emergency missions. Add additional entity functionality. Begin Planning for Phase 8.					
Accomplishments/Planned Programs Subtotals	0.000	0.720	0.734	-	0.734

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

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

N/A

Remarks

D. Acquisition Strategy

Contract via Training Systems Acquisition III (TSA III) to Cubic Corporation, parent company of PRIME software data rights owner (Intific).

E. Performance Metrics

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 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training					674101 / Undergraduate Remotely Piloted Aircraft Training						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Undergraduate Remotely Piloted Aircraft Training Phased planning, design, and development of software updates	SS/FFP	Not specified. : TBD	-	0.000		0.720	Mar 2016	0.664	Mar 2017	0.000		0.664	Continuing	Continuing	-
Subtotal			-	0.000		0.720		0.664		0.000		0.664	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Undergraduate Remotely Piloted Aircraft Training PMA	TBD	Program Office : WPAFB, OH	-	0.000		0.000		0.070	Oct 2016	0.000		0.070	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.070		0.000		0.070	-	-	-
Project Cost Totals			-	0.000		0.720		0.734		0.000		0.734	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>			Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Predator Reaper Integrated Mission Environment (PRIME) Contract Award																												
Phase 7 Design/Development																												
Phase 8 Planning																												
Phase 8 Design/Development																												
Phase 9 Planning																												
Phase 9 Design/Development																												
Phase 10 Planning																												
Phase 10 Design/Development																												
Phase 11 Planning																												
Phase 11 Design/Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Predator Reaper Integrated Mission Environment (PRIME) Contract Award	2	2016	2	2017
Phase 7 Design/Development	3	2016	3	2017
Phase 8 Planning	1	2017	1	2018
Phase 8 Design/Development	3	2018	2	2019
Phase 9 Planning	4	2018	4	2018
Phase 9 Design/Development	1	2019	1	2020
Phase 10 Planning	1	2020	1	2020
Phase 10 Design/Development	2	2020	1	2021
Phase 11 Planning	1	2021	1	2021
Phase 11 Design/Development	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training	Project (Number/Name) 676034 / Joint Primary Aircraft Training System (JPATS)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676034: Joint Primary Aircraft Training System (JPATS)	-	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.683
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: N42

A. Mission Description and Budget Item Justification

The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). Additionally the US Army purchased four T-6 Army Variant aircraft to replace the T-34 aircraft for the Army Test and Evaluation Command. The USAF/USN T-6 aircraft and GBTS are used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, combat systems officers, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Joint Primary Aircraft Training System (JPATS) Studies</p> <p>Description: JPATS studies and development activities including but not limited to: T-6 Power Management Unit (PMU) software upgrade, parachute surveillance study, ejection seat, and safe/arm handle development.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Continue JPATS studies and development activities including but not limited to additional phases of the 6 Engine Upgrade Studies, Phase 2 of the Parachute Surveillance study, ejection seat alternative to existing T-6A/B/D, and safe/arm handle development</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.176	0.000	0.000	0.000
<p>Title: Engine Upgrade Studies</p>	0.000	0.278	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Studies to investigate potential upgrade options to increase service life and decrease life cycle costs of the T106-PW-100 engine.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Continue engine studies to investigate life limiting issues and to evaluate and recommend potential upgrade options to increase service life and decrease life cycle costs for the T106-PW-100 engine.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: High Cycle Engine Fatigue Research</p> <p>Description: Analysis of Hight Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Continue research and analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.229	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	0.683	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	4.248	0.875	0.000	0.000	0.000	4.449	2.631	2.679	2.728	-	-
• APAF: BA05: Line Item # JPAT00: <i>T-6</i>	14.484	14.968	12.765	0.000	12.765	51.127	26.035	26.486	26.975	Continuing	Continuing
• APN: BA03: Line Item # 033900: <i>JPATS</i>	0.000	8.914	5.849	0.000	5.849	0.000	0.000	0.000	0.000	-	-
• APN: BA05: Line Item # 057100: <i>JPATS Series</i>	1.085	12.537	17.401	0.000	17.401	38.354	52.303	38.872	39.655	Continuing	Continuing
• APN: BA06: Line Item # 060500: <i>Spares & Repair Parts</i>	0.127	0.264	0.264	0.000	0.264	0.140	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

JPATS was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. Initially, the JPATS Program competitively awarded two contracts: a Firm Fixed Price (FFP) Contractor Logistics Support (CLS) Operations and Maintenance funded contract and a Fixed Price Incentive Firm Target (FPIF) manufacturing development (MD)/production contract with seven options. The follow-on contract production for both the air vehicle and GBTS was awarded as a FAR Part 15 action. The FFP CLS Operations and Maintenance funded contract is a FAR Part 15 action.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JPATS Studies	Various	Various : Various	-	0.000		0.176	Feb 2016	0.000		0.000		0.000	0.000	0.176	TBD
JPATS Engine Upgrade Study	C/CPFF	BDC : Various	-	0.000		0.278	Feb 2016	0.000		0.000		0.000	0.000	0.278	TBD
JPATS High Cycle Fatigue Research	C/FFP	Universal Technology Corp : Dayton, OH	-	0.000		0.229	Feb 2016	0.000		0.000		0.000	0.000	0.229	TBD
Subtotal			-	0.000		0.683		0.000		0.000		0.000	0.000	0.683	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.683	0.000	0.000	0.000	0.000	0.683	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Joint Primary Aircraft Training System (JPATS) Studies	2	2016	4	2017
JPATS Engine Upgrade Studies	2	2016	2	2017
JPATS High Cycle Fatigue Research	2	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676035: <i>T-6 Operational System Development</i>	-	0.000	4.904	1.811	0.000	1.811	3.296	2.455	2.501	2.544	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: N42												

A. Mission Description and Budget Item Justification

T-6 Operational System Development continues follow on development activities to JPATS including studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to the T-6 Aircraft, instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS. Included is development for the FAA mandated ACAT III program for Automatic Dependent Surveillance - Broadcast (ADS-B) Out and associated upgrades.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: T-6 (JPATS) Studies	0.000	4.301	1.573	0.000	1.573
Description: T-6 studies and development activities to support engine upgrades and future ACAT III Engineering Change Proposals (ECPs) to the T-6 (JPATS) aircraft and engine.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Continue JPATS studies and development activities including but not limited to additional phases of the 6 Engine Upgrade Studies, Phase 2 of the Parachute Surveillance study, Safe/Arm Handle development, Crash Survivable Cockpit Voice Recorder (CSCVR), and ejection seat alternative to existing T-6A/B/D.					
FY 2017 Base Plans: Continue T-6 Aircraft studies and development activities including but not limited to: the T-6 Power Management Unit (PMU) Software Upgrade study, parachute surveillance study, safe/arm handle development, Crash Survivable Cockpit Voice Recorder (CSCVR), ejection seat alternatives, and engine upgrade studies.					
FY 2017 OCO Plans: N/A					
Title: Avionics Upgrades for FAA (Federal Aviation Administration) Compliance	0.000	0.367	0.238	0.000	0.238

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: The T-6 Automatic Dependent Surveillance Broadcast (ADS-B) Out program includes the component selection, integration, test and certification of ADS-B Out capability for the T-6A aircraft and Ground Based Training System (GBTS) to meet FAA compliance.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Begin the development, integration, test, and certification of the Automatic Dependent Surveillance Broadcast (ADS-B) Out capability in the T-6 Training System to comply with the January 1, 2020 Federal Aviation Administration (FAA) ADS-B Out mandate.</p> <p>FY 2017 Base Plans: Continue the development, integration, test, and certification of the Automatic Dependent Surveillance Broadcast (ADS-B Out) capability in the T-6 Training System to comply with the January 1, 2020 Federal Aviation Administration (FAA) ADS-B Out mandate.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: High Cycle Engine Fatigue Research</p> <p>Description: Analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine.</p> <p>FY 2016 Plans: Continue research and analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM)of the T106-PW-100 engine.</p>	-	0.236	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	4.904	1.811	0.000	1.811

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN: BA05: Line Item # 057100: JPATS Series	1.085	12.537	17.401	0.000	17.401	38.354	52.303	38.872	39.655	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>			<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• APN: BA06: Line Item # 060500: <i>Spares & Repair Parts</i>	0.127	0.264	0.264	0.000	0.264	0.140	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	4.248	0.875	0.000	0.000	0.000	4.449	2.631	2.679	2.728	Continuing	Continuing
• APAF: BA05: Line Item # JPAT00: <i>T-6</i>	14.484	14.968	12.765	0.000	12.765	51.127	26.035	26.486	26.975	Continuing	Continuing
• APN: BA03: Line Item # 033900: <i>JPATS</i>	0.000	8.914	5.849	0.000	5.849	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T-6 Operational System Development T-6 (JPATS) Studies	Various	Various : Various	-	0.000		4.301	Mar 2016	1.573	Mar 2017	0.000		1.573	Continuing	Continuing	TBD
T-6 Operational System Development Avionics Upgrades for FAA Compliance	C/FFP	TBD : TBD	-	0.000		0.367	Feb 2017	0.238	Feb 2017	0.000		0.238	Continuing	Continuing	3.536
T-6 Operational System Development High Cycle Fatigue Research	C/FFP	Universal Technology Corp : Dayton, OH	-	0.000		0.236	Feb 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		4.904		1.811		0.000		1.811	-	-	-

Remarks
 Plan to fund ADS-B Out FY17 requirements with FY16 and FY17 budget.
 Plan to fund both FY16 and FY17 High Cycle Fatigue Research requirements with FY16 budget.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
T-6 (JPATS) Studies	[REDACTED]																											
T-6 Avionics Upgrades for FAA Compliance	[REDACTED]																											
High Cycle Fatigue Research	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
T-6 (JPATS) Studies	2	2016	4	2021
T-6 Avionics Upgrades for FAA Compliance	3	2017	4	2018
High Cycle Fatigue Research	2	2017	1	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676037: <i>T-38 Operational System Development</i>	-	0.000	2.258	12.882	0.000	12.882	7.078	1.154	1.176	1.197	0.000	25.745
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: N42

Note
This program, BA 07 PE 0604233F, project 676037, Studies and Development Efforts, is a new start.

A. Mission Description and Budget Item Justification

The T-38 is a twin engine, two seat (tandem), supersonic jet trainer used by Air Education and Training Command as an advanced trainer in Specialized Undergraduate Pilot Training. Modifications are budgeted to enhance operational capability while improving flight safety, reliability and maintainability. There are currently 505 T-38s in the Air Force inventory (53 T-38A, 6 AT-38B and 446 T-38C) with 4 T-38Cs pending removal. T-38s first entered service in 1962 and average over 48 years old.

T-38C avionics system obsolescence remediation efforts to qualify updated systems the T-38C will continue from FY2016 through 2018 with development of a replacement Mission Display Processor (MDP), refurbishment of the existing Heads-Up Display, development and integration of an Automatic Dependent Surveillance - Broadcast (ADS-B) solution as well as replacement of the VHF Communication radio system and the VHF Navigation radio system. The development and integration of an ADS-B solution will also include A/B aircraft.

Additionally, studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to address obsolescence issues and the regular block upgrades are required to keep the system current these will be accomplished with O&M unless block upgrade provides additional capabilities. Block upgrades incorporate software and/or hardware improvements to comply with new capabilities mandated by Department of Defense, Federal Aviation Administration or National Airspace System (DoD/FAA/NAS) and to address flight safety issues. The block upgrades support the T-38C aircraft and Aircrew Training Devices (ATD).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Avionics Post Production Support (APPS)	0.000	2.258	12.782	-	12.782
Description: T-38C Avionics System obsolescence remediation effort is intended to develop and qualify replacement components/LRUs that are becoming non-supportable. Systems include the MDP, HUD, VHF Communication and Navigation radios. Additionally the T-38C program will begin development of a solution for the FAA ADS-B (Out) mandate.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2016 Plans: Continue (from BA5) T-38C Avionics System obsolescence remediation efforts. Development and system integration efforts will continue for the MDP, HUD, VHF Communication and Navigation radios. Additionally, the T-38C program will continue development and integration of a solution for the FAA ADS-B (Out) mandate.					
FY 2017 Base Plans: T-38C Avionics System development and system integration efforts will be completed. Begin flight test planning and preliminary test for the MDP, HUD, VHF Communication and Navigation radios and ADS-B (Out) solution.					
Title: Studies and Development Efforts	0.000	0.000	0.100	-	0.100
Description: Studies and efforts to support future ACAT III Engineering Change Proposals (ECPs) to address obsolescence issues and the regular block upgrades are required to keep the system current.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Component Diminishing Manufacturing Sources and Material Shortages (DMSMS)issue studies.					
Accomplishments/Planned Programs Subtotals	0.000	2.258	12.882	-	12.882

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item #T03800: T-38	28.845	30.604	45.090	0.000	45.090	54.692	97.503	25.795	26.269	-	-

Remarks

D. Acquisition Strategy
The T-38 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

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	676037 / <i>T-38 Operational System Development</i>

implemented incrementally to efficiently deliver required capabilities to AETC in support of the pilot training program. System Block upgrades will be required to maintain aircraft airworthiness and will be implemented based on AETC requirements. An appropriate level of technical data rights is required by all current support contracts.

The AvCI contract is a Type D IDIQ contract competitively awarded to address T-38C avionics system obsolescence issues and provide CLS follow-on support. The AvCI contract was awarded 4 January 2016. Obsolescence remediation efforts will begin immediately and the follow-on CLS effort will begin 01 April 2017.

E. Performance Metrics

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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)						
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training						676037 / T-38 Operational System Development						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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-38 APPS Avionics System DMSMS mitigation efforts	C/FFP	The Boeing Company : St. Louis, MO	-	0.000		2.173	Jan 2016	11.672	Oct 2016	0.000		11.672	Continuing	Continuing	-	
T-38 APPS Studies and Development Efforts	Various	TBD : TBD	-	0.000		0.000		0.100	May 2017	0.000		0.100	Continuing	Continuing	-	
Subtotal			-	0.000		2.173		11.772		0.000		11.772	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Avionics system Flight Test	PO	412th FTS : Edwards AFB, CA	-	0.000		0.000		1.025		0.000		1.025	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		1.025		0.000		1.025	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 Contract support	C/FFP	Not specified. : TBD	-	0.000		0.030	Dec 2015	0.030	Dec 2016	0.000		0.030	Continuing	Continuing	-	
Government Travel	Various	Not specified. : TBD	-	0.000		0.055	Oct 2015	0.055	Oct 2016	0.000		0.055	Continuing	Continuing	-	
Subtotal			-	0.000		0.085		0.085		0.000		0.085	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
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>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.000	2.258		12.882	0.000	12.882	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AUP Block 11 Requirements																												
AUP Block 11 Design/Development																												
Heads-Up Display Development																												
Heads-Up Display Integration																												
Heads-Up Display Qualification Testing																												
Mission Display Processor Development																												
Mission Display Processor Integration																												
Mission Display Processor Qualification Testing																												
Automatic Dependent Surveillance Broadcast Development																												
Automatic Dependent Surveillance Broadcast Integration																												
Diminishing Manufacturing Sources and Material Shortages (DMSMS)																												
Automatic Dependent Surveillance Broadcast Qualification Testing																												
Very High Frequency Radio Development																												
Very High Frequency Radio Integration																												
Very High Frequency Radio Qualification Testing																												
Very High Frequency Navigation Unit Development																												
Very High Frequency Navigation Unit Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AUP Block 11 Requirements	3	2017	4	2018
AUP Block 11 Design/Development	1	2019	4	2020
Heads-Up Display Development	1	2016	4	2017
Heads-Up Display Integration	3	2016	4	2017
Heads-Up Display Qualification Testing	2	2017	4	2017
Mission Display Processor Development	1	2016	4	2017
Mission Display Processor Integration	3	2016	4	2017
Mission Display Processor Qualification Testing	2	2017	1	2018
Automatic Dependent Surveillance Broadcast Development	1	2017	1	2018
Automatic Dependent Surveillance Broadcast Integration	2	2017	1	2018
Diminishing Manufacturing Sources and Material Shortages (DMSMS)	3	2017	1	2018
Automatic Dependent Surveillance Broadcast Qualification Testing	1	2018	2	2018
Very High Frequency Radio Development	1	2016	4	2016
Very High Frequency Radio Integration	2	2016	4	2016
Very High Frequency Radio Qualification Testing	1	2017	2	2017
Very High Frequency Navigation Unit Development	1	2016	4	2016
Very High Frequency Navigation Unit Integration	2	2016	4	2016
Very High Frequency Navigation Unit Qualification Testing	1	2017	2	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	4.836	2.000	22.577	46.695	0.000	46.695	83.044	77.003	27.155	27.642	0.000	290.952
675895: <i>Wide Area Surveillance</i>	4.836	2.000	22.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.413
675899: <i>Wide Area Surveillance</i>	0.000	0.000	0.000	46.695	0.000	46.695	83.044	77.003	27.155	27.642	0.000	261.539

Program MDAP/MAIS Code: 519

Note

- In FY2017, Special Program efforts will transfer to PE 0604445F, Wide Area Surveillance, Project 675899, Wide Area Surveillance in order to centrally fund and manage efforts
- In FY2017, Project 675895, Wide Area Surveillance will terminate

A. Mission Description and Budget Item Justification

Wide Area Surveillance (WAS) consists of sensor programs. WAS will develop, integrate and test capabilities to provide warfighters the ability to detect airborne threats. Activities will include studies and analysis to support current and future program planning and development. Some aspects of the WAS program are 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. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.000	24.577	9.529	0.000	9.529
Current President's Budget	2.000	22.577	46.695	0.000	46.695
Total Adjustments	0.000	-2.000	37.166	0.000	37.166
• 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	0.000	0.000			
• Other Adjustments	0.000	0.000	37.166	0.000	37.166

Change Summary Explanation

- FY2016 \$2.0M Funds excess to need

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	
- FY2017 \$37.166M reflects a transition to Project 675899, Wide Area Surveillance		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>				Project (Number/Name) 675895 / <i>Wide Area Surveillance</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675895: <i>Wide Area Surveillance</i>	4.836	2.000	22.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.413
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

- In FY2017, Project 675895, Wide Area Surveillance will terminate
- In FY 2017, Special Program efforts will transfer to PE 0604445F, Wide Area Surveillance, Project 675899, Wide Area Surveillance in order to centrally fund and manage efforts

A. Mission Description and Budget Item Justification

Wide Area Surveillance (WAS) consists of sensor programs. WAS will develop, integrate and test capabilities to provide warfighters the ability to detect airborne threats. Activities will include studies and analysis to support current and future program planning and development. Some aspects of the WAS program are classified and will be provided on a need-to-know basis. Contact SAF/AQI for further information.

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 2015	FY 2016	FY 2017
Title: Development, Test & Fielding	2.000	22.577	-
Description: Development, Test & Fielding			
FY 2015 Accomplishments: - Activities included studies, analysis, and risk mitigation efforts to support test, modeling and simulation, system engineering, and site specific requirements, such as, but were not limited to: security, site maintenance, equipment maintenance, material shipping, site analysis/studies & environmental analysis/studies			
FY 2016 Plans: Activities include, but are not limited to: - Developing, testing and installation of sensors - Continuing studies, analysis, and risk mitigation activities to support testing, modeling and simulation, system engineering analysis and site specific requirements, such as security, site maintenance, equipment maintenance, material shipping, site analysis/studies & environmental analysis/studies - Integrating and testing track feeds into systems of record, Battle Control System-Fixed			
Accomplishments/Planned Programs Subtotals	2.000	22.577	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675895 / <i>Wide Area Surveillance</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE: BA07: PE 0604445J: <i>Wide Area Surveillance</i>	53.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	83.000

Remarks

- Total cost includes FY14 \$30.0M funding

D. Acquisition Strategy

The 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 Capitol Region. A Science & Technology contract was let during the Engineering and Manufacturing Development (EMD) phase for both sub-systems. The EMD contract for STARS was awarded to a single developer to complete the design, build, integration, and test of the STARS system. A follow on sole source contract will be awarded to the STARS contractor long lead components and a full competition contract will be awarded for integration of the STARS sub-sub-system as part of Full Rate Production (FRP) following the FRP Decision Review. The EMD contract for Scorpion was awarded to a single developer to complete the design, build, integration, and test of the Scorpion system and conduct Interim Contractor Support (ICS). A full competition contract will be awarded for the Scorpion sub-system as part of Full Rate Production (FRP) following the FRP Decision Review.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO BM) 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. The Office of the Secretary of the Air Force for Acquisition (SAF/AQ) is the program's Milestone Decision Authority (MDA).

The STARS primary contract type for EMD is a Cost Plus Fixed Fee (CPFF) contract while the Scorpion primary contract type for EMD is also a CPFF and includes ICS. Upon MDA approval at MS C, the Procuring Contracting Officer (PCO) will utilize for FRP a primary contract type of Firm Fixed Price (FFP) for both the STARS integration and another FFP for the Scorpion subsystem due to stable requirements and low risk of changes in scope.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675895 / <i>Wide Area Surveillance</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WAS	Various	Various : Various	0.000	0.672	Jan 2016	17.135	Nov 2015	0.000		0.000		0.000	0.000	17.807	-
Subtotal			0.000	0.672		17.135		0.000		0.000		0.000	0.000	17.807	-

Remarks
- \$53.0M was executed in PE 0604445J in FY15

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Mission	Various	Various : Various	0.000	0.000		1.824	Dec 2015	0.000		0.000		0.000	0.000	1.824	-
Subtotal			0.000	0.000		1.824		0.000		0.000		0.000	0.000	1.824	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	46 TS : Eglin AFB, FL	0.000	0.540	Jan 2016	0.125	Jan 2016	0.000		0.000		0.000	0.000	0.665	-
Subtotal			0.000	0.540		0.125		0.000		0.000		0.000	0.000	0.665	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	Various	AFLCMC/HBDD : Hanscom AFB, MA	4.836	0.788	Mar 2015	3.493	Oct 2015	0.000		0.000		0.000	0.000	9.117	-
Subtotal			4.836	0.788		3.493		0.000		0.000		0.000	0.000	9.117	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675895 / <i>Wide Area Surveillance</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Program Office Stand Up																												
Program Transferred to Air Force (Oct 2015)																												
Development, Testing & Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675895 / <i>Wide Area Surveillance</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Program Office Stand Up	1	2015	4	2015
Program Transferred to Air Force (Oct 2015)	1	2016	1	2016
Development, Testing & Fielding	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>				Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675899: <i>Wide Area Surveillance</i>	0.000	0.000	0.000	46.695	0.000	46.695	83.044	77.003	27.155	27.642	0.000	261.539
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

- In FY2017, Special Program efforts will transfer to PE 0604445F, Wide Area Surveillance, Project 675899, Wide Area Surveillance in order to centrally fund and manage efforts

A. Mission Description and Budget Item Justification

Wide Area Surveillance (WAS) consists of sensor programs. WAS will develop, integrate and test capabilities to provide warfighters the ability to detect airborne threats. Activities will include studies and analysis to support current and future program planning and development. Some aspects of the WAS program are 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. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Development, Test & Fielding	-	-	46.695
Description: Development, Test & Fielding			
FY 2017 Plans:			
- Will continue development, testing, and installation of sensors			
- Will continue to integrate and test track feeds into systems of record, Battle Control System-Fixed			
- Will continue studies, analysis, and risk mitigation activities supporting test, modeling & simulation, system engineering, as well as site specific requirements, such as security, maintenance, material shipping, site/environmental analysis and studies			
- Some aspects of this program are classified and will be provided on a need-to-know basis			
Accomplishments/Planned Programs Subtotals	-	-	46.695

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834240: <i>Wide Area Surveillance</i>	0.000	0.000	6.943	0.000	6.943	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks
- Some aspects of this program are classified and will be provided on a need-to-know

D. Acquisition Strategy

The 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 Capitol Region. A Science & Technology contract was let during the Engineering and Manufacturing Development (EMD) phase for both sub-systems. The EMD contract for Stateside Affordable Radar System (STARS) was awarded to a single developer to complete the design, build, integration, and test of the STARS system. A follow on sole source contract will be awarded to the STARS contractor long lead components. The EMD contract for Scorpion was awarded to a single developer to complete the design, build, integration, and test of the Scorpion system and conduct Interim Contractor Support (ICS).

The STARS primary contract type for EMD is a Cost Plus Fixed Fee (CPFF) contract while the Scorpion primary contract type for EMD is also a CPFF and includes ICS. Upon MDA approval at MS C, the Procuring Contracting Officer (PCO) will utilize a Firm Fixed Price (FFP) contract for both the STARS integration and another FFP for the Scorpion subsystem due to stable requirements and low risk of changes in scope.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO BM) 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. The Office of the Secretary of the Air Force for Acquisition (SAF/AQ) is the program's Milestone Decision Authority (MDA).

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WAS	Various	Various : Various	0.000	0.000		0.000		38.049	Sep 2017	0.000		38.049	180.260	218.309	-
Subtotal			0.000	0.000		0.000		38.049		0.000		38.049	180.260	218.309	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Mission	Various	Various : Various	0.000	0.000		0.000		2.500	Oct 2016	0.000		2.500	10.000	12.500	-
Subtotal			0.000	0.000		0.000		2.500		0.000		2.500	10.000	12.500	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	46 TS : Eglin AFB, FL	0.000	0.000		0.000		1.170	Oct 2016	0.000		1.170	4.680	5.850	-
Subtotal			0.000	0.000		0.000		1.170		0.000		1.170	4.680	5.850	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	Various	AFLCMC/HBDD : Hanscom AFB, MA	0.000	0.000		0.000		4.976	Oct 2016	0.000		4.976	19.904	24.880	-
Subtotal			0.000	0.000		0.000		4.976		0.000		4.976	19.904	24.880	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	46.695	0.000	46.695	214.844	261.539	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Development, Testing & Fielding	
Initial Operational Capability (IOC) (Dec 2018)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development, Testing & Fielding	1	2017	4	2021
Initial Operational Capability (IOC) (Dec 2018)	1	2019	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604618F <i>I Joint Direct Attack Munition</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	2.389	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.389
674138: <i>JDAM DEVELOPMENT</i>	0.000	2.389	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.389
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 503
Project MDAP/MAIS Code(s): N42

Note

In FY15, Project 641200 JDAM Development and Prototyping (BA 4), was transferred to Project 674138, JDAM Development (BA 7), within the same PE 0604618F to properly align budget activity (BA).

A. Mission Description and Budget Item Justification

The 5000lb demonstration is an integration of BLU-113 warhead with a Joint Direct Attack Munition (JDAM) tail kit to provide accurate, precision, reliable, hard target penetration capability. The required accuracy shall be "JDAM-like" as defined by the operational requirements community. The greater overall system performance will tighten dispersion capability where multiple weapons are released from the same aircraft on the same pass and hit the same impact crater. The BLU-113 is an objective requirement of the 2002 JDAM Operational Requirements Document (ORD). The weapon system will have an identical Concept of Operations (CONOPS) to that of existing USAF inventory for Global Positioning System-aided Inertial Navigation System (GPS-aided INS) weapons as well as compatibility with aircraft Operational Flight Programs (OFPs).

BA-7 - 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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604618F <i>I Joint Direct Attack Munition</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.469	0.000	0.000	0.000	0.000
Current President's Budget	2.389	0.000	0.000	0.000	0.000
Total Adjustments	-0.080	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	-0.080	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

No Significant Changes

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Title: JDAM 5000 lb bomb demonstration	2.389	0.000	0.000	0.000	0.000
Description: The 5000lb demonstration integrates the BLU-113 warhead with a guidance kit that provides accurate, reliable, tight dispersion, hard target penetration capability. JDAM accuracy expands to a 5000lb concept, holding harder and deeper targets at risk.					
FY 2015 Accomplishments: Designed a BLU-113 conversion kit including BLU-113 strake assembly, BLU-113 umbilical cover, and BLU-113 wire harness extension and developed a unique Operational Flight Profile (OFP) with modified autopilot that provides JDAM like performance.					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604618F <i>I Joint Direct Attack Munition</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	2.389	0.000	0.000	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PAAF: BA01: Line Item #353620: <i>Joint Direct Attack Munitions</i>	228.439	533.975	303.988	403.126	707.114	203.951	293.966	371.200	356.581	Continuing	Continuing

Remarks
 In FY14, JDAM 5000 lb bomb demonstration was funded (\$2.417M) in above program in Budget Activity 4 (BA 4). In FY15, it was transferred to budget Activity 7 (BA 7) within the same PE.

E. Acquisition Strategy
 Effort will be competed and executed under a firm fixed price contract.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604618F / Joint Direct Attack Munition	Project (Number/Name) 674138 / JDAM DEVELOPMENT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
2.3 Software Development and Hardware Fabrication	C/TBD	AFLCMC/EBDJ : Eglin AFB, FL	0.000	1.500	Apr 2015	0.000		0.000		0.000		0.000	0.000	1.500	0.647
Subtotal			0.000	1.500		0.000		0.000		0.000		0.000	0.000	1.500	0.647

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test	Various	96th Test Wing : Eglin AFB, FL	0.000	0.770	Jul 2016	0.000		0.000		0.000		0.000	0.000	0.770	0.374
Subtotal			0.000	0.770		0.000		0.000		0.000		0.000	0.000	0.770	0.374

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA)	Various	AFLCM/EBDJ : Eglin AFB, FL	0.000	0.119	Apr 2015	0.000		0.000		0.000		0.000	0.000	0.119	0.000
Subtotal			0.000	0.119		0.000		0.000		0.000		0.000	0.000	0.119	0.000

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	2.389	0.000	0.000	0.000	0.000	0.000	2.389	1.021

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604618F / <i>Joint Direct Attack Munition</i>	Project (Number/Name) 674138 / <i>JDAM DEVELOPMENT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Design of the JDAM Strake-Set for a 5,000lb Bomb																												
Conduct Wind Tunnel Testing																												
Order Test Asset Long Lead Items																												
Fabrication of Test Assets																												
Environmental Qualification Testing																												
Autopilot																												
Integration on F-15E																												
Flight Testing (Test Drops)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604618F / <i>Joint Direct Attack Munition</i>	Project (Number/Name) 674138 / <i>JDAM DEVELOPMENT</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Design of the JDAM Strake-Set for a 5,000lb Bomb	2	2015	3	2016
Conduct Wind Tunnel Testing	2	2015	3	2016
Order Test Asset Long Lead Items	3	2015	3	2015
Fabrication of Test Assets	3	2015	4	2015
Environmental Qualification Testing	2	2016	3	2016
Autopilot	2	2015	2	2016
Integration on F-15E	2	2016	2	2016
Flight Testing (Test Drops)	2	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	154.577	45.250	31.344	10.368	0.000	10.368	51.843	65.332	65.383	43.590	0.000	467.687
676003: <i>HRM Structural Development</i>	154.577	45.250	31.344	10.368	0.000	10.368	51.843	65.332	65.383	43.590	0.000	467.687
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: N86

A. Mission Description and Budget Item Justification

Air Force Integrated Personnel and Pay System (AFIPPS) will be a web-enabled, Enterprise Resource Planning (ERP) solution that will integrate existing personnel and pay processes into one self-service system. The Department of the Air Force (DAF) plans to accomplish this goal by modernizing existing technology, resulting in a secure and authoritative data environment that improves accuracy, strengthens decision making and reduces processing time and costs. AFIPPS supports effective military personnel management and development throughout the lifecycle of all military members, by providing an accurate and single authoritative source of personnel data. AFIPPS will enable accurate and timely delivery of pay, entitlements, allowances and benefits and make appropriate information available for all levels of management. Active, National Guard, and Reserve components will integrate personnel and pay functionality; streamline and improve automated support to the mobilization and deployment processes; and implement standard data that reflects the core requirements of the Combatant Commands, the Department of the Air Force, the Office of the Secretary of Defense and other federal agencies.

AFIPPS's customers include approximately 510,000 AF service members across all components (RegAF, ANG, and AFRes) as well as thousands of military leaders of different ranks, specialties, and career fields who are responsible for the conduct of AF operations that rely on these services to ensure service members with the appropriate skill sets are deployed where needed at home and on the battlefield. Congress, the rest of the Department of Defense (DoD), and other federal agencies all rely on accurate AF Human Resources (HR) data to make key decisions that affect how the US military is organized, funded, deployed, and maintained.

The FY 2017 funding request was reduced by \$10.0 million to account for the availability of prior year execution balances.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	60.019	69.694	64.317	0.000	64.317
Current President's Budget	45.250	31.344	10.368	0.000	10.368
Total Adjustments	-14.769	-38.350	-53.949	0.000	-53.949
• Congressional General Reductions	0.000	-0.350			
• Congressional Directed Reductions	0.000	-38.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-13.038	0.000			
• SBIR/STTR Transfer	-1.731	0.000			
• Other Adjustments	0.000	0.000	-53.949	0.000	-53.949
 Change Summary Explanation					
FY16 Congressional reduction, forward financing, -\$38.0M.					
FY17 Reduction to support higher Air Force priorities, -\$43.846M.					
The FY 2017 funding request was reduced by \$10.0 million to account for the availability of prior year execution balances.					
FY17 Reduction for inflation, -\$0.103M					

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: AFIPPS - Product Development	44.717	30.528	10.165
Description: Acquire and develop the activities that support the acquisition of a personnel/pay capability for USAF personnel across all components (i.e., RegAF, ANG, and AFRes).			
FY 2015 Accomplishments:			
- Completed Contract 1 (C1) Blueprinting/Conference Room Pilot (CRP)			
- Continued Data Management Environment (DME) activities			
- Continued AF information technology efforts (e.g., implementation & operational baselines, application services, etc.) to ensure AFIPPS is fully integrated into the AF & DoD enterprise networks, databases, and information systems			
- Maintained the required AFIPPS computing environments, e.g. development and test environment			
- Purchased Commercial-Off-The-Shelf (COTS) Software (S/W) to support data management and development activities			
- Planned the post-Blueprinting phase of the program and managed the interaction between all contractor and Government activities			
- Continued acquisition planning, reporting, and completed C1 activities			
- Planned follow-on contractor activities			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Conducted risk reduction activities to support decision-making for the next phase of the program -- Includes contracted personnel and other program management expenses to support implementation of the program. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Finalizing integrated personnel and pay system (IPPS) long-range strategy - Continuing DME activities - Continuing AF information technology efforts (e.g., implementation & operational baselines, application services, etc.) to ensure AFIPPS is fully integrated into the AF & DoD enterprise networks, databases, and information systems - Building and maintaining the required AFIPPS computing environments, e.g. development, test environment and cloud computing - Conducting pay technology development activities and preparing existing infrastructure for integration with pay - Purchasing COTS S/W to support data management, sustainment and development activities - Preparing acquisition and contract documentation to support AFIPPS strategy - Continuing acquisition planning, reporting, and the execution of AFIPPS activities. - Conducting risk reduction activities to assess/reduce risk and support decision-making for the next phase of the program. - Designing and implementing enterprise architecture for pay --Includes contracted personnel and other program management expenses to support implementation of the program. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will award contract to develop the AFIPPS pay functions and support integration of personnel and pay capabilities - Will continue DME activities - Will continue AF information technology efforts (e.g., implementation & operational baselines, application services, etc.) to ensure AFIPPS is fully integrated into the AF & DoD enterprise networks, databases, and information systems - Will build and maintain the required AFIPPS computing environments, e.g. development, test environment and cloud computing - Will purchase COTS S/W to support data management, sustainment and development activities - Will prepare acquisition and contract documentation to support AFIPPS strategy - Will continue acquisition planning, reporting, and the execution of AFIPPS activities and follow-on activities including contract awards - Will continue risk reduction activities to support decision-making for the next phase of the program - Will continue to design and implement enterprise architecture for pay --Includes contracted personnel and other program management expenses to support implementation of the program. 				
Title: AFIPPS - Test and Evaluation		0.533	0.816	0.203
Description: Government integrated test and evaluation activities.				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<i>FY 2015 Accomplishments:</i> - Adjusted Test Strategy to reflect new AFIPPS Plans <i>FY 2016 Plans:</i> - Updating Test and Evaluation Master Plan (TEMP) and preparing test plans for future releases <i>FY 2017 Plans:</i> - Will refine Test and Evaluation program for pay			
Accomplishments/Planned Programs Subtotals	45.250	31.344	10.368

D. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>	
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

E. Acquisition Strategy
 AFIPPS acquisition strategy focuses on expanding the fielded AF personnel system (MilPDS) by integrating a pay capability. MilPDS is implemented using the commercial Oracle ERP E-Business Suite (EBS). The AFIPPS strategy will be to configure/develop the pay portion of EBS, ensure the system is fully integrated, and deployed. The Government will award a contract for the pay system development, test, and deployment. The development activities will be fully coordinated and integrated with the on-going operation and sustainment of MilPDS.

Air Force Program Executive Officer (PEO) for Business and Enterprise Systems (AFPEO BES) is the PEO for AFIPPS. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the AFIPPS Program and provides Contracts, Legal, and Comptroller support. The Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics [OUSD(AT&L)] is the program's Milestone Decision Authority (MDA).

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	Project (Number/Name) 676003 / HRM Structural Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFIPPS Environments	Various	DISA, Various SW Vendors : Bedford, MA	38.865	16.880	Feb 2015	6.938	Oct 2015	1.009	Nov 2016	0.000		1.009	32.634	96.326	93.326
Contract 1	C/Various	IBM : Bethesda, MD	20.126	13.591	Apr 2015	0.000		0.000		0.000		0.000	0.000	33.717	33.717
HR and Pay Integration Contract	C/Various	TBD : TBD	0.000	0.000		0.000		4.221	May 2017	0.000		4.221	154.065	158.286	104.410
Direct Mission Support (DMS) Other	Various	Various IT Vendors : Bedford, MA	44.786	9.076	Mar 2015	20.953	Mar 2016	3.556	Mar 2017	0.000		3.556	28.777	107.148	107.148
Licenses	MIPR	Oracle : Reston, VA	11.573	0.000		0.000		0.000		0.000		0.000	0.000	11.573	-
Independent Verification & Validation (IV&V)	Various	Various : TBD	2.354	0.000		0.000		0.000		0.000		0.000	0.000	2.354	-
Subtotal			117.704	39.547		27.891		8.786		0.000		8.786	215.476	409.404	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Gov't Integrated Test & Evaluation Activities	C/Various	JTIC : Fort Belvoir, VA	0.921	0.533	Mar 2015	0.816	Mar 2016	0.203	Mar 2017	0.000		0.203	3.007	5.480	5.480
Subtotal			0.921	0.533		0.816		0.203		0.000		0.203	3.007	5.480	5.480

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	Project (Number/Name) 676003 / HRM Structural Development

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
AFIPPS Development, Test, and Production Environments	[REDACTED]																																											
Basic (Blueprinting/CRP)	[REDACTED]																																											
Enterprise Architecture Design/Implement					[REDACTED]																																							
Acquisition planning, RFP, Contract Award					[REDACTED]																																							
Payroll design and deployment									[REDACTED]																																			
AF Information Technology Efforts	[REDACTED]																																											
Government Integrated Test and Evaluation Activities	[REDACTED]																																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>	Project (Number/Name) 676003 / <i>HRM Structural Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AFIPPS Development, Test, and Production Environments	1	2015	2	2020
Basic (Blueprinting/CRP)	1	2015	3	2015
Enterprise Architecture Design/Implement	2	2016	3	2018
Acquisition planning, RFP, Contract Award	2	2016	2	2017
Payroll design and deployment	3	2017	4	2019
AF Information Technology Efforts	1	2015	4	2021
Government Integrated Test and Evaluation Activities	1	2015	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	33.775	26.718	31.952	0.000	31.952	33.056	33.004	34.435	35.847	Continuing	Continuing
675066: <i>Anti-Tamper Technology Executive Agent</i>	-	33.775	26.718	31.952	0.000	31.952	33.056	33.004	34.435	35.847	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): N42

A. Mission Description and Budget Item Justification

The Anti-Tamper (AT) Technology Executive Agency budget funds activities related to two AT responsibilities required by DoDD 5200.47E Anti-Tamper. These responsibilities include areas unique to the DoD Executive Agent for Anti-Tamper (ATEA) and Air Force Component AT Office of Primary Responsibility (OPR). The ATEA is responsible for developing and implementing AT policy, coordinating and providing financial support for AT technology development and evaluations, hardware/software vulnerability assessments, laboratory infrastructure, establishing and maintaining a data bank/library of AT technologies, providing security mechanisms, providing outreach and education to the DoD AT community, and funding validation and evaluations of AT implementations across all DoD acquisition programs. The AF AT OPR, that is also funded by this PE and is responsible for the oversight and security of AT on all AF acquisition programs under the Program Protection Planning process and manages AF AT technology development.

The DoD ATEA coordinates technology development among the DoD Services/Agencies, National Laboratories, and Industry.

AT protects critical program information (CPI) in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands on the battlefield. AT protections permit 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 and critical technologies by deterring efforts to reverse engineer or develop weapon countermeasures against the system or system component.

All DoD acquisition programs, Foreign Military Sales, and Direct Commercial Sales with resident critical program information (RCPI) require a validated AT Plan. The AT program includes resources required for subject matter experts (SMEs) to review AT Plans and conduct AT validation on all DoD Weapon Systems, and perform AT assessments of both commercial off the shelf and government off the shelf products. As technology advances, AT continues to perform AT hardware/software assessment capabilities. These capabilities include the acquisition of specialized equipment, maintenance and/or renovations to support the integration of this equipment, and modifications to new and/or existing laboratory facilities to meet equipment and security requirements.

The DoD ATEA technology development strategy is to coordinate DoD AT technology development across the Services which 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, and other AT enablers.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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The Air Force AT OPR conducts Anti-Tamper technology development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems. Technology development priorities are given to those technologies that most benefit AF acquisition programs. These activities are coordinated through the ATEA as a part of the ATEA technology development roadmap and to coordinate with Navy and Army AT technology development efforts. This program is in Budget Activity 07, Operational System Development, because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	34.815	26.718	29.871	0.000	29.871
Current President's Budget	33.775	26.718	31.952	0.000	31.952
Total Adjustments	-1.040	0.000	2.081	0.000	2.081
• 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	-1.040	0.000			
• Other Adjustments	0.000	0.000	2.081	0.000	2.081

Change Summary Explanation

FY16: Reduction of 3.177M due under execution with a payback in FY17 and

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: DoD Anti-Tamper Technology Executive Agent (DoDATEA)	29.129	20.873	23.815
Description: AT technology coordination and evaluations, hardware/software vulnerability assessments, laboratory infrastructure; provide outreach and education to the AT Community, conduct effective validation and evaluation of AT implementation as well as implementation of AT policy.			
FY 2015 Accomplishments:			
- Conducted effective validation and evaluation of AT implementation on all DoD Acquisition programs, continued AT technology development and evaluations, hardware/software vulnerability assessments, and maintained AT laboratory infrastructure.			
- Trained acquisition workforce on AT policy and technology, and implemented AT policy within the AT Community.			
FY 2016 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Conduct effective validation and evaluation of AT implementation on all DoD Acquisition programs; continue AT hardware/software technical development, vulnerability assessments, and maintenance of AT laboratory infrastructure.</p> <p>- Continue to train acquisition workforce on AT policy and technology, and implement AT policy within the AT Community.</p> <p>FY 2017 Plans:</p> <p>- Conduct effective validation and evaluation of AT implementation on all DoD Acquisition programs; continue AT hardware/software technical development, vulnerability assessments, and maintenance of AT laboratory infrastructure.</p> <p>- Continue to train acquisition workforce on AT policy and technology, and implement AT policy within the AT Community.</p>				
<p>Title: DoDATEA Program Management Support</p> <p>Description: Includes civilian pay, A&AS, outreach and education, travel, supplies, and AFLCMC/WWG support</p> <p>FY 2015 Accomplishments: Supported and funded program office efforts, including civilian pay, A&AS, outreach and education, travel, and supplies.</p> <p>FY 2016 Plans: Support program office efforts, including civilian pay, A&AS, outreach and education, travel, and supplies.</p> <p>FY 2017 Plans: Support program office efforts, including civilian pay, A&AS, outreach and education, travel, and supplies.</p>		4.114	5.228	5.487
<p>Title: Air Force Anti-Tamper Office Program Management Support</p> <p>Description: Includes civilian pay, A&AS, travel, and supplies for Air Force Component AT OPR.</p> <p>FY 2015 Accomplishments: Supported and funded civilian pay, A&AS, travel, and supplies.</p> <p>FY 2016 Plans: Includes civilian pay, A&AS, travel, and supplies.</p> <p>FY 2017 Plans: Includes civilian pay, A&AS, travel, and supplies.</p>		0.532	0.617	0.650
<p>Title: Air Force Anti-Tamper Office Technology Development</p> <p>Description: The Air Force Anti-Tamper office reviews the AT Plans for all AF acquisition programs under the Program Protection Planning process. The Air Force AT office must conduct Anti-Tamper technology development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems.</p>		0.000	0.000	2.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>The AT technology development and enhancement efforts include: advanced AT sensor hardware, secure processing, crypto-analysis, tamper penalties, and other AT enablers. Technology development priorities will be given to those technologies that most benefit AF acquisition programs.</p> <p>The Air Force Anti-Tamper office will fund and manage new technology 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.</p> <p><i>FY 2015 Accomplishments:</i> No funding received for FY15 for technology development.</p> <p><i>FY 2016 Plans:</i> No funding received for FY16 for technology development.</p> <p><i>FY 2017 Plans:</i> The Air Force Anti-Tamper office reviews the AT Plans for all AF acquisition programs under the Program Protection Planning process. The Air Force AT office must conduct Anti-Tamper technology development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems.</p> <p>The AT technology development and enhancement efforts include: advanced AT sensor hardware, secure processing, crypto-analysis, tamper penalties, and other AT enablers. Technology development priorities will be given to those technologies that most benefit AF acquisition programs.</p>			
Accomplishments/Planned Programs Subtotals	33.775	26.718	31.952

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

Remarks

E. Acquisition Strategy
The DoD ATEA acquisition strategy is to coordinate DoD AT technology developments across the Services which fund coordination and assessments of new AT technology, as well as enhance existing AT technology efforts by increasing TRL. The ATEA will coordinate the Technology 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 reduced power needs and smaller form factor. The goal of the research is to mature promising technologies to the point they can be

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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transitioned to a program office or industry for implementation in our weapon systems. Priorities will be given to those technologies that most benefit the DoD AT community.

The Air Force AT Office in 2017, will fund and manage new technology 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.

F. Performance Metrics

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 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>				Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Anti-Tamper Office Technology Development	Various	Not specified. : TBD	-	0.000		0.000		2.000		0.000		2.000	Continuing	Continuing	-
Subtotal			-	0.000		0.000		2.000		0.000		2.000	-	-	-

Remarks
In the FY17 PB, the Air Force received funding specifically for Technology Development.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DoD Anti-Tamper Technology Executive Agent (DoDATEA)	Various	Not specified. : TBD	-	29.129		20.873		23.815		0.000		23.815	Continuing	Continuing	-
Subtotal			-	29.129		20.873		23.815		0.000		23.815	-	-	-

Remarks
This funding is to support DoD ATEA requirements. Funding was broken out starting in FY15 between DoD ATEA and Air Force requirements.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Anti-Tamper Office Program Management Support	Various	Not specified. : TBD	-	0.532		0.617		0.650		0.000		0.650	Continuing	Continuing	-
DoDATEA Program Management Support	Various	Not specified. : TBD	-	4.114		5.228		5.487		0.000		5.487	Continuing	Continuing	-
Subtotal			-	4.646		5.845		6.137		0.000		6.137	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	33.775	26.718	31.952	0.000	31.952	-	-	-

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 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ATEA Program Office	[REDACTED]																											
AT RDT&E	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ATEA Program Office	1	2015	4	2021
AT RDT&E	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0605117F I Foreign Materiel Acquisition and Exploitation
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	41.689	42.960	0.000	42.960	45.392	48.256	49.153	50.025	Continuing	Continuing
675897: Foreign Material Aquisition and Exploitation	-	0.000	41.689	42.960	0.000	42.960	45.392	48.256	49.153	50.025	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): N42

A. Mission Description and Budget Item Justification

The Foreign Materiel Acquisition and Exploitation (FMA&E) program element supports the military services and defense agencies Foreign Material Program activities. Classified details can be found in the OSD Comptroller's classified Defense Wide Justification Book Volume 6.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	41.689	42.960	0.000	42.960
Total Adjustments	0.000	41.689	42.960	0.000	42.960
• 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	41.689	42.960	0.000	42.960

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	10.807	13.987	0.000	13.987	27.513	8.626	4.851	4.937	0.000	70.721
675006: <i>HC/MC-130 Recap</i>	0.000	0.000	10.807	13.987	0.000	13.987	27.513	8.626	4.851	4.937	0.000	70.721
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 257

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.

This program will develop and integrate changes from discrepancies found during development and operational flight test, and common C-130J block upgrades during HC/MC production. The HC/MC Block 8.1 program follows the same "Block Upgrade" strategy being used in the C-130J program (PE 0401132F).

The internationally developed Block 8.1 program addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. It also incorporates capabilities such as Link 16, a new Flight Management System (FMS), Civil GPS Navigation, Identification Friend or FOE (IFF) transponder Mode-5, Civil Data-link, and Automatic Dependent Surveillance-Broadcast Out (ADS-B Out).

The HC/MC Block 8.1 RDT&E effort integrates Block 8.1 into a HC-130J and a MC-130J via a trial kit install effort followed by a Development and Operational Test effort.

The USAF is considering fielding the IFF Mode 5 and ADS-B Out portions of Block 8.1 ahead of the remaining 36 capabilities in order to comply with the 2020 mandates.

Block 8.1 Production line cut-in is planned with the FY 2019 aircraft buys. A fleet modification program will also begin in FY 2019.

The FY 2017 funding request was reduced by \$9.939 million to account for availability of prior execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	10.807	23.926	0.000	23.926
Current President's Budget	0.000	10.807	13.987	0.000	13.987
Total Adjustments	0.000	0.000	-9.939	0.000	-9.939
• 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	-9.939	0.000	-9.939

Change Summary Explanation

The FY 2017 funding request was reduced by \$9.939 million to account for availability of prior execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Test and Evaluation</p> <p>Description: Test and evaluation planning, conduct, and support for developmental and operational testing.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Funding will support developmental and operational testing.</p> <p>FY 2017 Plans: Funding will support developmental and operational testing including Block 8.1 DT&E.</p>	0.000	0.764	2.905
<p>Title: Continuous Improvement Program (CIP)</p> <p>Description: Software-only updates to address discrepancies identified during development or operational test and evaluation. These updates will be incorporated in both production and fielded aircraft. Includes operational flight program (OFP) updates</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000	0.916	2.231

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
CIP software development will continue.			
FY 2017 Plans: CIP software development will continue and fielding will begin.			
Title: Block 8.1	0.000	9.127	8.851
Description: Combined software/hardware upgrade for Block 8.1. Block 8.1 includes: 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, and Automatic Dependent Surveillance-Broadcast Out (ADS-B-Out).			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Due to program interdependencies, HC/MC Block 8.1 program begins in FY16 with the ordering of long lead parts. A Block 8.1 trial kit installation (TKI) will be accomplished on one HC-130J (Increment 2) and one MC-130J (Increment 3) aircraft.			
FY 2017 Plans: The HC-130J and MC-130J Block 8.1 TKI development and integration effort continues and includes installation of the kits on the aircraft.			
Accomplishments/Planned Programs Subtotals	0.000	10.807	13.987

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: HCMC00: <i>APAF, HC/MC-130 Modifications</i>	0.000	0.000	0.000	0.000	0.000	0.000	31.919	3.253	3.321	293.229	331.722
• APAF: BA02: C-130JH: <i>APAF, PE 0207224F, HC-130J</i>	382.024	474.434	337.576	0.000	337.576	198.153	0.000	0.000	0.000	398.587	1,790.774
• APAF: BA02: C-130JM: <i>APAF, PE 0207230F, MC-130J</i>	372.971	850.872	598.358	0.000	598.358	450.194	371.649	631.894	449.356	1,992.934	5,718.228

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>
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E. Acquisition Strategy
The full rate production decision for the HC/MC-130J RECAP was 4 Oct 13. Lockheed Martin is the prime contractor for Research and Development work in support of the HC/MC-130J RECAP program. Work done to date on the HC/MC-130J RECAP program has been on Cost Plus Award Fee (CPAF) and Cost Plus Incentive Fee (CPIF) type contracts.

F. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HC/MC-130 Recap Continuous Improvement Program (CIP)	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	0.000		0.916	May 2016	2.231	May 2017	0.000		2.231	5.020	8.167	8.167
HC/MC-130 Recap Block 8.1	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	0.000		9.127	Aug 2016	8.851	Dec 2016	0.000		8.851	36.420	54.398	54.398
Subtotal			0.000	0.000		10.043		11.082		0.000		11.082	41.440	62.565	62.565

Remarks
HC/MC-130 Recap RDT&E switched from BA05 to BA07 in FY16. The FY15 and prior Product Development totaled \$75.698M.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HC/MC-130 Recap Test and Evaluation Support	RO	46th Test Wing : EAFB, FL	0.000	0.000		0.764	May 2016	2.905	May 2017	0.000		2.905	4.487	8.156	8.156
Subtotal			0.000	0.000		0.764		2.905		0.000		2.905	4.487	8.156	8.156

Remarks
HC/MC-130 Recap RDT&E switched from BA05 to BA07 in FY16. The FY15 and prior Test and Evaluation total was \$11.256M.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	10.807	13.987	0.000	13.987	45.927	70.721	70.721

Remarks
 HC/MC-130 Recap RDT&E switched from BA05 to BA07 in FY16. The FY15 and prior RDT&E total was \$91.885M.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Development Test and Evaluation																												
HC/MC-130 RECAP Block 8.1 Development																												
Continuous Improvement Program (CIP)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development Test and Evaluation	1	2015	4	2021
HC/MC-130 RECAP Block 8.1 Development	4	2016	2	2019
Continuous Improvement Program (CIP)	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	41.072	74.520	78.267	0.000	78.267	140.285	149.417	148.934	174.635	Continuing	Continuing
675039: <i>B-52 System Improvements</i>	-	0.000	0.050	0.051	0.000	0.051	0.050	0.051	0.050	0.051	Continuing	Continuing
675041: <i>Bomber Tactical Data Link</i>	-	0.000	0.000	7.525	0.000	7.525	5.843	2.179	0.000	0.000	Continuing	Continuing
675048: <i>1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)</i>	-	39.994	60.265	34.634	0.000	34.634	15.128	0.000	0.000	0.000	0.000	150.021
675050: <i>CONNECT</i>	-	1.078	11.225	13.672	0.000	13.672	18.723	10.517	0.815	0.000	Continuing	Continuing
675055: <i>GPS-IU</i>	-	0.000	2.980	6.916	0.000	6.916	17.713	11.785	0.000	0.000	Continuing	Continuing
675056: <i>B-52 Radar Modernization Program (RMP)</i>	-	0.000	0.000	4.653	0.000	4.653	55.067	114.297	145.393	171.909	Continuing	Continuing
675057: <i>B-52 Low Cost Improvement (LCI)*</i>	-	0.000	0.000	0.000	0.000	0.000	2.674	2.674	2.676	2.675	Continuing	Continuing
675058: <i>B-52 Weapon Sys Trainer Air Ref Training Upgrade</i>	-	0.000	0.000	4.875	0.000	4.875	13.202	7.914	0.000	0.000	Continuing	Continuing
675160: <i>B-52 Crypto Modernization</i>	-	0.000	0.000	5.941	0.000	5.941	11.885	0.000	0.000	0.000	Continuing	Continuing

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2017

Note

This program, BA 07 PE 0101113F, project 675041, Bomber Tactical Data Link, is a new start.

This program, BA 07 PE 0101113F, project 675056, Radar Modernization Program, is a new start.

This program, BA 07 PE 0101113F, project 675058, B-52 Weapons Systems Trainer Air Refueling Training Upgrade, is a new start.

This program, BA 07 PE 0101113F, project 675160, B-52 Crypto Modernization, is a new start.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	
A. Mission Description and Budget Item Justification		
B-52 SYSTEM IMPROVEMENTS (BPAC 675039) A comprehensive project to ensure B-52 viability to perform current and future wartime missions. B-52 System Improvements will facilitate future capabilities, scope of work may involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other analysis or documentation necessary to establish a program of record. Additionally, this project may include airborne integration experiments or demonstrations of emerging technologies.		
Trainers and Upgrades for Systems Improvements. In order to maintain currency with the latest aircraft configuration, the Systems Improvements project will update existing trainers or use computer-based training to add any new systems improvements functionality to meet user-training requirements, and update/maintain the SIL for the WSTs		
BOMBER TACTICAL DATA LINK (B-52 LINK 16) (BPAC 675041) The B-52 Tactical Data Link (TDL) provides low latency, jam-resistant situation awareness and command and control communications needed to support in-theater operations and missions. This project will consist of integrating an existing off-the-shelf Link 16 terminal into the B-52. Integration includes Group A wiring, rack and antenna, and the Group B terminal Line Replaceable Unit (LRU). The TDL terminal will be fully integrated with CONECT. This Line-Of-Sight (LOS) Link 16 capability allows the warfighter to maintain situational awareness, avoid threats and employ an array of weapons.		
Trainers and Upgrades for Bomber Tactical Data Link (TDL) In order to maintain currency with the latest aircraft configuration, the TDL project will update existing trainers or use computer-based training to add TDL functionality to meet user-training requirements, and update/maintain the SIL for the WSTs		
B-52 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU) (BPAC 675048) The 1760 IWBU integrates MIL-STD 1760 weapons capability into the bomb bay on 78 B-52H aircraft, which includes two Ground Instructional Training Aircraft (GITA), utilizing 44 Common Strategic Rotary Launcher (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. This requirement's Capability Development Document (CDD) was validated by the AFROCC in June 2013. The 1760 IWBU project provides internal and external carriage for eight MIL STD 1760 weapons and consists of two sub increments: 1.1 and 1.2.		
Trainers and Upgrades for 1760 IWBU In order to maintain currency with the latest aircraft configuration, the 1760 IWBU project will update existing trainers or use computer-based training to add 1760 IWBU functionality to meet user-training requirements, and update/maintain the SIL for the WSTs		
B-52 COMBAT NETWORK COMMUNICATIONS TECHNOLOGY (CONECT) (BPAC 675050) The B-52 CONECT acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with tactical datalink and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system, which will survive and function through the nuclear environment to enhance crew interaction and		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	
<p>situational awareness. To enable net centric operations, the CONECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver (IBR); limited Internet Protocol (IP) based UHF BLOS link supporting voice, e-mail and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine data transfer capability supporting aircraft re-tasking and retargeting of Conventional Air Launched Cruise Missile (CALCM) and J-series weapons across the range of B-52 military operations and missions. This requirement's Capability Production Document (CPD) was validated by the Air Force Requirement's Oversight Council (AFROC) on 16 September 2008.</p> <p>Trainers and Upgrades for CONECT In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>GPS-INTERFACE UNIT (GPS-IU) REPLACEMENT (BPAC 675055) Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three circuit card assemblies (CCAs) in the GPS-IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card.</p> <p>Trainers and Upgrades for GPS-Interface Unit In order to maintain currency with the latest aircraft configuration, the GPS-IU project will update existing trainers or use computer-based training to add GPS-IU functionality to meet user-training requirements, and update/maintain the SIL for the WSTs</p> <p>RADAR MODERNIZATION PROGRAM (BPAC 675056) Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. The APQ-166 is increasingly difficult to support due to diminished manufacturing sources and obsolescent technologies; the average reliability rate places long-duration missions at risk. This replacement program will encompass the radar antenna array and up to 14 individual LRUs that comprise the entire radar system. Development and production of new systems to replace the legacy equipment; to be installed on all 76 B-52H aircraft. Radar Modernization Program (RMP) will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase reliability of the radar system and allows the operational command to fully utilize the capabilities of the B-52H aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions.</p> <p>Trainers and Upgrades for Radar Modernization Program In order to maintain currency with the latest aircraft configuration, the Radar Modernization project will update existing trainers or use computer-based training to add Radar Modernization functionality to meet user-training requirements, and update/maintain the SIL for the WSTs</p> <p>LOW COST IMPROVEMENTS (BPAC 675057)</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	
<p>Project to facilitate future B-52 capabilities. Scope of work may involve, but is not limited to, Avionics, Navigation, Situational Awareness (SA), Weapons/Targeting Pod Integration, Communications, Flight Systems, Nuclear Systems, and Electronic Flight Bags</p> <p>Trainers and Upgrades for Low Cost Improvements In order to maintain currency with the latest aircraft configuration, the Low Cost Improvements project will update existing trainers or use computer-based training to add Low Cost Improvements functionality to meet user-training requirements, and update/maintain the SIL for the WSTs</p> <p>WEAPON SYSTEMS TRAINER AIR REFUELING TRAINER UPGRADE (BPAC 675058) The principal mission of the B-52 Training Systems program is to ensure high fidelity simulators and training systems are available for aircrew members to support credible training, maintain proficiencies, and increase skill levels. B-52 Aircrew Training Devices simulates the necessary visual, motion, and audible cues to provide ground training for aircrew members. The B-52 Weapon System Trainer (WST) Air Refueling Upgrade is a comprehensive project that will allow B-52 Aircrew to accomplish credible air refueling training in the simulator, which minimizes the requirement for on-aircraft air refueling training. To facilitate this capability, scope of work will involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other Analysis or documentation necessary to establish a program of record.</p> <p>B-52 CRYPTO MODERNIZATION (BPAC 675160) Upgrades aircraft with Mobile User Objective System (MUOS) capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability. As MUOS legacy channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol (FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.</p> <p>Trainers and Upgrades for Crypto Modernization In order to maintain currency with the latest aircraft configuration, the Crypto Modernization project will update existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WSTs</p> <p>The FY2017 funding request was reduced by \$16.462 million to account for the availability of prior year execution balances.</p> <p>BA7- This project 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	49.457	74.520	48.849	0.000	48.849
Current President's Budget	41.072	74.520	78.267	0.000	78.267
Total Adjustments	-8.385	0.000	29.418	0.000	29.418
• 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	-6.700	0.000			
• SBIR/STTR Transfer	-1.685	0.000			
• Other Adjustments	0.000	0.000	29.418	0.000	29.418

Change Summary Explanation

FY15: reduction of -\$8.385M consists of: -1.685M SBIR; -\$6.7M reprogramming for higher AF priorities.

FY17: increase of +\$29.418M consists of: +\$7.525 (Tactical Data Link); +\$4.653 (Radar Modernization); +\$5.941 (Crypto Modernization); +\$4.875 (Weapon System Trainers Air Refueling); +\$0.867 (CONNECT); +\$8.564 (1760 IWBU) for JASSM-ER acceleration; -\$3.005 (GPS-IU) for higher Air Force priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	0.000	0.050	0.051	0.000	0.051	0.050	0.051	0.050	0.051	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

B-52 System Improvements - A comprehensive project to ensure B-52 viability to perform current and future wartime missions. To facilitate future capabilities, scope of work may involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other analysis or paper work necessary to establish a program of record. Additionally, this project may lead to airborne integration experiments or demonstrations of emerging technologies.

BA7- This project 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: B-52 System Improvements	0.000	0.050	0.051	0.000	0.051
Description: Initiate Analysis of Alternatives, modeling & simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Initiate Analysis of Alternatives, modeling & simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.					
FY 2017 Base Plans: 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.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.050	0.051	0.000	0.051

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675039 / B-52 System Improvements
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line item # B05200: <i>Arms Control Implementation</i>	0.933	0.099	0.196	0.000	0.196	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

Analyses of Alternatives will be conducted by various AFLCMC organizations and AFGSC.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675039 / B-52 System Improvements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Improvements Studies and Analysis	TBD	TBD : TBD	-	0.000		0.050	Mar 2016	0.051	Jan 2017	0.000		0.051	Continuing	Continuing	-
Subtotal			-	0.000		0.050		0.051		0.000		0.051	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.050	0.051	0.000	0.051	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675039 / B-52 System Improvements
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

System Improvements Studies and Analysis, etc.	
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675039 / B-52 System Improvements

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Improvements Studies and Analysis, etc.	2	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675041 / Bomber Tactical Data Link
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675041: <i>Bomber Tactical Data Link</i>	-	0.000	0.000	7.525	0.000	7.525	5.843	2.179	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 07 PE 0101113F, project 675041, Bomber Tactical Data Link, is a new start.

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 situation awareness and command and control communications needed to support in-theater operations and missions. This project will consist of integrating an existing off-the-shelf Link 16 terminal into the B-52. Integration includes Group A wiring, rack and antenna, and the Group B terminal Line Replaceable Unit (LRU). The TDL terminal will be fully integrated with CONNECT. This Line-Of-Sight (LOS) Link 16 capability allows the warfighter to utilize this capability by maintaining situational awareness, avoiding threats and employing an array of weapons.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Bomber Tactical Data Link	0.000	0.000	7.525	0.000	7.525
Description: 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 LRU. The terminals will be installed inside the fuselage of the aircraft and two external antennae will be mounted on the top and bottom of the fuselage. The TDL terminal and LOS capability will be integrated with the rest of the CONNECT subsystem.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675041 / Bomber Tactical Data Link
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Establish/stand up program office; requirements development, refinement, and validation; conduct technology maturation and risk reduction efforts (prototyping and operational evaluations, studies of cooling, electromagnetic compatibility, and CONECT integration), and begin TMRR phase. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	7.525	0.000	7.525

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # B05200: B-52	0.000	0.000	0.000	0.000	0.000	0.000	8.630	17.268	17.772	0.000	44.000

Remarks

D. Acquisition Strategy
B-52 Link 16 MDD prime contract is anticipated to be sole source to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, integrates, tests, and procures necessary equipment from their subcontractors; develops engineering drawings, logistics and technical data.

E. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675041 / Bomber Tactical Data Link
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Link 16 TMRR - Wright Patt	SS/ Various	Boeing : Oklahoma City, OK	-	0.000		0.000		6.025	Aug 2017	0.000		6.025	Continuing	Continuing	-
Subtotal			-	0.000		0.000		6.025		0.000		6.025	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Cost (OGC)	Various	Various : TBD	-	0.000		0.000		1.000	Mar 2017	0.000		1.000	Continuing	Continuing	-
Subtotal			-	0.000		0.000		1.000		0.000		1.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS, Travel, Centralized Support	Various	Various : TBD	-	0.000		0.000		0.500	Jan 2017	0.000		0.500	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.500		0.000		0.500	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.000	7.525	0.000	7.525	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675041 / Bomber Tactical Data Link
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MDD									■																			
Milestone A											■																	
TMRR													■	■	■	■												
Milestone B															■													
EMD																	■	■	■	■								
Milestone C																											■	
LRIP																												■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675041 / Bomber Tactical Data Link
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD	1	2017	1	2017
Milestone A	3	2017	3	2017
TMRR	4	2017	3	2018
Milestone B	3	2018	3	2018
EMD	4	2018	3	2020
Milestone C	3	2020	3	2020
LRIP	4	2020	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS				Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	39.994	60.265	34.634	0.000	34.634	15.128	0.000	0.000	0.000	0.000	150.021
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MIL-STD-1760 Internal Weapons Bay Upgrade (IWBU) requires the integration of the 1760 weapons capability into the bomb bay on 78 B-52H aircraft. It includes two Ground Instructional Training Aircraft (GITA),utilizing 44 Common Strategic Rotary Launchers (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. The 1760 IWBU project is segmented into increments. Increment 1.0 provides internal and external carriage and consists of two sub increments 1.1 and 1.2. This requirement's Capability Development Document (CDD) was validated by the Air Force Requirements Oversight Council (AFROC) in June 2013. The 1760 Capability Production Document was validated by the AFROC in February 2015.

Increment 1.1

Increment 1.1 develops the capability for internal carriage of eight Joint Direct Attack Munitions (JDAM) and variants, to include Laser JDAM (L/JDAM), on a rotary launcher. This increment also develops the capability for external carriage for 16 L/JDAM. The CRL Hardware modification consists of Group A (equipment racks and electrical wiring) and Group B (one Survivability/Vulnerability (SV) junction box and one Integrated Weapons Interface Unit (IWIU) per CRL). The IWIU Line Replaceable Unit (LRU) was previously developed under the Advanced Weapons Integration (AWI) project. No CSRL replacements will be required as a result of this project. Increment 1.1 completed Preliminary Design Review in February 2013 and awarded an EMD contract in September 2013. Critical Design Review (CDR) was conducted in October 2013. An Integrated Baseline Review (IBR) was conducted in February 2014, validating cost and schedule baselines. Milestone C was conducted in April 2015. Development/Operational Flight Test was completed November 2015 and a Full Rate Production Decision was held November 2015.

Aircraft Hardware Development: None

Software Development: Consists of modifying aircraft Operational Flight Program (OFF) software, JDAM Stores Management Overlays (SMO) and ground based Joint Mission Planning System (JMPS).

CRL Hardware Development: Consists of modifying USSTRATCOM provided CSRLs by replacing nuclear mission equipment with Group B hardware and wiring interfaces. Group A includes equipment racks and electrical wiring; Group B includes one Survivability/Vulnerability (SV) junction box and one IWIU per CRL. The IWIU LRU was previously developed under the AWI project and work was previously accomplished during a 2005 demonstration and developed using 2006 and 2007 Congressional Add funding. Three CSRLs modified using RDT&E funds.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)
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Support Equipment: Consists of developing software and 38 rotary launcher cable adapter sets on existing Multi-Use System Tester Armament Next Generation (MUSTANG) testers to interface with the CRL.

Increment 1.2

Increment 1.2 develops the capability for internal carriage of eight Joint Air-to-Surface Standoff Missiles (JASSM) and its variants, to include JASSM Extended Range (JASSM-ER), and eight Miniature Air Launched Decoys (MALD) and its variants, to include MALD Jammer (MALD-J). This increment also develops the capability for external carriage for 12 JASSM-ER.

Upon completion of JASSM/ER software development, an interim capability providing for carriage and deployment of no less than 16 JASSM/ER (4 bay, 12 external) is planned. A limited DT/OT will validate this capability in advance of hardware design completion and validation.

Aircraft Hardware Development: Development of Group A wiring and circuit breakers to supply additional power to the CRL per JASSM-ER requirements, for all 76 operational B-52H aircraft, and two Ground Instructional Training Aircraft.

Software Development: Development of a modification to existing aircraft SMO and weapon (JASSM and MALD) OFP software to allow for internal and external carriage and modification to ground based JMPS.

CRL Hardware Development: Develops Group A associated interface hardware and two Group B LRUs (power supply and power distribution box). Three CRLs will be modified using RDT&E funds.

Support Equipment: Consists of developing software updates to the existing MUSTANG to interface with the CRL and the development of additional ground handling support equipment.

BA7- This project 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: 1760 IWBU Inc 1.1	10.276	0.000	0.000	0.000	0.000
Description: Provides internal J-series weapons capability through modification of CSRLs with IWIUs and upgraded weapon management software.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Concluded Increment 1.1 development: Concluded SEEK EAGLE safe separation analysis. Concluded ground and initiate flight testing of CRL prototype and JDAM SMO. Concluded B-52 JMPS and Trainer/Ground Maintenance Computer Program (GMCP) software. Finalized drawings for CRL, and test support equipment modification kits to support Milestone C activity. Concluded development of technical orders in preparation for kit-proof. Concluded modification of three prototype CRLs.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: 1760 IWBU Inc 1.2</p> <p>Description: Provides internal J-series weapons capability through modification of CSRLs with IWIUs, aircraft hardware modifications, and upgraded weapon management software. Upon completion of JASSM software coding yet prior to full 1760 hardware design completion, an interim JASSM/ER capability will be validated thru DT/OT in FY17.</p> <p>FY 2015 Accomplishments: Implemented Increment 1.2 development: Entered Technology Maturation & Risk Reduction phase (TMRR). Awarded Tech Maturation & Risk Reduction and Weapon Operational Flight Program Software contracts, including test assets. Initiated SEEK Eagle safe separation analysis. Began designing and coding of software. Initiated test planning efforts.</p> <p>FY 2016 Plans: Continue Increment 1.2 development: Completes TMRR phase in support of Milestone B decision and awards Engineering and Manufacturing Development Option. Continue weapon software modification and provision remaining test assets. Continue SEEK EAGLE safe separation analysis. Conduct ground testing of JASSM SMO. Finalize test planning and technical orders in preparation for Interim JASSM/ER Capability validation. Initiate modification of three prototype aircraft and three prototype CRLs.</p> <p>FY 2017 Base Plans:</p>	29.718	60.265	34.634	0.000	34.634

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue Increment 1.2 development: Continues Engineering and Manufacturing Development phase in support of Milestone C decision. Continue weapon software modification and Developmental/Operational Test efforts. Continue SEEK EAGLE safe separation analysis. Concludes modification of three prototype aircraft and three prototype CRLs. Finalize test planning and technical orders in preparation for full 1.2 Capability validation. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	39.994	60.265	34.634	0.000	34.634

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # B05200: B-52 Modifications	7.486	14.472	3.691	0.000	3.691	29.586	21.675	0.000	0.669	-	-
• APAF: BA06: Line Item # 000999: Initial Spares/Repair Parts	0.449	1.051	0.944	0.000	0.944	0.813	0.171	0.020	0.849	-	-
• APAF: BA07: Line Item # B05200: Depot Activation	0.000	3.960	0.000	0.000	0.000	0.000	0.992	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The 1760 Internal Weapons Bay Upgrade project will acquire software development and hardware design via a sole-source contract to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Deliverables include an updated J-series weapon SMOs (software), three prototype modified CSRLs, six Low Rate Initial Production (LRIP) assets, logistics support, ground and flight test support, and engineering drawings. The Increment 1.1 program procured the CRL modification kits via sole source to Boeing DSS, OKC for LRIP and Full Rate Production (FRP) and LRIP Installations, and FRP Installs of the kits will be completed via Contract Field Teams (CFTs). The Increment 1.2 program plans to competitively procure the CRL modification kits for full rate production, and installs of the kits are planned to be completed via CFT.

Increment 1.1 consists of internal carriage of eight JDAM and variants, to include LJDAM, on a rotary launcher. This increment also develops the capability for external carriage for 16 LJDAM. The CRL Hardware modification consists of Group A (equipment racks and electrical wiring) and Group B (one SV junction box and one IWIU per CRL).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 SQUADRONS</i>	Project (Number/Name) 675048 / <i>1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)</i>

Increment 1.2 develops the capability for internal carriage of eight JASSM and its variants, to include JASSM-ER, or eight MALD and its variants, to include MALD-J. This increment also develops the capability for external carriage for 12 JASSM-ER. Upon completion of JASSM/ER OFP and SMO software coding, an interim capability of no less than 16 JASSM/ER carriage will be validated thru DT/OT in FY17.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
1.1 1760 IWBU Production Development	Various	Boeing : OKC, OK	-	6.821	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU Production Development	Various	Boeing : OKC, OK	-	16.446	Feb 2015	32.482	Feb 2016	18.890	Feb 2017	0.000		18.890	Continuing	Continuing	-
1.1 1760 IWBU Mission Planning Development	WR	557 SMXS : Tinker AFB, OK	-	0.044	Jan 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU MALD OFP	SS/FFP	Raytheon : Tuson, AZ	-	4.358	Mar 2015	2.705	Feb 2016	0.033	Feb 2017	0.000		0.033	Continuing	Continuing	-
1.2 1760 IWBU JASSM OFP	SS/FFP	Lockheed : Orlando, FL	-	3.042	Mar 2015	2.900	Feb 2016	3.377	Feb 2017	0.000		3.377	Continuing	Continuing	-
Subtotal			-	30.711		38.087		22.300		0.000		22.300	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
1.1 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	1.306	May 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	0.175	Feb 2015	0.988	May 2016	8.020	Jan 2017	0.000		8.020	Continuing	Continuing	-
1.1 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	1.400	Jan 2016	0.000		0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	0.000		0.626	Mar 2016	1.590	Jan 2017	0.000		1.590	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
1.2 1760 IWBU JASSM Test Assets	SS/FFP	Lockheed : Orlando, FL	-	4.600	Mar 2015	17.830	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU MALD Test Assets	SS/FFP	Raytheon : Tuson, AZ	-	0.000		1.510	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	7.481		20.954		9.610		0.000		9.610	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
1.1 1760 IWBU Program Management Administration A&AS, Travel	Various	AFCLCMC : Tinker AFB, OK	-	0.705	Oct 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU Program Management Administration, A&AS, Travel	Various	AFCLCMC : Tinker AFB, OK	-	1.097	Feb 2015	1.224	Nov 2015	2.724	Jan 2017	0.000		2.724	Continuing	Continuing	-
Subtotal			-	1.802		1.224		2.724		0.000		2.724	-	-	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	39.994	60.265	34.634	0.000	34.634	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1760 IWBU Inc. 1.1 Milestone C (Apr 15)			■																									
1760 IWBU Inc. 1.1 RAA (Dec 15)							■																					
1760 IWBU Inc. 1.2 TMRR			■	■	■	■	■	■																				
1760 IWBU Inc. 1.2 Milestone B (Dec 15)							■																					
1760 IWBU Inc. 1.2 EMD							■	■	■	■	■	■																
1760 IWBU Inc. 1.2 Milestone C (Oct 17)															■													
1760 IWBU Inc. 1.2 RAA (Oct 18)																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
1760 IWBU Inc. 1.1 Milestone C (Apr 15)	3	2015	3	2015
1760 IWBU Inc. 1.1 RAA (Dec 15)	1	2016	1	2016
1760 IWBU Inc. 1.2 TMRR	3	2015	2	2016
1760 IWBU Inc. 1.2 Milestone B (Dec 15)	1	2016	1	2016
1760 IWBU Inc. 1.2 EMD	2	2016	3	2018
1760 IWBU Inc. 1.2 Milestone C (Oct 17)	1	2018	1	2018
1760 IWBU Inc. 1.2 RAA (Oct 18)	1	2019	1	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675050: CONECT	-	1.078	11.225	13.672	0.000	13.672	18.723	10.517	0.815	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Combat Network Communications Technology (CONECT) acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with tactical datalink and voice communications capabilities, along with improved threat and situational awareness to support participation in network centric operations. The CONECT upgrade includes new Multi-Functional Color Displays (MFCDs); a digital interphone system, on-board client/server architecture supporting distributed processing with independent control functions; Ultra High Frequency (UHF) Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability Intelligence Broadcast Receiver (IBR); limited Internet Protocol (IP)-based UHF BLOS link supporting voice, e-mail and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink. As the CONECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to IBR, JRE messages, crypto modernization, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 Identification, Friend or Foe (IFF), etc.) may require study for potential impacts to CONECT.

In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers, using stimulate/simulate/computer-based training or a mix, to add CONECT functionality to meet user-training requirements, and update/maintain the system integration laboratory (SIL) for the Weapon System Trainers (WST). In order to assist PDM during after-install checkout and Barksdale and Minot units with maintenance checkout and operational training, a CONECT ground station is being developed.

This project 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CONECT	1.078	11.225	13.672	0.000	13.672
Description: Diminishing Manufacturing Source (DMS) redesign development and test effort. Continued engineering design of CONECT capability into the B-52 training systems. Began incorporating changes required due to updates in Government Furnished Equipment (GFE) and crypto modernization requirements. Incorporated/integrated CONECT with recurring updates of the B-52 software baseline. As the CONECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to the IBR, JRE messages, crypto modernization, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 IFF, etc.) may require study for potential impacts to CONECT. CONECT will update the existing trainers and/or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the System Integration Lab (SIL) and for the WST. A CONECT ground station, is required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675050 / CONECT
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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FY 2015 Accomplishments:
 Completed DMS redesign development and test effort. Prepared for and began source selection for the development of CONECT capability into the B-52 training systems. Incorporated changes required due to updates in GFE and crypto modernization requirements. The CONECT Desktop Training Tool (CDTT) will begin development to provide an interim training capability until the WST is available. Completed the integration of the Air Force Tactical Receiver System Version 2 (AFTRS R2) crypto modernization and began work on the integration of Version 3 of AFTRS.

FY 2016 Plans:
 Completed ground and flight test of the AFTRS R3. Complete source selection for the CONECT WST. Begin engineering design of CONECT capability into the B-52 training systems and SIL development through simulation/computer based training or a mix. SIL will be moved to the prime contract upon selection of the prime. Incorporate changes required due to updates in GFE and crypto modernization requirements. Incorporate/integrate CONECT with recurring updates of the B-52 software baseline. As the CONECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to the IBR, JRE messages, crypto modernization, etc) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 IFF, etc) may require study for potential impacts to CONECT. The CONECT Desktop Training Tool (CDTT) will complete development and begin deployment to the user as an interim training capability until the WST is available. Began planning, development of an acquisition strategy,, and possibly the engineering design of the CONECT ground station, required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability.

FY 2017 Base Plans:
 Continuing engineering design of CONECT capability into the B-52 training systems. Incorporate changes required due to updates in GFE and crypto modernization requirements. Incorporate/integrate CONECT with recurring updates of the B-52 software baseline. As the CONECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to the IBR, JRE messages, crypto modernization, etc) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 IFF, etc) may require study for potential impacts to CONECT. CONECT will continue the development/update of the existing trainers, by stimulation/simulation/computer-based training or a mix, to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the Weapon System Trainer (WST). Began/continue the engineering design of the CONECT ground station, required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability.

FY 2017 OCO Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675050 / CONECT

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	1.078	11.225	13.672	0.000	13.672

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # B05200: B-52	121.987	124.144	99.068	0.000	99.068	95.536	54.077	27.427	27.931	-	-
• APAF: BA06: Line Item # B05200: Initial Spares/Repair Parts	12.517	5.265	4.561	0.000	4.561	4.602	0.000	0.000	0.000	-	-
• APAF: BA07: Line Item # B05200: Post Production Support	1.328	5.911	28.125	0.000	28.125	0.199	12.924	4.678	5.597	-	-
• APAF:BA07: Line Item # B05200: Depot Activation	0.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The B-52 CONECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, tests and procures necessary equipment from their subcontractors; developed engineering drawings, logistic and technical data. The Government is developing the time compliance technical order (TCTO) for installation on the B-52. Pro-Active Systems is the current contractor for the trainer update to integrate CONECT into the existing trainers (currently in source selection for FY16).

E. Performance Metrics

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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0101113F / B-52 SQUADRONS				675050 / CONECT								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
AFTRS R3 - Wright Patt	SS/ Various	Boeing : Oklahoma City, OK	-	0.163	Mar 2015	0.775	Feb 2016	1.250	Jan 2017	0.000		1.250	Continuing	Continuing	-	
Subtotal			-	0.163		0.775		1.250		0.000		1.250	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 System Trainer Update	Various	AFLCMC/WNS : WPAFB, OH	-	0.568	Aug 2015	10.200	Feb 2016	12.172	Jan 2017	0.000		12.172	Continuing	Continuing	-	
Other Government Costs (OGC)	Various	Various : TBD	-	0.131	Feb 2015	0.250	Feb 2016	0.250	Jan 2017	0.000		0.250	Continuing	Continuing	-	
Subtotal			-	0.699		10.450		12.422		0.000		12.422	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
AFTRS R3	SS/ Various	Boeing : Oklahoma City, OK	-	0.216	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-	
Subtotal			-	0.216		0.000		0.000		0.000		0.000	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	1.078		11.225		13.672		0.000		13.672	-	-	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675050 / CONECT
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CONECT Full Rate Production Decision (Jan 15)																												
Weapon System Trainer (WST) Contract Award (Mar 16)																												
WST System Integration Lab (SIL) Development																												
System Integration Lab Relocation																												
CONECT RAA (Jul 17)																												
Offensive Station Mission Trainer (OSMT) Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675050 / CONECT
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CONECT Full Rate Production Decision (Jan 15)	2	2015	2	2015
Weapon System Trainer (WST) Contract Award (Mar 16)	2	2016	2	2016
WST System Integration Lab (SIL) Development	2	2016	1	2018
System Integration Lab Relocation	2	2016	4	2016
CONECT RAA (Jul 17)	4	2017	4	2017
Offensive Station Mission Trainer (OSMT) Development	2	2018	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675055: GPS-IU	-	0.000	2.980	6.916	0.000	6.916	17.713	11.785	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three Circuit Card Assemblies (CCA) in the GPS IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card. The current inventory of GPS IUs (76 installed on B-52H, plus current supply level of 16), plus 1 in the System Integration Laboratory (SIL), and 2 on Ground Instructional Training Aircraft (GITA)) will be upgraded by Prime Contractor Boeing. The upgraded LRUs will be replaced using blue-suit installation, using remove-and-replace processes on the flight line (the current maintenance process).

The GPS IU integrates GPS Position, Navigation and Timing (PNT) data into navigation, communications, and weapons systems onboard the B-52. The GPS IU acts as a controller for a MIL-STD-1553 data bus communications path. The major areas of support include GPS interface control and monitoring, targeting pod functions, navigation displays for the Pilot and Copilot stations, and Identification Friend or Foe (IFF) control functions.

Originally developed with a 33MHz processor with 4MB of Static Random Access Memory (SRAM), the GPS IU has become overloaded as more software has been added to the B-52. Currently operating at 86% throughput capacity and at 90% memory capacity, it is projected to exceed the designated safety threshold of 95% memory load by 2018. The GPS IU is also facing parts obsolescence issues. Studies show that the current spares will be exhausted by 2018. The upgrade will improve system reliability and address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on subcomponents of the 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.

GPS IU requires upgrading to incorporate any other GPS dependent capabilities on the B-52 platform. B-52 fleet will have the capability to carry additional GPS dependent weapons and targeting pods, and the increased capacity to incorporate future GPS-dependent capabilities beyond 2018.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Global Positioning System (GPS) Interface Unit (IU)	0.000	2.980	6.916	0.000	6.916
Description: Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three circuit card assemblies in the GPS IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675055 / GPS-IU
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Enter GPS IU Upgrade Technology Maturation and Risk Reduction (TMRR) phase. Award TMRR sole source contract to Boeing, OKC OK. FY 2017 Base Plans: Continue GPS IU Upgrade development. Complete TMRR phase in support of Milestone B decision. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	2.980	6.916	0.000	6.916

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF BA05: Line Item # B05200: GPS-IU Replacement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.932	9.096	-	-

Remarks

D. Acquisition Strategy

The GPS IU Upgrade project will begin development in the Technology Maturation and Risk Reduction (TMRR) phase via a sole source contract to Boeing Defense, Space & Security (DSS), Oklahoma City, OK.

Development will continue in the Engineering and Manufacturing Development (EMD) phase via a sole source contract to Boeing DSS, OKC. Deliverables include software, five prototype upgraded GPS IUs, logistics support, ground and flight test support, and engineering drawings.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675055 / GPS-IU
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS-IU TMRR	SS/ Various	Boeing : Oklahoma City, OK	-	0.000		2.980	Aug 2016	6.616	Mar 2017	0.000		6.616	Continuing	Continuing	-
Subtotal			-	0.000		2.980		6.616		0.000		6.616	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA, Travel	Various	Various : TBD	-	0.000		0.000		0.300	Jan 2017	0.000		0.300	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.300		0.000		0.300	-	-	-

			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		2.980		6.916		0.000		6.916	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675055 / GPS-IU
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

MS A (Nov 16)	█																											
TMRR	████████████████████																											
MS B (Sep 17)	█																											
EMD	████████████████████████████████████████																											
DT/OT	████████████████████																											
MS C	█																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675055 / GPS-IU
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MS A (Nov 16)	1	2017	1	2017
TMRR	2	2017	1	2018
MS B (Sep 17)	4	2017	4	2017
EMD	2	2018	1	2020
DT/OT	2	2019	4	2019
MS C	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	0.000	0.000	4.653	0.000	4.653	55.067	114.297	145.393	171.909	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 07 PE 0101113F, project 675056, Radar Modernization Program, is a new start.

A. Mission Description and Budget Item Justification

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by upgrading or replacing, in whole or in part, the current APQ-166 radar Line Replaceable Units on the B-52H aircraft. The APQ-166 system will be 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 and up to 14 individual LRUs that comprise the entire radar system. Development, production and installation of new components and systems to replace the legacy equipment; to be installed on all 76 B-52H aircraft. RMP will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, off-the-shelf components 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. This Radar Modernization Program will allow the operational command (AF Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions.

In addition, all the applicable training devices which process radar data or represent the radar subsystem must also be modified and upgraded in conjunction with the aircraft modifications. This upgrade will affect all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), both B-52 Offensive Station Maintenance Trainers (OSMT), and the Bombing-Navigation System Maintenance Trainers (BNSMT). Based on input from AFGSC, the program will retire the five existing BNMSTs and replace them with three new virtual training devices.

This project 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Radar Modernization Program	0.000	0.000	4.653	0.000	4.653
Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft. Radar Modernization Program (RMP) will take advantage of advances in technology and on-					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
going development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and provide capabilities for new missions					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Establish/stand up program office; requirements development and refinement; conduct analysis of alternatives and other technology maturation and risk reduction efforts (competitive prototyping and operational evaluations, studies of cooling, electromagnetic compatibility, power and nuclear hardening impacts and requirements); initiate development activities supporting integration of off-the-shelf radar components; initiate test requirements and planning for DT&E					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.653	0.000	4.653

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• None: None	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy
Various options are in review, i.e., sole source to the Original Equipment Manufacturer (Boeing), compete the radar, compete the integrator, etc. Sources Sought has been issued for potential integrators. Final decision will be made after all data has been gathered and reviewed.

E. Performance Metrics
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 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0101113F / B-52 SQUADRONS				675056 / B-52 Radar Modernization Program (RMP)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	TBD	Not specified. : TBD	-	0.000		0.000		3.500	Jan 2017	0.000		3.500	Continuing	Continuing	-
Subtotal			-	0.000		0.000		3.500		0.000		3.500	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 Support, A&AS, PMA	Various	Not specified. : TBD	-	0.000		0.000		1.153	Jan 2017	0.000		1.153	Continuing	Continuing	-
Subtotal			-	0.000		0.000		1.153		0.000		1.153	-	-	-
Project Cost Totals			-	0.000		0.000		4.653		0.000		4.653	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Risk Reduction																												
MS A																												
TMRR																												
MS B																												
EMD																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction	2	2017	2	2018
MS A	2	2018	2	2018
TMRR	2	2018	4	2019
MS B	4	2019	4	2019
EMD	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS				Project (Number/Name) 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675058: B-52 Weapon Sys Trainer Air Ref Training Upgrade	-	0.000	0.000	4.875	0.000	4.875	13.202	7.914	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101113F, project 675058, B-52 Weapons Systems Trainer Air Refueling Training Upgrade, is a new start.

A. Mission Description and Budget Item Justification

The principal mission of the B-52 Training Systems program is to ensure high fidelity simulators and training systems are available for aircrew members to support credible training, maintain proficiencies, and increase skill levels. B-52 Aircrew Training Devices simulates the necessary visual, motion, and audible cues to provide ground training of Air Force Global Strike Command aircrew members. The B-52 Weapon System Trainer (WST) Air Refueling Upgrade is a comprehensive project that will allow B-52 Aircrew to accomplish credible air refueling training in the simulator, which minimizes the requirement for on-aircraft air refueling training. To facilitate this capability, scope of work may involve development of Analysis of Alternatives(AoA),Studies and Analysis, Capability Development Documents (CDD) or any other Analysis or paperwork necessary to establish a program of record.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: B-52 Weapons Systems Trainer Air Refueling Training Upgrade	0.000	0.000	4.875	0.000	4.875
Description: Initiate Analysis of Alternatives, engineering studies, flight test planning, data collection, data analysis, and software development required to support B-52 Weapon System Trainer Air Refueling Training Upgrade.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Initiate Analysis of Alternatives,engineering studies, flight test planning,data collection, data analysis, and software development required to support B-52 Weapon System Trainer Air Refueling Training Upgrade.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.875	0.000	4.875

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA 0-5: Line item # B05200: Weapons System Trainer Air Refueling Training Upgrade	0.000	0.000	0.000	0.000	0.000	1.806	0.000	11.085	0.000	-	-

Remarks

D. Acquisition Strategy

The B-52 Training Systems Contract will be utilized for Weapon System Trainer Air Refueling contracting actions.

E. Performance Metrics

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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0101113F / B-52 SQUADRONS				675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 System Trainer Air Refueling Training Upgrade	TBD	TBD : TBD	-	0.000		0.000		4.875	Feb 2017	0.000		4.875	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		4.875		0.000		4.875	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	0.000		0.000		4.875		0.000		4.875	-	-	-	
Remarks																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
WST AR Trainer Engineering Studies/Analysis	2	2017	4	2017
WST AR Trainer Data Collection/Compilation	1	2018	3	2018
WST AR Trainer Software/Hardware Development/Integration/Test	4	2017	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675160 / B-52 Crypto Modernization
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	0.000	0.000	5.941	0.000	5.941	11.885	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101113F, project 675160, B-52 Crypto Modernization, is a new start.

A. Mission Description and Budget Item Justification

Upgrades aircraft with Mobile User Objective System (MUOS) capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability. As MUOS legacy channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol (FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: B-52 Crypto Modernization	0.000	0.000	5.941	0.000	5.941
Description: Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability. As Mobile User Objective System (MUOS) legacy channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol (FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Establish/stand-up program office, develop and refine requirements, initiate development activities supporting integration of MUOS radio, and planning for DT&E.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.941	0.000	5.941

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675160 / B-52 Crypto Modernization
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA 05: Line item # B05200: B-52 Crypto Modernization	0.000	0.000	0.000	0.000	0.000	0.000	14.880	17.863	21.842	-	-

Remarks

D. Acquisition Strategy

The B-52 Crypto Modernization Program EMD prime contract is expected to be sole sourced to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, integrates, tests, and procures necessary equipment from their subcontractors, develops engineering drawings, logistics and technical data.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675160 / B-52 Crypto Modernization
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Crypto Modernization development and integration activities	TBD	Not specified. : TBD	-	0.000		0.000		5.541	Jan 2017	0.000		5.541	Continuing	Continuing	-
Subtotal			-	0.000		0.000		5.541		0.000		5.541	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Initiate test requirements and DTE planning	TBD	TBD : TBD	-	0.000		0.000		0.300	Jan 2017	0.000		0.300	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.300		0.000		0.300	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Costs for Program Management Administration and Travel	Various	TBD : TBD	-	0.000		0.000		0.100	Jan 2017	0.000		0.100	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.100		0.000		0.100	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.000	5.941	0.000	5.941	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675160 / B-52 Crypto Modernization
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD	1	2017	1	2017
Milestone B	1	2017	1	2017
EMD contract award	4	2017	4	2017
EMD	4	2017	3	2018
Milestone C	4	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.450	0.451	0.453	0.000	0.453	0.462	0.472	0.482	0.490	Continuing	Continuing
674797: <i>ALCM Upgrades</i>	-	0.450	0.451	0.453	0.000	0.453	0.462	0.472	0.482	0.490	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.

The Aging and Surveillance (A&S) program continuously assesses critical components and subsystems. The program identifies aging trends prior to failures in fielded components that would result in fleet-wide reliability and supportability problems. In 2016, A&S will be accomplished via 3400 Central Asset Management (CAM).

The ALCM Test Plan Development and Evaluation program develops test procedures for testing nuclear systems, and implements those procedures as directed by the Chairman, Joint Chiefs of Staff. As A&S shifts to CAM, the program will increase emphasis on the program's two phases of Test Plan Development, Evaluation and implementation. Phase 1 focuses on Electromagnetic (EM) development and testing for High Altitude Electromagnetic Pulse (HEMP), Hazards of Electromagnetic Radiation to Ordnance (HERO), and High Power Microwave (HPM) testing. Phase 2 focuses on the development of radiation testing and radiation testing.

RDT&E funds are used to develop new test and evaluation procedures, software, and equipment, to ensure ALCM sustainability supports Air Force strategic nuclear deterrence and Global Strike mission requirements through 2030.

BA7- 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.450	0.451	0.458	0.000	0.458
Current President's Budget	0.450	0.451	0.453	0.000	0.453
Total Adjustments	0.000	0.000	-0.005	0.000	-0.005
• 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	-0.005	0.000	-0.005

Change Summary Explanation

No Significant Program Changes

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: ALCM Aging and Surveillance Program</p> <p>Description: Develop test procedures to identify age-related failure trends and prevent reliability and supportability issues for ALCM system components.</p> <p>FY 2015 Accomplishments: Developed Environmental Test Plan and Test Requirements Documents for ALCM Power Distribution Box.</p> <p>FY 2016 Plans: Funding is moving to 3400 Centralized Asset Management (CAM).</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.144	0.000	0.000	0.000	0.000
<p>Title: ALCM Test Plan Development and Evaluation</p> <p>Description: Develop test procedures to implement CJCS-directed requirement for EM testing for nuclear systems.</p>	0.306	0.451	0.453	0.000	0.453

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>	

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> Developed test plan and procedures for EM testing and evaluation of nuclear systems. Began EM testing.					
<i>FY 2016 Plans:</i> Continue development of test plans and procedures for implementation of Phase 1 testing and begin Phase 2 test plans and procedures development. Continue EM testing.					
<i>FY 2017 Base Plans:</i> Continue development of test plans and procedures for implementation of Phase 2 testing.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.450	0.451	0.453	0.000	0.453

D. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• MPAF: BA03: Line Item # MALCBG: <i>ALCM, Missile Modifications</i>	16.083	25.019	21.762	0.000	21.762	21.381	25.171	24.804	24.981	Continuing	Continuing
• MPAF: BA04: Line Item # MALCBG: <i>ALCM, Replenishment Spares</i>	4.767	0.496	3.232	0.000	3.232	2.936	2.300	2.339	2.380	Continuing	Continuing
• OPAF: BA03: Line Item # MALCBG: <i>ALCM, Electronics & Telecommunications Equipment (BP83)</i>	1.989	1.908	1.710	0.000	1.710	1.740	1.771	1.802	1.835	Continuing	Continuing
• MPAF: BA04: Line Item # 999/ Repl...: <i>ALCM, Initial Spares</i>	0.000	0.000	0.294	0.000	0.294	0.303	0.311	0.321	0.331	Continuing	Continuing

Remarks

E. Acquisition Strategy
The ALCM Aging and Surveillance Program has been executed by the prime contractor utilizing annual delivery orders on a Firm Fixed Price (FFP) contract.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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

R-1 Program Element (Number/Name)
PE 0101122F / *Air-Launched Cruise Missile (ALCM)*

The EM test development is currently funded via Military Interdepartmental Purchase Requests to White Sands Missile Range, NM.

The EM test development and evaluation strategy (organic or contractor) is expected to be determined 4QFY16 with a focus on existing IDIQ contracts.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

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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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ALCM Aging and Surveillance	C/FFP	Boeing : St Charles, MO	-	0.141	Jun 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.141		0.000		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
EM Test Plan Development and Evaluation	MIPR	White Sands Missile Range : NM	-	0.306	Feb 2015	0.446	Dec 2015	0.433	Sep 2016	0.000		0.433	Continuing	Continuing	-
Subtotal			-	0.306		0.446		0.433		0.000		0.433	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA - Government Costs	Various	Various : Various	-	0.003	Aug 2015	0.005	Aug 2016	0.020	Aug 2017	0.000		0.020	Continuing	Continuing	TBD
Subtotal			-	0.003		0.005		0.020		0.000		0.020	-	-	-

Remarks
ALCM Aging and Surveillance/Test Development Program PMA is for Supplies and Travel in support of project number 674797

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0101122F / Air-Launched Cruise Missile (ALCM)			Project (Number/Name) 674797 / ALCM Upgrades				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.450	0.451	0.453	0.000	0.453	-	-	-	

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>	Project (Number/Name) 674797 / <i>ALCM Upgrades</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALCM Aging & Surveillance Program Development	1	2015	4	2015
Test Development Phase 1	1	2015	2	2016
HEMP/HERO/HPM Testing	1	2015	3	2016
Test Development Phase 2	4	2016	4	2018
Radiation Testing	1	2019	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	4.208	2.245	5.830	0.000	5.830	17.932	35.734	0.000	0.000	Continuing	Continuing
675344: <i>B-1B Modernization</i>	-	4.208	2.245	5.830	0.000	5.830	17.932	35.734	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101126F, project 675344, B-1B Global Positioning System (GPS) Military-Code (M-Code), is a new start.

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 United States Air Force 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 current service life extends beyond 2040.

The B-1B modernization projects alleviate aircraft obsolescence issues due to Diminishing Manufacturing Sources (DMS) while at the same time providing improved capabilities to the B-1B weapon system that require significant hardware and software development and testing.

GLOBAL POSITIONING SYSTEM (GPS) MILITARY-CODE (M-CODE)

This project will integrate a military GPS receiver delivering improved capabilities to allow for accurate and reliable positioning, navigation, and timing for B-1 primary flight instrumentation, navigation, radar, weapon, and communication systems where current receiver performance might be compromised or unavailable. M-Code has a higher-power signal offering better resistance to jamming and interference; advanced security features to prevent unauthorized access or exploitation by adversaries; and improved message formats and signal modulation techniques for faster and more accurate performance.

INTEGRATED BATTLE STATION (IBS) SIMULATOR DEVELOPMENT

B-1B training systems upgrades (both flight and maintenance simulators/trainers) provide required training assets for the aircraft Central Integrated Test System (CITS), Fully Integrated Data Link (FIDL), and Vertical Situational Display Upgrade (VSDU) modernization projects. These upgrades are required to bring the simulators up to the same configuration of the modernized aircraft. The B-1B training system provides the warfighter with a fully integrated, cost effective, high fidelity training capability in flight operations, weapons employment, and maintenance of the B-1B weapon system.

FLIGHT TEST AIRCRAFT UPGRADES

Upgrades to the B-1B flight test aircraft are included in the modernization projects to keep the test flight systems current. RDT&E funded test jets are currently configured with Engineering and Manufacturing Development (EMD) Line Replaceable Units (LRUs) for CITS, FIDL and VSDU. Replacement of the EMD LRUs is required to bring two flight test aircraft to fleet representative configuration. Maintenance and logistic support from the manufacturer is required until the Air Force supply chain is established. Replacement of the LRUs will ensure maximum supportability, maintainability, and reliability for continued and future flight tests.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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GAP & INTEGRATION ANALYSIS

Additionally, program funds cover engineering/planning studies, related engineering efforts, and auxiliary equipment needed for development projects that have not yet fielded. Cost includes Program Management Administrative (PMA) costs and initiatives for anticipated weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost. All B-1B development projects support planned requirements for unique identification in their production phases.

The FY2017 funding request was reduced by -\$0.451 million to account for the availability of prior year execution balances

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

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	4.353	2.245	2.990	0.000	2.990
Current President's Budget	4.208	2.245	5.830	0.000	5.830
Total Adjustments	-0.145	0.000	2.840	0.000	2.840
• 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	-0.145	0.000			
• Other Adjustments	0.000	0.000	2.840	0.000	2.840

Change Summary Explanation

FY2017: Program increased by \$2.840M for B-1B Modernization of Global Positioning System (GPS) Military Code (M-Code) new start effort.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: B-1B Global Positioning System (GPS) Military-Code (M-Code)	0.000	0.000	5.830	0.000	5.830
Description: Aircraft RDT&E efforts include modernization of the Global Positioning System (GPS) Military Code (M-Code). This effort will integrate a military GPS receiver delivering improved capabilities to allow for accurate and reliable positioning, navigation, and timing for B-1 primary flight instrumentation, navigation, radar, weapon, and communication systems where current receiver performance might be compromised or unavailable. M-Code has a higher-power signal offering better resistance to jamming and interference;					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
advanced security features to prevent unauthorized access or exploitation by adversaries; and improved message formats and signal modulation technique for faster and more accurate performance. This is a New Start effort in FY2017. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Conduct acquisition planning, risk assessments, and other pre-EMD activities. Begin Engineering and Manufacturing Development efforts. FY 2017 OCO Plans: N/A					
Title: B-1B IBS Simulator Development Description: B-1B Integrated Battle Station (IBS) simulator development is the upgrade to existing training systems (both flight and maintenance) to simulate IBS configuration. IBS is the combined production phase of Central Integrated Test Systems (CITS), Fully Integrated Data Link (FIDL), and Vertical Situation Display Upgrade (VSDU) development efforts. FY 2015 Accomplishments: Simulator and training upgrades completed software and hardware development with integration and testing to support fielding of CITS, FIDL, and VSDU. Development activities concluded. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	0.832	0.000	0.000	0.000	0.000
Title: B-1B Flight Test Upgrades	3.376	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Description: B-1B Flight Test Upgrades modifies the two flight test aircraft at Edwards AFB to the production IBS configuration; the EMD Line Replacement Units (LRUs) that are currently on the aircraft will be removed and replaced with production units.</p> <p>FY 2015 Accomplishments: Flight Test Upgrades funded the engineering technical support and analysis for CITS, FIDL, and VSDU EMD LRUs on the RDT&E funded test jets. Flight Test Upgrades completed installation of CITS, FIDL and VSDU production kits to include wiring modifications to fully integrate the production LRUs on both Test Aircraft.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Gap & Integration Analysis</p> <p>Description: Funds will be used for studies to facilitate new capabilities and enhancements to improve operational aircraft safety, supportability, maintainability, reliability and total ownership cost. Conduct engineering studies that will involve a gap and integration analysis for replacing existing Multifunctional Information Distribution System-Low Volume Terminal (MIDS-LVT (1)) with the MIDS-Joint Tactical Radio System Terminal (MIDS-JTRS); upgrade of the current Global Positioning System/Inertial Navigation System (INS) with the required new military M-Code standard and Radio Crypto Compliance to replace two legacy radios with Air Radio Communication (ARC-210 RT-2036) radio with embedded programmable crypto to meet National Security Agency crypto modernization requirements.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Engineering studies will be conducted to include a gap and integration analysis for replacing existing Multifunctional Information Distribution System-Low Volume Terminal (MIDS-LVT (1)) with the MIDS-Joint Tactical Radio System Terminal (MIDS-JTRS); upgrade of the current Global Positioning System/Inertial</p>	0.000	2.245	0.000	0.000	0.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Navigation System (INS) with the required new Military M-Code standard and Radio Crypto Compliance to replace two legacy radios to meet National Security Agency crypto modernization requirements.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.208	2.245	5.830	0.000	5.830

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # B01B00: <i>Training Support to Units, Mods PE 0809731F</i>	0.427	0.434	0.438	0.000	0.438	0.447	0.454	0.462	0.471	-	-
• APAF: BA05: Line Item # B01B00: <i>Bomber Tactical Data Link Mods PE 0207446F</i>	0.223	1.011	1.380	0.000	1.380	0.535	0.794	0.000	0.000	-	-
• APAF: BA05: Line Item # B01B00: <i>B-1B Squadrons, Mods</i>	206.919	112.674	114.501	0.000	114.501	96.809	92.153	35.089	69.243	-	-
• APAF: BA05: Line Item # B01B00 S...: <i>B-1B Squadrons, Spares</i>	13.093	16.543	7.429	0.000	7.429	4.494	3.442	0.000	0.000	-	-

Remarks
 (U) Program Element 0809731F, Training Support to Units, Mods
 (U) Program Element 0207446F, Bomber Tactical Data Link, Mods

E. Acquisition Strategy
 The Global Positioning (GPS) System Military Code (M-Code) acquisition strategy will consist of three years EMD and three years production. The EMD portion is anticipated to consist of two Cost Plus Fixed Fee (CPFF) sole source contracts, one for the integration of the GPS receiver card into the Line Replaceable Units (LRUs) and one for the integration of the LRU into the Aircraft.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

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The acquisition strategy for gap and integration analysis is anticipated be one Cost Plus Fixed Fee (CPFF) and one Firm Fixed Price (FFP) sole source contract to Boeing.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B-1B Global Positioning System (GPS) Military Code (M-Code)	SS/CPFF	Boeing/Honeywell : OKC, OK	-	0.000		0.000		5.805	Mar 2017	0.000		5.805	Continuing	Continuing	-
B-1B IBS Simulator Development (CITS FIDL VSDU)	C/FPIF	AAI : Goose Creek, SC	-	0.711	Nov 2015	0.000		0.000		0.000		0.000	0.000	0.711	-
B-1B Flight Test Aircraft Upgrades	SS/CPFF	Boeing : OKC, OK	-	3.040	Nov 2015	0.000		0.000		0.000		0.000	0.000	3.040	-
Subtotal			-	3.751		0.000		5.805		0.000		5.805	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Gap And Integration Analysis	SS/ Various	Boeing : OKC, OK	-	0.323	Mar 2016	2.220	Mar 2016	0.000		0.000		0.000	0.000	2.543	-
Subtotal			-	0.323		2.220		0.000		0.000		0.000	0.000	2.543	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A AS	Various	Various : Various	-	0.098		0.000		0.000		0.000		0.000	Continuing	Continuing	-
PMA	Various	Various : Various	-	0.036	Oct 2014	0.025	Jan 2016	0.025	Mar 2017	0.000		0.025	Continuing	Continuing	-
Subtotal			-	0.134		0.025		0.025		0.000		0.025	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>	Project (Number/Name) 675344 / <i>B-1B Modernization</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Self Contained Attitude Indicator (SCAI) Contract Award (January)	2	2015	2	2015
Self Contained Attitude Indicator (SCAI) PDR/CDR (Sep)	4	2015	4	2015
Self Contained Attitude Indicator (SCAI) Flight Test	3	2016	3	2016
Self Contained Attitude Indicator (SCAI) MS C Decision	3	2016	3	2016
Global Positioning System (GPS) Military Code (M-Code) Contract Award	2	2017	2	2017
GPS M-Code EMD	2	2017	4	2019
Simulator Upgrades for CITS/FIDL/VSDU Contract Activities Conclude	2	2016	2	2016
Flight Test Aircraft Upgrades Deliveries	2	2016	4	2016
Flight Test Aircraft Upgrades Installs	2	2016	4	2016
Gap Analysis and Integration Contract Award	3	2016	3	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	80.225	112.691	108.183	152.458	0.000	152.458	221.403	300.607	256.238	134.141	Continuing	Continuing
675345: <i>B-2 Modernization</i>	60.498	93.020	94.621	76.212	0.000	76.212	42.336	40.690	36.145	26.285	Continuing	Continuing
676021: <i>BASELINE SUPPORT</i>	19.727	19.671	13.562	13.660	0.000	13.660	13.926	14.189	14.452	14.708	Continuing	Continuing
676022: <i>AEHF Strategic Comm</i>	0.000	0.000	0.000	62.586	0.000	62.586	165.141	245.728	205.641	93.148	Continuing	Continuing

Note

This program, BA 07 PE 0101127F, project 675345, B-2 Joint Air-to-Surface Standoff Missile - Extended Range (JASSM-ER) Integration, is a new start.
 This program, BA 07 PE 0101127F, project 675345, B-2 Cryptographic Modernization, is a new start.
 This program, BA 07 PE 0101127F, project 675345, B-2 Adaptable Communications Suite (ACS), is a new start.

Beginning in FY 2017, B-2 AEHF efforts will be tracked under PE 0101127F (B-2 Squadrons), Project 676022 (AEHF Strategic Comm).

A. Mission Description and Budget Item Justification

The B-2 Spirit is the world's most advanced long-range strike asset. The unique combination of range, precision, payload, and ability to penetrate and operate in anti-access/area denial environments allow the B-2 to identify, locate, target, and destroy the highest value enemy targets. The B-2 can, with necessary upgrades, accomplish its mission regardless of location, return to base safely, and permit freedom of movement for follow-on forces, including other long range strike platforms. An array of planned RDT&E projects are necessary to preserve a strategic advantage against 21st century threats as well as increase flexibility, lethality, and survivability of this national asset tasked across a broad spectrum of tactical and national strategic objectives. B-2 will achieve these objectives by adapting mature technologies/ systems in the fleet to rapidly deliver relevant combat capability, leveraging other Department of Defense investments and programs, utilizing innovative acquisition strategies.

The B-2 has a projected service life through 2058. To ensure the fleet can accomplish its nuclear and conventional mission in highly defended and anti-access environments, periodic modernization efforts must be undertaken to upgrade combat capability as well as improve the viability, supportability, and survivability of the weapon system.

Recent and ongoing investments in avionics, structures, communications, and weapons keep the B-2 viable in the immediate future. Current system upgrades include Low Observable Signature and Supportability Modifications, Defensive Management System Modernization, Flexible Strike Phase 1, alternative communication solutions such as Common Very Low Frequency Receiver and B-2 AEHF (Strategic Communications), Extended Range Joint Air-to-Surface Standoff Missile weapon integration and Global Positioning System enhancements. The B-2 is also exploring opportunities for architecture updates to reduce future integration costs and improve program affordability. The Defensive Management System effort is documented in the exhibit for PE 0605931F.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS
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In addition to the B-2 improvements described above, the Air Force has continuing efforts for Training Systems, Mission Planning System improvements, flight test aircraft upgrades and base of operations support, integration and testing of upgraded cryptographic components, as well as B-2 platform studies and acquisition planning.

This program is in Budget Activity 7, Operational System Development. This budget activity includes developmental 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	116.580	108.183	69.768	0.000	69.768
Current President's Budget	112.691	108.183	152.458	0.000	152.458
Total Adjustments	-3.889	0.000	82.690	0.000	82.690
• 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	-3.889	0.000			
• Other Adjustments	0.000	0.000	82.690	0.000	82.690

Change Summary Explanation

FY17: +\$62.586M for B-2 AEHF (Strategic Communication), +\$3.961M for Cryptographic Modernization, and +\$16.553M was added for Flexible Strike Phase 1,

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675345: B-2 Modernization	60.498	93.020	94.621	76.212	0.000	76.212	42.336	40.690	36.145	26.285	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101127F, project 675345, B-2 Joint Air-to-Surface Standoff Missile - Extended Range (JASSM-ER) Integration, is a new start.
 This program, BA 07 PE 0101127F, project 675345, B-2 Cryptographic Modernization, is a new start.
 This program, BA 07 PE 0101127F, project 675345, B-2 Adaptable Communications Suite (ACS), is a new start.

In FY17 and subsequent the B-2 AEHF strategic communications effort is documented in Project 676022 AEHF Strategic Comm.

A. Mission Description and Budget Item Justification

The B-2 is currently undergoing modernization of avionics/communications systems, engines, armament systems, low observable components, core training system components, aircraft supportability improvements, support equipment development.

The Air Force will also study multiple structural, avionics, and engine modifications that could improve the performance of the aircraft and engines and reduce maintenance manhours 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.

Modern communications are key enablers for the B-2 in the anti-access/area denial battlespace, and directly enhance lethality and force multiplication. The Common Very Low Frequency (VLF) Receiver effort develops and integrates a receive-only, low bandwidth receiver and antenna subsystem to provide a secure, survivable strategic nuclear communication capability for the B-2. The receiver will be adaptable for use by other Department of Defense platforms. B-2 Cryptographic Modernization, an FY 2017 new start, updates cryptographic equipment for B-2 AIT/ARC-234, AN/ARC-211 and MIDS/LVT communication systems. The Adaptive Communication Suite (ACS) is an FY 2017 new start to explore incremental improvements to the B-2 ACS UHF communication system. The B-2 AEHF effort was established in Project 675345 B-2 Modernization; the B-2 AEHF effort continues in FY 2017 and subsequent years under Project 676022 AEHF Strategic Comm.

B-2 Armament upgrades integrate new and/or advanced weapons on the B-2 to attack a wider array of target sets, to include hardened, deeply buried targets, as well as destroy more targets per sortie. The Flexible Strike Phase 1 program will rehost the current B-2 stores management software onto a new integrated processor. B-2 will also integrate the Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER) weapon to further enhance the B-2's ability to attack and destroy high value target sets.

Low Observable Signature and Supportability Modifications (LOSSM) directly address B-2 aircraft availability. Given the extremely small fleet size (20 aircraft), mission accomplishment is particularly sensitive to the availability of this high-demand strategic asset. LOSSM projects increase aircraft availability, decrease low observable (LO) maintenance, and maintain and improve the combat-ready LO signature for the B-2 fleet ensuring survivable combat operations. LOSSM projects improve

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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materials, structures, and diagnostic tools necessary to evaluate LO materials and systems in the B-2 fleet. LOSSM structure improvement projects include, but are not limited to, advanced high frequency materials placement, windshield bounce patch and tape improvements, composite plies, advanced signature reduction, and radar radome and antennae improvements. Material improvements include, but are not limited to, tailpipe and inlet coatings, pre-cured gap fillers, and other advanced LO materials development. Diagnostic tool efforts include, but are not limited to, improved radar frequency diagnostics, Signature Diagnostic System database upgrades, Tier One Material Inspection System improvements, Portable Laser Removal Tool development, Next Generation Mapper, SCI-2K Radar, Mobile Diagnostics Laboratory, Ground Air Radar System development, and other low observable special test equipment and information systems upgrades.

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.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: B-2 Common Very Low Frequency Receiver (CVR)</p> <p>Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-2.</p> <p>FY 2015 Accomplishments: Continued Engineering and Manufacturing Development efforts and conducted Preliminary Design Review and System Critical Design Review.</p> <p>FY 2016 Plans: Continue Engineering and Manufacturing Development efforts, conduct Flight Test, and prepare for entry into Production. Procure four shipsets of developmental CVR hardware, of which one will be installed in the dedicated B-2 test aircraft, two will be installed in the Force Development Evaluation aircraft, and one will initially be a ready spare for testing and eventually installed in a fleet aircraft.</p> <p>FY 2017 Base Plans: Complete two installations of developmental (EMD) CVR hardware to support additional Emergency Action Message collection required to upgrade B-2 from Interim Authority to Operate to Authority to Operate status, update technical orders, and design and integrate CVR into the B-2 training system.</p> <p>FY 2017 OCO Plans: N/A</p>	48.273	42.070	16.709	0.000	16.709
<p>Title: B-2 Flexible Strike Phase 1</p> <p>Description: Rehost the currently separate Stores Management Operational Flight Programs onto the new integrated processor unit made available by the B-2 EHF Increment 1 program.</p> <p>FY 2015 Accomplishments:</p>	40.273	39.683	44.832	0.000	44.832

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Continued Engineering and Manufacturing Development efforts and conducted Critical Design Review.</p> <p>FY 2016 Plans: Continue Engineering and Manufacturing Development efforts. Conduct software/hardware integration testing and flight test.</p> <p>FY 2017 Base Plans: Continue Engineering and Manufacturing Development efforts. Conduct software/hardware integration testing and flight test. Prepare for entry into Production.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Low Observable Signature and Supportability Mods and Trainers</p> <p>Description: B-2 Low Observable Signature and Supportability Modifications (LOSSM) pursues multiple low-cost development efforts for Low Observable (LO) materials, diagnostics and procedures to enhance LO signature and/or improve aircraft supportability, as well as other development or study efforts for training system improvements</p> <p>FY 2015 Accomplishments: Continued development of on-going Low Observable Signature and Supportability Modifications and Training System core upgrades.</p> <p>FY 2016 Plans: Continue development of on-going Low Observable Signature and Supportability Modifications and Training System core upgrades.</p> <p>FY 2017 Base Plans: Continue development of on-going Low Observable Signature and Supportability Modifications and Training System core upgrades.</p> <p>FY 2017 OCO Plans: N/A</p>	4.474	1.942	1.954	0.000	1.954
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<p>Title: B-2 AEHF (Strategic Communications)</p>	0.000	10.926	0.000	0.000	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: B-2 AEHF (Strategic Communications) provides secure, strategic, two-way, survivable Anti-Access/Area Denial communications capability for conventional and nuclear missions. Note: This effort is documented under Project 676022 AEHF Strategic Comm beginning in FY 2017.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Conduct acquisition planning, technology maturation, affordability assessments, and other pre-EMD activities associated with satisfying B-2 communications requirements using extremely high frequency (EHF) and other waveforms.</p> <p>FY 2017 Base Plans: N/A - effort transferred to Project 676022 AEHF Strategic Comm</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: B-2 Joint Air-to-Surface Standoff Missile - Extended Range (JASSM-ER) Integration</p> <p>Description: Integrates the Joint Air to Surface Standoff Missile, Extended Range weapon (JASSM-ER) onto the B-2.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct acquisition planning, affordability assessments, and other pre-EMD activities. Begin Engineering and Manufacturing Development efforts. JASSM-ER integration on the B-2 is a new start development in FY 2017.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	8.558	0.000	8.558
<p>Title: B-2 Cryptographic Modernization</p> <p>Description: Provides NSA-mandated cryptographic modifications to three communication system components on the aircraft: Advanced Integrated Terminal (AIT) also known as AN/ARC-234 (UHF/VHF Radio), AN/ARC-211</p>	0.000	0.000	3.961	0.000	3.961

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>(HF Radio), and the Multifunction Information Distribution System (MIDS) Low Volume Terminal (Link-16 Terminal).</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct Multifunction Information Distribution System (MIDS) Low Volume Terminal (LVT) Risk Reduction Terminal (RRT) Regression Testing. Cryptographic Modernization is a new start in FY 2017.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: B-2 Adaptable Communications Suite (ACS)</p> <p>Description: The Adaptable Communications Suite provides a non-integrated avionics and communications system that allows the B-2 fleet to receive complete integrated mission data, time sensitive targeting information, intelligence updates, and positive command and control procedures.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct acquisition planning, affordability assessments and requirements maturation associated with providing a permanent beyond line of sight integrated mission data, time sensitive targeting, intelligence update, and positive command and control capability. ACS is a new start development project in FY 2017.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	0.198	0.000	0.198
Accomplishments/Planned Programs Subtotals	93.020	94.621	76.212	0.000	76.212

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item #B00200: B-2 CVR Inc 1 Mod Funding, PE 0101127F	0.000	19.190	18.592	0.000	18.592	9.332	4.009	0.000	0.000	0.000	51.123
• APAF: BA05: Line Item # B00200: B-2 Training Support Modification, PE 0809731F	2.203	3.131	9.578	0.000	9.578	9.067	7.864	8.001	8.148	Continuing	Continuing
• APAF:BA05:Line Item #B00200: B-2 Flexible Strike Mod Funding, PE 0101127F	0.000	0.000	4.214	0.000	4.214	6.647	6.547	3.771	0.000	-	-
• APAF: BA07: Line Item #B00200: B-2 Post Production Support, B-2A ICS for CVR Inc 1: PE 0101127F	0.000	0.000	0.010	0.000	0.010	0.131	0.254	0.000	0.000	-	-
• APAF: BA06: Line Item #B00200: B-2 Squadrons, A/ C Initial Spares for CVR Inc 1	0.000	0.000	2.036	0.000	2.036	2.574	0.000	0.000	0.000	-	-
• APAF:BA07: Line Item #B00200: B-2 Depot Activation for CVR Inc 1, PE 0101127F	0.000	2.196	0.761	0.000	0.761	0.508	0.000	0.000	0.000	-	-
• APAF:BA07:Line Item #B00200: B-2 LOSSM Mod Funding, PE 0101127F	6.503	8.496	8.263	0.000	8.263	8.440	8.599	9.683	20.045	Continuing	Continuing

Remarks

D. Acquisition Strategy

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman), employ the program office as the system integrator when practical, leverage mature technology and systems development investments by other Department of Defense organizations, encourage prime contractor competition of subsystems and key components to reduce risk and cost, use of cost plus incentive fee (CPIF) development contracts, and combine developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
B-2 Flex Strike Phase 1	Various	Various : Various	21.923	30.754	Dec 2014	29.504	Nov 2015	37.874	Oct 2016	0.000		37.874	Continuing	Continuing	-
B-2 Common Very Low Frequency Receiver (CVR)	Various	Various : Various	11.475	42.287	Oct 2014	38.136	Oct 2015	16.164	Oct 2016	0.000		16.164	Continuing	Continuing	-
Low Observable Signature and Supportability Mods	Various	Various : Various	19.912	4.373	Feb 2015	1.707	Feb 2016	1.714	Feb 2017	0.000		1.714	Continuing	Continuing	-
B-2 Advanced Extremely High Frequency Communications	Various	Various : Various	0.000	0.000		10.605	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
B-2 Joint Air-to-Surface Standoff Missile - Extended Range (JASSM-ER) Integration	Various	Various : Various	0.000	0.000		0.000		8.284	Jan 2017	0.000		8.284	0.000	8.284	-
B-2 Cryptographic Modernization	Various	Various : Various	0.000	0.000		0.000		3.079	Dec 2016	0.000		3.079	0.000	3.079	-
B-2 Adaptable Communications Suite (ACS)	Various	Various : Various	0.000	0.000		0.000		0.198	Jan 2017	0.000		0.198	0.000	0.198	-
Aircrew Training	Various	Various : Various	2.160	5.378	Dec 2014	3.142	Dec 2015	1.100	Dec 2016	0.000		1.100	Continuing	Continuing	-
Mission Planning	Various	Various : Various	2.860	0.562	Jan 2015	0.509	Jan 2016	0.014	Jan 2017	0.000		0.014	Continuing	Continuing	-
Subtotal			58.330	83.354		83.603		68.427		0.000		68.427	-	-	-

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.
 B-2 AEHF (strategic communication) effort continues in FY 2017 and subsequent years under Project 676022 AEHF Strategic Comm

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	MIPR	AFFTC : TBD	0.110	4.500	Nov 2014	8.044	Nov 2015	5.150	Nov 2016	0.000		5.150	Continuing	Continuing	-
Subtotal			0.110	4.500		8.044		5.150		0.000		5.150	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : TBD	2.058	5.166	Oct 2014	2.974	Oct 2015	2.635	Oct 2016	0.000		2.635	Continuing	Continuing	TBD
Subtotal			2.058	5.166		2.974		2.635		0.000		2.635	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			60.498	93.020	94.621	76.212	0.000	76.212	-	-	-

Remarks
Award dates listed are the first incremental funding opportunity associated with each cost category.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 675345 / B-2 Modernization
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Flexible Strike EMD	1	2015	2	2017
Flexible Strike Ph 1 Critical Design Review	2	2015	2	2015
Flexible Strike Ph 1 Milestone C	4	2017	4	2017
Flexible Strike Ph 1 Production Contract Award	4	2017	4	2017
Flexible Strike Production	4	2017	4	2020
Flexible Strike Ph 1 Required Assets Available	4	2019	4	2019
Common Very Low Frequency Receiver Preliminary Design Review	1	2015	1	2015
Common Very Low Frequency Receiver Critical Design Review	3	2015	3	2015
Common Very Low Frequency Receiver EMD	1	2015	3	2017
Common Very Low Frequency Receiver Milestone C	4	2016	4	2016
Low Observable Signature and Supportability Mods and Trainers	1	2015	4	2021
Common Very Low Frequency Receiver Production Contract Award	4	2016	4	2016
Common Very Low Frequency Receiver Required Assets Available	1	2018	1	2018
Common Very Low Frequency Receiver Production	4	2016	2	2019
AEHF Strategic Comm Acq Planning Contract Award	2	2016	2	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676021: <i>BASELINE SUPPORT</i>	19.727	19.671	13.562	13.660	0.000	13.660	13.926	14.189	14.452	14.708	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 ensures the Mission Planning System keeps pace with aircraft modifications and improves the mission planning core system. Baseline Support 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. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Baseline Support Acq Plan/Studies/Integr Tst Spt	4.238	0.395	0.297	0.000	0.297
Description: Baseline Support provides for other B-2 unique government costs, including acquisition planning activities for future capabilities, long range planning, studies, and program integration activities, as well as integration and test support of upgraded crypto components as needed.					
FY 2015 Accomplishments: Continued Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, program integration activities, integration and test support of upgraded crypto components. Refined requirements and studied affordable options to satisfy B-2 communications requirements in an anti-access/area denial environment.					
FY 2016 Plans: Continue Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, program integration activities, integration and test support of upgraded crypto components.					
FY 2017 Base Plans: Continue Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, program integration activities, integration and test support of upgraded crypto components.					
FY 2017 OCO Plans: N/A					
Title: Baseline Support Flight Test	13.176	10.155	10.640	0.000	10.640

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676021 / BASELINE SUPPORT
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Description: Baseline Support Flight Test maintains and upgrades the B-2 unique flight test aircraft as well as hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerating deployment of advanced operational capabilities to the warfighter.</p> <p>FY 2015 Accomplishments: Continued B-2 Flight Test activities, maintaining and upgrading the B-2 unique flight test aircraft as well as hardware/software and test equipment, to support developmental systems integration and flight test.</p> <p>FY 2016 Plans: Continue B-2 Flight Test activities, maintaining and upgrading the B-2 unique flight test aircraft as well as hardware/software and test equipment, to support developmental systems integration and flight test.</p> <p>FY 2017 Base Plans: Continue B-2 Flight Test activities, maintaining and upgrading the B-2 unique flight test aircraft as well as hardware/software and test equipment, to support developmental systems integration and flight test.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Baseline Support Mission Planning</p> <p>Description: Description: Baseline Support Mission Planning System improvements ensure the mission planning system keeps pace with aircraft modifications and improves mission planning core systems.</p> <p>FY 2015 Accomplishments: Continued B-2 Mission Planning activities, keeping pace with aircraft modifications and improving mission planning core systems, to include continuation of the transition from the current AFMSS mission planning to the Joint Mission Planning System (JMPS).</p> <p>FY 2016 Plans: Continue B-2 Mission Planning activities, keeping pace with aircraft modifications and improving mission planning core systems, to include continuation of the transition from the current AFMSS mission planning to the Joint Mission Planning System (JMPS).</p> <p>FY 2017 Base Plans:</p>	2.257	3.012	2.723	0.000	2.723

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676021 / BASELINE SUPPORT
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue B-2 Mission Planning activities, keeping pace with aircraft modifications and improving mission planning core systems. Deliver mission planning release 4.4, i.e. Joint Mission Planning System (JMPS). <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	19.671	13.562	13.660	0.000	13.660

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

Remarks

D. Acquisition Strategy

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.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676021 / BASELINE SUPPORT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mission Planning	Various	Various : Various	2.414	2.039	Jan 2015	2.600	Oct 2015	2.248	Oct 2016	0.000		2.248	Continuing	Continuing	TBD
Subtotal			2.414	2.039		2.600		2.248		0.000		2.248	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Costs	Various	Various : Various	13.912	13.372	Oct 2014	8.006	Oct 2015	8.140	Oct 2016	0.000		8.140	Continuing	Continuing	TBD
Subtotal			13.912	13.372		8.006		8.140		0.000		8.140	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	MIPR	AFFTC : TBD	3.260	3.587	Oct 2014	2.559	Oct 2015	2.841	Oct 2016	0.000		2.841	Continuing	Continuing	TBD
Subtotal			3.260	3.587		2.559		2.841		0.000		2.841	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : TBD	0.141	0.673	Oct 2014	0.397	Oct 2015	0.431	Oct 2016	0.000		0.431	Continuing	Continuing	TBD
Subtotal			0.141	0.673		0.397		0.431		0.000		0.431	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			19.727	19.671	13.562	13.660	0.000	13.660	-	-	-

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676021 / BASELINE SUPPORT
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mission Planning Release 4.4 (JMPS)																												
FY15 Flight Test Core Support Contract Award	■																											
FY16 Flight Test Core Support Contract Award					■																							
FY17 Flight Test Core Support Contract Award									■																			
FY18 Flight Test Core Support Contract Award													■															
FY19 Flight Test Core Support Contract Award																	■											
FY20 Flight Test Core Support Contract Award																									■			
FY21 Flight Test Core Support Contract Award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676021 / BASELINE SUPPORT
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Mission Planning Release 4.4 (JMPS)	3	2017	3	2017
FY15 Flight Test Core Support Contract Award	1	2015	1	2015
FY16 Flight Test Core Support Contract Award	1	2016	1	2016
FY17 Flight Test Core Support Contract Award	1	2017	1	2017
FY18 Flight Test Core Support Contract Award	1	2018	1	2018
FY19 Flight Test Core Support Contract Award	1	2019	1	2019
FY20 Flight Test Core Support Contract Award	1	2020	1	2020
FY21 Flight Test Core Support Contract Award	1	2021	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS				Project (Number/Name) 676022 / AEHF Strategic Comm			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676022: AEHF Strategic Comm	0.000	0.000	0.000	62.586	0.000	62.586	165.141	245.728	205.641	93.148	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016 Project 675345, B-2 Modernization, includes new start effort for B-2 AEHF (strategic communication). Subsequent development efforts for B-2 AEHF are documented under BPAC 676022 AEHF Strategic Comm.

A. Mission Description and Budget Item Justification

The Advanced Extremely High Frequency (AEHF) Satellite Communications (SATCOM) system provides the only 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 battlespace. This communications upgrade replaces the Milstar/Ultra High Frequency (UHF) Satellite Communications (SATCOM) system (which is nearing system end of life) on the B-2.

The strategic communications effort will select, install, and integrate the radio, antenna and system components required to provide two-way EHF communication for the B-2.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: B-2 AEHF (Strategic Communication)	0.000	0.000	62.586	0.000	62.586
Description: B-2 AEHF (Strategic Communication) provides secure, strategic, two-way, survivable Anti-Access/ Area Denial communications capability for conventional and nuclear missions.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A - The FY16 efforts for B-2 AEHF are documented under Project 675345 B-2 Modernization.					
FY 2017 Base Plans: Continue acquisition planning, technology maturation, affordability assessments, and other pre-Technology Maturation and Risk Reduction (TMRR) efforts in preparation for a Milestone A decision and entry into TMRR phase.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	62.586	0.000	62.586

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676022 / AEHF Strategic Comm
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item #B00200: B-2 Squadrons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	121.026	209.295	330.321

Remarks

D. Acquisition Strategy

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman), leverage mature technology and system development investments by other Department of Defense organizations, encourage prime contractor to conduct competitions at the subsystem/key component level to reduce risk and cost, use cost plus incentive fee (CPIF) development contracts, and combine developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676022 / AEHF Strategic Comm
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEHF Strategic Comm	SS/CPIF	Northrop Grumman : Palmdale, CA	0.000	0.000		0.000		60.589	Jul 2017	0.000		60.589	Continuing	Continuing	-
Subtotal			0.000	0.000		0.000		60.589		0.000		60.589	-	-	-

Remarks
Northrop-Grumman is the prime contractor and lead integrator.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : TBD	0.000	0.000		0.000		1.997	Oct 2016	0.000		1.997	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.000		1.997		0.000		1.997	-	-	0.000

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	62.586	0.000	62.586	-	-	-

Remarks
Award dates listed are the first incremental funding opportunity associated with each cost category.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 SQUADRONS	Project (Number/Name) 676022 / AEHF Strategic Comm
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
B-2 AEHF Materiel Development Decision (MDD)	2	2016	2	2016
B-2 AEHF Milestone A	3	2017	3	2017
B-2 AEHF TMRR Contract Award	4	2017	4	2017
B-2 AEHF TMRR	4	2017	2	2020
B-2 AEHF Preliminary Design Review	2	2019	2	2019
B-2 AEHF Milestone B	2	2019	2	2019
B-2 AEHF EMD Contract Award	2	2019	2	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	116.344	166.729	182.958	0.000	182.958	186.857	89.260	84.520	79.857	Continuing	Continuing
672983: <i>MM Ground and Comm Equipment</i>	-	7.622	66.159	114.039	0.000	114.039	134.569	62.856	72.441	73.726	Continuing	Continuing
672984: <i>MM III Baseline Support</i>	-	21.751	51.173	40.205	0.000	40.205	26.400	15.027	0.000	0.000	Continuing	Continuing
672985: <i>MM Support Equip</i>	-	29.177	16.552	28.714	0.000	28.714	25.888	11.377	12.079	6.131	Continuing	Continuing
672986: <i>MM Crypto Mods</i>	-	39.589	32.845	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
672987: <i>MM Ops Equip</i>	-	18.205	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note
 This program, BA 07 PE 0101213F, project 672985, LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) - FY17 New Start, is a new start.
 This program, BA 07 PE 0101213F, project 672985, LGM-30G G6B4 Build Equipment Replacement (G6B4 BER) - FY17 New Start, is a new start.
 This program, BA 07 PE 0101213F, project 672985, LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER) - FY17 New Start, is a new start.

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 MM III operations through 2030. Current efforts include development, qualification, integration, and testing of replacement equipment such as the LGM-30G Air Launch Control System Replacement (ALCS), LGM-30G Automatic Switching Unit (ASU), LGM-30G Fast Rising B-Plug Phase II (FRBP II), LGM-30G Launch Control Center Break-In-Kit (LCCB), LGM-30G Launch Control Center Block Upgrade (LCCBU), and LGM-30G Remote Visual Assessment Phase II (RVA II).

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 newly developed or modified MM III capabilities and conduct of 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 Cadmium Replacement Support Equipment Program (CaDRP), LGM-30G Flight Test Telemetry and Termination System (FT3), LGM-30G Ground Test Upgrade (GTU), and LGM-30G Squadron Data Simulator (SDS). 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.

MM Support Equipment program designs, develops, and tests replacement of obsolete/non-serviceable weapon system support equipment. Current efforts include design, development, and testing of support equipment such as LGM-30G Alignment Set Test Set (ASTS), LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT), LGM-30G Code System Media (CSM), LGM-30G G6B4 Build Equipment Replacement (G6B4 BER), LGM-30G Performance Assessment Data System

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>
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Communications Equipment Interface Unit (PADS CEIU), LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER), LGM-30G Payload Transporter Replacement (PTR), LGM-30G Reentry Field Support Equipment (RFSE), LGM-30G Reentry Support Equipment Replacement Program (RSERP), LGM-30G Strategic Targeting and Applications Computer System (STACS), and LGM-30G Transporter Erector Replacement Program (TERP). As other similar equipment is identified for replacement, it will be added to this program.

MM Crypto Mods executes USSTRATCOM, Air Force Global Strike Command, and Nuclear Weapon Safety Center requirements by implementing the KS-60 capabilities in the LGM-30G ICBM Cryptography Upgrade II (ICU II) of remote key/code change and irreversible transformations 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. As other similar equipment is identified for replacement, it will be added to this program.

MM Operational Equipment program efforts identify viable concepts and material solutions in support of the Air Force's Ground Based Strategic Deterrent. Funding supports design, development, test, integration and replacement of weapon system equipment including flight systems; Nuclear Command, Control and Communications (NC3); launch and control facilities; and Security/Ground Equipment upgrades. Efforts within the MM Operational Equipment program will ensure MM III operations through 2030 as well as support future Ground Based Strategic Deterrent (GBSD) requirements. Guidance Modernization Program (GMP) and Solid Rocket Motor Modernization (SRMM) were transferred into PE 0605230F, Ground Based Strategic Deterrent, Project 641025. As other similar equipment is identified for replacement, it will be added to this program.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes developmental 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 years.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	139.109	178.929	193.228	0.000	193.228
Current President's Budget	116.344	166.729	182.958	0.000	182.958
Total Adjustments	-22.765	-12.200	-10.270	0.000	-10.270
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-12.200			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-22.274	0.000			
• SBIR/STTR Transfer	-0.491	0.000			
• Other Adjustments	0.000	0.000	-10.270	0.000	-10.270

Change Summary Explanation

FY 2015 funding reflects \$22.274M reprogrammed to higher Air Force priorities, and \$2.994M realigned to accelerate Squadron Data Simulator (\$1.763M) and Alignment Set Test Station (\$1.231M) New Starts into FY 2015.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	PE 0101213F / <i>Minuteman Squadrons</i>

FY 2016 funding reflects a Congressional Directed Reduction for Project 672983, MM Ground and Comm Equipment, for the ALCS-R (-\$12.200M).

FY 2017 funding reflects an increase for Project 672985, MM Support Equipment, for the G6B4 BER, PIGA BER and CMPT new start programs (+\$3.453M); a decrease for Project 672984, MM Baseline Support, for under-execution (-\$3.00M); a decrease for Project 672983, MM Ground and Comm Equipment, for under-execution (-\$9.00M); and a decrease across all projects for inflation adjustments (-\$1.723M).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672983: <i>MM Ground and Comm Equipment</i>	-	7.622	66.159	114.039	0.000	114.039	134.569	62.856	72.441	73.726	Continuing	Continuing
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 MM III operations through 2030. These programs will also implement processes, procedures and data systems to mitigate the transition risk from MM III to GBSD. Current efforts include development, qualification, integration, and testing of replacement equipment such as the LGM-30G Air Launch Control System Replacement (ALCS), LGM-30G Automatic Switching Unit (ASU), LGM-30G Fast Rising B-Plug Phase II (FRBP II), LGM-30G Launch Control Center Break-In-Kit (LCCB), LGM-30G Launch Control Center Block Upgrade (LCCBU), and LGM-30G Remote Visual Assessment Phase II (RVA II).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LGM-30G Air Launch Control System Replacement (ALCS)	6.398	46.934	65.887	0.000	65.887
<p>Description: ALCS-R will replace the legacy nuclear command and control system that provides the capability to launch MM III ICBMs from an airborne platform (Navy E-6B). The system consists of an Ultra High Frequency (UHF) radio and MM III interface at each LF, and a suite of launch equipment and cryptographic equipment that generates and transmits commands from the E-6B. ALCS-R is dependent on the Strategic Air Command Code Processing System for codes data supplied to airborne equipment, and the Navy E-6B UHF Command, Control, and Communication data path to transmit signals to the LFs. The approved acquisition strategy will recapitalize ALCS equipment in a single increment to support continued MM III operations by 2024 and resolve critical sustainment and cryptographic sunset issues. ALCS-R will be designed to support transition into the Ground Based Strategic Deterrent (GBSD) airborne survivable launch platform capability maximizing investment across both weapon systems.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Completed Materiel Development Decision for ALCS Replacement and directed to enter pre-Milestone B. • Generated an ALCS draft Capabilities Development Document • Developed acquisition documentation, to include Acquisition Strategy Document, Source Selection Plan, Request for Proposal, and technical requirement documents. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Initiate a source selection to award multiple Technology Maturation and Risk Reduction (TMRR) contracts. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> Acquire test equipment to install in the ICBM System Directorate's NC2 lab to enable low risk weapon system integration, reduce risk for GBSD commonality, and provide a first ever, end-to-end test capability for the ALCS system Maturing design and building the ALCS-R System Integration Lab <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> Award up to two TMRR contracts. Manage contractors through System Functional Review. Contractors begin full system prototype development, to include: launch facility ground equipment, E-6B airborne equipment, and NC2 cryptographic solution Complete SIL development at the ICBMSD NC2 lab Finalizing acquisition documentation required for the Development RFP Review Milestone <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Automatic Switching Unit (ASU)</p> <p>Description: The ASU program will replace the current Minuteman ASU, Diesel Electric Unit (DEU) and Minuteman Power Processor (MPP). The ASU is controlled by the MPP, which contains software and electronics to measure incoming and standby power characteristics. The DEU provides standby power in the event of a loss of the primary power source. Current equipment and lack of repair/reprogram capability causes inadvertent source transfers by the MPP. Technical data does not exist for repair or reprogramming of the MPP making it unsupported. The ASU contacts have exceeded their service life, and unnecessary source transfers stress mission critical components. The increased power transfers have increased the use and accelerated the wear on the DEU.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Awarded A&AS contract to conduct pre-award TMRR activities such as technical requirements, RFP, and Milestone B documents <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Award TMRR development contract, conduct a systems requirement review and hold a preliminary design review Conduct Milestone B <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> Complete testing, finalize design, and validate installation through integration testing 	0.659	2.781	11.096	0.000	11.096

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Validate, verify, and publish technical data and drawings • Complete physical and functional configuration audits • Prepare a technical data package for production <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Fast Rising B-Plug Phase II (FRBP II)</p> <p>Description: The Fast Rising B-Plug (FRBP) is a security element that delays access to the Launch Facility. It is a 14,000 pound rising door that obstructs the Personnel Access Shaft (PAS). The current setup can experience Uncommanded Raises (UCR) due to single point failures and transient voltages in the system. The Fast Rising B-Plug Phase II (FRBP II) program will update hardware and software to reduce susceptibility for UCRs, improve maintainability and address obsolescence issues.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Begin design, development, and fabrication of FRBP II. • Conduct a successful Milestone B <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Continue design, development, and fabrication of FRBP II • Conduct Preliminary Design Review and Critical Design Review <p>FY 2017 OCO Plans: N/A</p>	0.000	4.629	4.994	0.000	4.994
<p>Title: LGM-30G Launch Control Center Break-In-Kit (LCCB)</p> <p>Description: The LCC Break-in-Kit (LCCB) program will develop a kit that will enable personnel to extract incapacitated missile combat crew members in the event the LCC crew becomes unresponsive and cannot open the LCC Blast Door. The LCCB is a new capability and has not been previously fielded.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000	0.793	1.702	0.000	1.702

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Begin design, development, fabrication, and prototype construction of LCC Break-in-Kits • Conduct a successful Preliminary Design Review (PDR) / Critical Design Review (CDR) • Prepare and conduct successful Milestone B <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Conduct a successful Test Readiness Review (TRR), Production Readiness Review (PRR), and Functional / Physical Configuration Audit (FCA/PCA) • Conduct a successful Milestone C and begin production <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Launch Control Center (LCC) Block Upgrade (LCCBU)</p> <p>Description: The Launch Control Center (LCC) Block Upgrade (LCCBU) program will address several elements within the LCC that are experiencing supportability issues and impacting voice communications in the MM missile fields. The LCCBU program is a single modification effort that replaces five components. Components will be procured as a single modification kit and installed as a single kit at each LCC. It will consist of five primary replacement efforts:</p> <ol style="list-style-type: none"> 1) Journal Memory Loader (JML) - replaces the JML with a modern data storage solution which will increase the available memory required to support annual software changes and mitigate Floppy Disk obsolescence concerns. 2) Floppy Disk Drive (FDD) - replaces the legacy FDDs which are no longer manufactured with a modern, supportable hardware solution. 3) Voice Communications Control Panel (VCCP) - replaces the current deficient equipment to provide the voice communications quality required to perform the ICBM mission and may require additional components to resolve voice communication degradations. 4) Weapon System Control Console (WSCC) Printer - replaces the current printer that is no longer produced and is unsupported due to aging hardware and a lack of qualified vendors for replacement/repair components. 5) Oxygen Regeneration Unit (ORU) - replaces the current unsupported system to provide the crew with breathable air during periods when the LCC is locked down. <p>All LCCBU efforts will support the 45 operational LCCs and additional support equipment/test/maintenance locations.</p>	0.565	5.698	22.880	0.000	22.880

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> • Awarded contract on the Ground Subsystem Support Contract <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> • Begin requirements definition and design of each component <p><i>FY 2017 Base Plans:</i></p> <ul style="list-style-type: none"> • Continue design/development of all components • Conduct a Preliminary Design Review • Conduct a Milestone (MS) B • Complete Critical Design Review <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> LGM-30G Remote Visual Assessment Phase II (RVA II)</p> <p><i>Description:</i> RVA II will provide enhanced situational awareness by providing the current remote camera feed to responding security vehicles and helicopters. RVA II will also provide backup power to current remote visual equipment, increase video archival storage, and implement auto-activation of outer and inner zone alarms. RVA II will also implement changes required to meet DoD CyberSecurity requirements.</p> <p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> • Begin design, development, verification of RVA II requirements, and conduct Preliminary Design Review (PDR) • Conduct MS B <p><i>FY 2017 Base Plans:</i></p> <ul style="list-style-type: none"> • Complete Critical Design Review • Prepare for verification testing and a Functional and Physical Configuration Audit (FCA/PCA) • Prepare and conduct successful Milestone C <p><i>FY 2017 OCO Plans:</i> N/A</p>	0.000	5.324	7.480	0.000	7.480
Accomplishments/Planned Programs Subtotals	7.622	66.159	114.039	0.000	114.039

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• MPAF: BA 03: Line Item # M30MLG: <i>Minuteman III Modifications</i>	0.000	6.351	1.024	0.000	1.024	32.981	57.429	53.533	71.923	Continuing	Continuing
• MPAF: BA 04: Line Item #000999: <i>Replen Spares/Repair Parts</i>	0.000	0.000	0.033	0.000	0.033	1.856	0.055	0.151	0.203	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 modification with organic depot capabilities or development with industry. Industry development for Ground and Communication equipment efforts will be executed through contracts available 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 under a Cost Plus Award Fee (CPAF) Contract.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672983 / MM Ground and Comm Equipment
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 Airborne Launch Control System (ALCS-R) TMRR	C/TBD	TBD : TBD	-	0.000		35.442	Apr 2016	49.306	Jan 2017	0.000		49.306	Continuing	Continuing	TBD
LGM-30G ALCS SIL	MIPR	Aerospace : El Segundo, CA	-	2.876	Mar 2015	2.312	Jan 2016	5.699	Jan 2017	0.000		5.699	Continuing	Continuing	TBD
LGM-30G Automatic Switching Unit (ASU) TMRR/EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	0.000		1.731	Mar 2016	8.546	Apr 2017	0.000		8.546	Continuing	Continuing	TBD
LGM-30G Fast Rising B-Plug Phase II EMD	TBD	TBD : TBD	-	0.000		4.088	Sep 2016	4.138	Apr 2017	0.000		4.138	Continuing	Continuing	TBD
LGM-30G Launch Control Center Break-In-Kit EMD	C/CPFF	TBD : TBD	-	0.000		0.335	Apr 2016	0.905	Apr 2017	0.000		0.905	Continuing	Continuing	TBD
LGM-30G Launch Control Center Block Upgrade TMRR/EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	0.565	Sep 2015	5.159	Mar 2016	22.564	Apr 2017	0.000		22.564	Continuing	Continuing	TBD
LGM-30G Remote Visual Assessment Phase II (RVA II) EMD	C/TBD	TBD : TBD	-	0.000		4.549	Jun 2016	6.323	Feb 2017	0.000		6.323	Continuing	Continuing	TBD
Subtotal			-	3.441		53.616		97.481		0.000		97.481	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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 Airborne Launch Control System Replacement (ALCS)	MIPR	MITRE : Bedford, MA	-	1.523	Mar 2015	2.792	Jan 2016	2.867	Jan 2017	0.000		2.867	Continuing	Continuing	TBD
LGM-30G Automatic Switching Unit A&AS Support	C/FP	BAE : Layton, UT	-	0.089	Jul 2015	0.550	Oct 2015	0.550	Oct 2016	0.000		0.550	Continuing	Continuing	TBD
LGM-30G Remote Visual Assessment II (RVA II) A&AS Support	C/FP	BAE : Layton, UT	-	0.000		0.296	Feb 2016	0.484	Oct 2016	0.000		0.484	Continuing	Continuing	TBD
Subtotal			-	1.612		3.638		3.901		0.000		3.901	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672983 / MM Ground and Comm Equipment
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Air Launch Control System Replacement (ALCS) FFRDC	MIPR	Aerospace : El Segundo, CA	-	0.384	Mar 2015	1.682	Jan 2016	1.656	Jan 2017	0.000		1.656	Continuing	Continuing	TBD
LGM-30G Air Launch Control System Replacement (ALCS) PMA	Various	Various : TBD	-	1.615	May 2015	4.706	Mar 2016	6.359	Jan 2017	0.000		6.359	Continuing	Continuing	TBD
LGM-30G Automatic Switching Unit PMA	Various	Various : TBD	-	0.570	Jul 2015	0.500	Nov 2015	2.000	Nov 2016	0.000		2.000	Continuing	Continuing	TBD
LGM-30G Fast Rising B-Plug Phase II PMA	Various	Various : TBD	-	0.000		0.541	Feb 2016	0.856	Feb 2017	0.000		0.856	Continuing	Continuing	TBD
LGM-30G Launch Control Center Break-In-Kit PMA	Various	Various : TBD	-	0.000		0.458	Apr 2016	0.797	Apr 2017	0.000		0.797	Continuing	Continuing	TBD
LGM-30G Launch Control Center Block Upgrade (LCCBU) PMA	Various	Various : TBD	-	0.000		0.539	Feb 2016	0.316	Feb 2017	0.000		0.316	Continuing	Continuing	TBD
LGM-30G Remote Visual Assessment Phase II (RVA II) PMA	Various	Various : TBD	-	0.000		0.479	Feb 2016	0.673	Feb 2017	0.000		0.673	Continuing	Continuing	TBD
Subtotal			-	2.569		8.905		12.657		0.000		12.657	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.622	66.159	114.039	0.000	114.039	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCCB PDR/CDR (Sep 2016)								■																				
LCCB Milestone C (Sep 2017)																												
LCCB Production and Deployment Phase																												
LCCB IOC (Aug 2018)																												
LCCBU Technology Maturation & Risk Reduction Phase																												
LCCBU PDR (Apr 2017)																												
LCCBU Milestone B (Apr 2017)																												
LCCBU Engineering and Manufacturing Development Phase																												
LCCBU CDR (Sep 2017)																												
LCCBU Milestone C (Jul 2018)																												
LCCBU Production and Deployment Phase																												
LCCBU IOC (Mar 2019)																												
LCCBU FOC (Sep 2019)																												
RVA II PDR (Mar 2016)																												
RVA II Milestone B (Feb 2016)																												
RVA II Engineering and Manufacturing Development Phase																												
RVA II CDR (Mar 2017)																												
RVA II Milestone C (Sep 2017)																												
RVA II Production and Deployment Phase																												
RVA II IOC (Feb 2019)																												
RVA II FOC (Feb 2021)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALCS Requirements Development	2	2015	1	2017
ALCS Technology Maturation and Risk Reduction Phase	2	2017	1	2020
ALCS PDR (Apr 2018)	3	2018	3	2018
ALCS Milestone B (Dec 2019)	1	2020	1	2020
ALCS Engineering and Manufacturing Development Phase	2	2020	4	2021
ALCS CDR (Aug 2020)	4	2020	4	2020
ASU Technology Maturation and Risk Reduction phase	4	2015	2	2016
ASU PDR (Dec 2016)	1	2017	1	2017
ASU Milestone B (Jan 2017)	2	2017	2	2017
ASU Engineering and Manufacturing Development Phase	3	2016	1	2019
ASU CDR (Sep 2017)	4	2017	4	2017
ASU Milestone C (Dec 2018)	1	2019	1	2019
ASU Production and Deployment Phase	2	2019	4	2021
FRBP II Milestone B (August 2016)	4	2016	4	2016
FRBP II Engineering and Manufacturing Development Phase	4	2016	2	2019
FRBP II PDR/CDR (Jun 2017)	3	2017	3	2017
FRBP II Milestone C (Feb 2019)	2	2019	2	2019
FRBP II Production and Deployment Phase	2	2019	4	2021
FRBP II IOC (Jun 2019)	3	2019	3	2019
LCCB Milestone B (Mar 2016)	2	2016	2	2016
LCCB Engineering and Manufacturing Development Phase	2	2016	4	2017
LCCB PDR/CDR (Sep 2016)	4	2016	4	2016
LCCB Milestone C (Sep 2017)	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
LCCB Production and Deployment Phase	4	2017	1	2019
LCCB IOC (Aug 2018)	4	2018	4	2018
LCCBU Technology Maturation & Risk Reduction Phase	4	2015	3	2017
LCCBU PDR (Apr 2017)	3	2017	3	2017
LCCBU Milestone B (Apr 2017)	3	2017	3	2017
LCCBU Engineering and Manufacturing Development Phase	3	2017	3	2018
LCCBU CDR (Sep 2017)	4	2017	4	2017
LCCBU Milestone C (Jul 2018)	4	2018	4	2018
LCCBU Production and Deployment Phase	4	2018	4	2019
LCCBU IOC (Mar 2019)	2	2019	2	2019
LCCBU FOC (Sep 2019)	4	2019	4	2019
RVA II PDR (Mar 2016)	2	2016	2	2016
RVA II Milestone B (Feb 2016)	2	2016	2	2016
RVA II Engineering and Manufacturing Development Phase	2	2016	4	2017
RVA II CDR (Mar 2017)	2	2017	2	2017
RVA II Milestone C (Sep 2017)	4	2017	4	2017
RVA II Production and Deployment Phase	2	2018	2	2021
RVA II IOC (Feb 2019)	2	2019	2	2019
RVA II FOC (Feb 2021)	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672984: MM III Baseline Support	-	21.751	51.173	40.205	0.000	40.205	26.400	15.027	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 newly developed or modified 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 Cadmium Replacement Support Equipment Program (CaDRP), LGM-30G Flight Test Telemetry and Termination System (FT3), LGM-30G Ground Test Upgrade (GTU), and LGM-30G Squadron Data Simulator (SDS). 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.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LGM-30G Cadmium Replacement Program	0.000	2.683	3.136	0.000	3.136
<p>Description: Cadmium plating is used in the LF and LCC Motor Generators. Motor generator parts are coated with the material to inhibit corrosion, ensure a low electrical signature (bonding and grounding) and aide in the ability to withstand a nuclear environment. Cadmium is one of the EPA-17 chemicals selected for reduction. Executive Directive 13148 and FAR part 23.703 states, "eliminate or reduce the generation of hazardous waste and the need for special material processing." CaDRP will provide a cadmium replacement coating with the same properties for corrosion inhibiting, bonding and grounding, and nuclear event survivability to meet these directives. Process must meet the weapon system parameters for form, fit, function, system safety, and hardness</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Begin the development of replacement for Cadmium (CaD) plating material • Analyze/test and provide engineering and administrative support • Prepare and conduct successful Milestone B <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Complete the development of CaD replacement plating material and portable plating unit 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Qualify and test the AFRL Zinc-Nickel (Zi-Ni) plating material for the MM-III Motor Generators and complete the development of the prototype portable Zi-Ni plating unit • Analyze/test designs, provide engineering and administrative support • Complete Critical Design Review and conduct verification testing • Prepare and conduct successful Milestone C <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Flight Test Telemetry and Termination System (FT3)</p> <p>Description: FT3 designs, develops, fabricates and tests replacements for the Mod 7 Instrumentation Wafer, associated Signal Conditioner Monitor Group (SCMG), as well as the Flight Destruct System (FDS) and the Launch Safety System (LSS). This will replace the unsupported instrumentation wafer and FDS that do not meet current Range Safety Standards. The Mod 7 instrumentation wafer transmits missile performance telemetry and position data and receives command destruct messages during MM III OTLs and developmental flight test evaluations. The SCMG and associated cabling capture Reentry System performance data during OTLs and developmental flight tests. FT3 will replace the current MM III OTL flight destruct capability used in the event of a flight anomaly where it would be necessary to destroy the missile. LSS replaces the current unique, specialized test system at Vandenberg AFB used to monitor and control test launch flights and ground support equipment. The current LSS is over 15-years old and experiencing major supportability issues. LSS failure trends are increasing due to hardware aging and obsolescence creating a need for workarounds, waivers and contractor intervention. A new Instrumentation Wafer and FDS are required to continue OTLs through 2030. A new LSS is required to field the Instrumentation Wafer and the FDS.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Conducted Systems Requirements Analysis in preparation for Systems Requirement Review (SRR) • Determined specific COTS components and began review of all Range Safety requirements <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Conduct SRR • Conduct Milestone B to gain entry into EMD phase • Conduct the Preliminary Design Review • Design, develop, fabricate and test prototypes of the IIS, FDS and LSS • Conduct system design and integrate/ verify at component and system level through ground testing 	15.885	28.484	16.940	0.000	16.940

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Prepare for Critical Design Review (CDR) <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Conduct CDR • Build qualification hardware and conduct qualification testing • Prepare for Production Readiness Review • Begin long-lead procurement activities <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Baseline Support</p> <p>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.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Conducted studies of system performance, cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. • Paid contract closeout costs. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Conduct studies of system performance. • Pay contract closeout costs. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Conduct studies of system performance. • Pay contract closeout costs. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. <p>FY 2017 OCO Plans: N/A</p>	0.503	0.500	0.100	0.000	0.100
<p>Title: LGM-30G Ground Test Upgrade (GTU)</p>	3.600	4.820	3.530	0.000	3.530

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: GTU will design a replacement for the Simulated Electronic Launch Minuteman (SELM) and Guided Missile Launcher Electronic Circuit (GMLEC) test sets, and the Re-entry System Simulator. Modifications being added include RS Fuze Simulator, SELM Enhancements, and A4 drawer interface change. GTU enables operational checkout and test of LFs up to the point of actual MM III launch. The program will address parts obsolescence and combine SELM/GMLEC test sets into one using the same interfaces and cables.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Awarded TMRR contract to Ground Subsystems Support Contract (GSSC) • Completed System Requirement Review (SRR) • Awarded task order for nuclear surety Independent Verification and Validation (IV&V)/Performance Analysis and Technical Evaluation (PATE) <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Complete TMRR phase with an approved PDR and continue into EMD • Begin design, development, fabrication and testing of replacement equipment for GTU • Prepare and conduct successful Milestone B <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Conduct Critical Design Review (CDR) • Continue with EMD phase of the program <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Squadron Data Simulator (SDS)</p> <p>Description: Design and develop the SDS to replace the current test set. SDS will increase the mean time between failure, improve user interface, and meet DoD Cyber Security requirements. Additionally, this modeling and simulation tool is used to replicate the message traffic for a selectable number of Launch Control Centers and Launch Facilities within an ICBM squadron.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Award base period contract and begin Technology Maturation and Risk Reduction (TMRR) Phase <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Continue Technology Maturation and Risk Reduction (TMRR) Phase 	1.763	14.686	16.499	0.000	16.499

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> Continue design, development, verification of SDS requirements, and conduct Preliminary Design Review (PDR) Conduct a Milestone B Complete Critical Design Review, and prepare for verification testing <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> Continue the Engineering and Manufacturing Development phase. Complete test readiness review, qualification testing, weapon system testing, electromagnetic interference testing, functional configuration audit and physical configuration audit Prepare and conduct successful Milestone C <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	21.751	51.173	40.205	0.000	40.205

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF: BA 03: Line Item #M30MLG: <i>Minuteman III Modifications</i>	0.000	7.689	22.870	0.000	22.870	22.953	0.052	0.053	0.000	Continuing	Continuing
• MPAF: BA 01: Line Item #00099L: <i>Missile Replacement Eq-Ballistic</i>	0.000	0.000	0.000	0.000	0.000	4.820	4.406	0.000	0.000	Continuing	Continuing
• MPAF: BA 04: Line Item #000999: <i>Replen Spares/Repair Parts</i>	0.000	0.000	0.805	0.000	0.805	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Baseline Support equipment replacement efforts are reviewed to determine the best method for execution, including vendor qualification and procurement with no development required, develop and/or modification with organic depot capabilities or development with industry. Industry development for Baseline Support equipment efforts will be executed through contracts available 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 under a Cost Plus Award Fee (CPAF) Contract.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Cadmium Replacement Program EMD	C/CPFF	TBD : TBD	-	0.000		2.163	Apr 2016	2.752	Jan 2017	0.000		2.752	Continuing	Continuing	TBD
LGM-30G Ground Test Upgrade (GTU) TMRR/EMD	C/CPAF	Northrop Grumman Technical Services : Clearfield, UT	-	2.741	Mar 2015	3.616	Mar 2016	2.202	Mar 2017	0.000		2.202	Continuing	Continuing	TBD
LGM-30G Flight Test Telemetry and Termination System (FT3) TMRR/EMD	C/CPIF	Boeing : Clearfield, UT	-	13.512	Oct 2015	23.716	Oct 2016	15.720	Oct 2017	0.000		15.720	Continuing	Continuing	TBD
LGM-30G Squadron Data Simulator (SDS) TMRR/EMD	C/CPFF	Lockheed Martin : TBD	-	1.693	Sep 2015	14.485	Apr 2016	14.802	Apr 2017	0.000		14.802	Continuing	Continuing	TBD
Subtotal			-	17.946		43.980		35.476		0.000		35.476	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Flight Test Telemetry and Termination System (FT3)	C/Variou	Boeing : Clearfield, UT	-	1.367	Oct 2015	0.600	Oct 2016	0.600	Oct 2017	0.000		0.600	Continuing	Continuing	TBD
LGM-30G Baseline Support	Variou	Variou : TBD	-	0.503	Mar 2015	0.500	Mar 2016	0.100	Mar 2017	0.000		0.100	Continuing	Continuing	TBD
Subtotal			-	1.870		1.100		0.700		0.000		0.700	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Flight Test Telemetry and Termination System (FT3)	C/CPIF	Boeing : Clearfield, UT	-	0.000		1.640	Oct 2016	0.000		0.000		0.000	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Ground Test Upgrades NSCCA-PATE / IV&V	C/CPFF	Northrop Grumman Information Technology : Clearfield, UT	-	0.251	Jun 2015	0.491	Jan 2016	0.209	Jan 2017	0.000		0.209	Continuing	Continuing	TBD
LGM-30G Squadron Data Simulator (SDS)	TBD	TBD : TBD	-	0.000		0.000		1.492	Jan 2017	0.000		1.492	Continuing	Continuing	-
Subtotal			-	0.251		2.131		1.701		0.000		1.701	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Cadmium Replacement Support Equipment Program (CaDRP) PMA	C/FFP	BAE Systems : Clearfield, UT	-	0.000		0.520	Jan 2016	0.384	Jan 2017	0.000		0.384	Continuing	Continuing	TBD
LGM-30G Flight Test Telemetry and Termination System (FT3) PMA	C/CPIF	Boeing : Clearfield, UT	-	1.006	Oct 2015	2.528	Oct 2016	0.620	Oct 2017	0.000		0.620	Continuing	Continuing	TBD
LGM-30G Ground Test Upgrades A&AS	C/FFP	BAE System : Clearfield, UT	-	0.223	Jun 2015	0.378	Jun 2016	0.549	Jun 2017	0.000		0.549	Continuing	Continuing	TBD
LGM-30G Ground Test Upgrades PMA	Various	Various : Various : TBD	-	0.385	Mar 2015	0.335	Mar 2016	0.570	Mar 2017	0.000		0.570	Continuing	Continuing	TBD
LGM-30G Squadron Data Simulator PMA	Various	Various : Various : TBD	-	0.070	Sep 2015	0.201	Apr 2016	0.205	Apr 2017	0.000		0.205	Continuing	Continuing	TBD
Subtotal			-	1.684		3.962		2.328		0.000		2.328	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	21.751	51.173	40.205	0.000	40.205	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CaDRP Milestone B (Mar 2016)					■																						
CaDRP Engineering and Manufacturing Development Phase					■	■	■	■	■	■																	
CaDRP CDR (Oct 2016)										■																	
CaDRP Production and Deployment Phase															■	■	■	■	■	■							
CaDRP Milestone C (Jul 2017)																											
CaDRP IOC (Jan 2019)																											
CaDRP FOC (Apr 2019)																											
GTU Technology Maturation and Risk Reduction Phase					■	■	■	■	■																		
GTU PDR (Aug 2016)																											
GTU Milestone B (Sep 2016)																											
GTU Engineering and Manufacturing Development Phase															■	■	■	■	■	■							
GTU CDR (Mar 2017)																											
GTU Milestone C (Sep 2018)																											
GTU Production and Deployment Phase																											
GTU IOC (Aug 2019)																											
GTU FOC (Jan 2020)																											
FT3 Technology Maturation and Risk Reduction Phase					■	■	■	■	■																		
FT3 PDR (Apr 2016)																											
FT3 Milestone B (May 2016)																											
FT3 Engineering and Manufacturing Development Phase																											
FT3 Long Lead Procurement																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CaDRP Milestone B (Mar 2016)	2	2016	2	2016
CaDRP Engineering and Manufacturing Development Phase	3	2016	4	2017
CaDRP CDR (Oct 2016)	1	2017	1	2017
CaDRP Production and Deployment Phase	4	2017	4	2019
CaDRP Milestone C (Jul 2017)	4	2017	4	2017
CaDRP IOC (Jan 2019)	2	2019	2	2019
CaDRP FOC (Apr 2019)	3	2019	3	2019
GTU Technology Maturation and Risk Reduction Phase	2	2015	4	2016
GTU PDR (Aug 2016)	4	2016	4	2016
GTU Milestone B (Sep 2016)	4	2016	4	2016
GTU Engineering and Manufacturing Development Phase	4	2016	4	2018
GTU CDR (Mar 2017)	2	2017	2	2017
GTU Milestone C (Sep 2018)	4	2018	4	2018
GTU Production and Deployment Phase	4	2018	2	2020
GTU IOC (Aug 2019)	4	2019	4	2019
GTU FOC (Jan 2020)	2	2020	2	2020
FT3 Technology Maturation and Risk Reduction Phase	2	2015	3	2016
FT3 PDR (Apr 2016)	3	2016	3	2016
FT3 Milestone B (May 2016)	3	2016	3	2016
FT3 Engineering and Manufacturing Development Phase	3	2016	3	2019
FT3 Long Lead Procurement	3	2016	3	2018
FT3 CDR (May 2017)	3	2017	3	2017
FT3 Milestone C (May 2018)	3	2018	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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Events	Start		End	
	Quarter	Year	Quarter	Year
FT3 Production and Deployment Phase	3	2018	3	2021
FT3 IOC (May 2019)	3	2019	3	2019
FT3 FOC (Jun 2021)	3	2021	3	2021
SDS Technology Maturation and Risk Reduction Phase	4	2015	4	2016
SDS PDR (Apr 2016)	3	2016	3	2016
SDS Milestone B (Jun 2016)	3	2016	3	2016
SDS Engineering and Manufacturing Development Phase	3	2016	2	2018
SDS CDR (Sep 2016)	4	2016	4	2016
SDS Milestone C (Dec 2017)	1	2018	1	2018
SDS Production and Deployment Phase	2	2018	3	2019
SDS FOC (Apr 2019)	3	2019	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>				Project (Number/Name) 672985 / <i>MM Support Equip</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672985: <i>MM Support Equip</i>	-	29.177	16.552	28.714	0.000	28.714	25.888	11.377	12.079	6.131	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101213F, project 672985, LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) - FY17 New Start, is a new start.
 This program, BA 07 PE 0101213F, project 672985, LGM-30G G6B4 Build Equipment Replacement (G6B4 BER) - FY17 New Start, is a new start.
 This program, BA 07 PE 0101213F, project 672985, LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER) - FY17 New Start, 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 GBSD. Current efforts include design, development, and testing of support equipment such as LGM-30G Alignment Set Test Set (ASTS), LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT), LGM-30G Code System Media (CSM), LGM-30G G6B4 Build Equipment Replacement (G6B4 BER), LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU), LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER), LGM-30G Payload Transporter Replacement (PTR), LGM-30G Reentry Field Support Equipment (RFSE), LGM-30G Reentry Support Equipment Replacement Program (RSERP), LGM-30G Strategic Targeting and Applications Computer System (STACS), and LGM-30G Transporter Erector Replacement Program (TERP).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) - FY17 New Start	0.000	0.000	0.645	0.000	0.645
Description: CMPT replaces the classroom trainer supporting start-up and shut-down of the MM III LF and missile, computer memory loading operations, and maintenance procedures. The program will update software, outdated operating systems, and obsolete/unsupportable hardware (desktop computers, motherboards, simulated programmer group, drivers, simulated cable sets, tape sets, and other miscellaneous parts) located at each Missile Wing and Vandenberg AFB necessary to continue the training capability of the CMPTs through 2030.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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- Conduct Source Selection and initiate EMD contract award actions to validate the design of new software and begin code development
- Prepare and conduct successful Preliminary Design Review and Milestone B

FY 2017 OCO Plans:
N/A

Title: LGM-30G Code System Media (CSM)	1.398	0.000	0.000	0.000	0.000
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Description: The CSM program supports the replacement of obsolete tape cartridges with more modern and available magnetic media required to transport and handle mission essential codes and data throughout the ICBM weapon system. Segment #1 completed in Sep 2011 and provided software to accept National Security Agency (NSA) codes, Operations Plan (OPLAN) changes and software updates on compact disk (CD). Segment #2 completed in Oct 2013 and provided software and hardware necessary to import all other data on CD and produce Wing Codes Processing System products on CD. Finally, the program will replace the Cartridge Tape Unit (CTU) with a Data Transfer Unit (DTU). The shelf life of the current stock of DC300 tape cartridges used by the CTUs and 9-track tapes will age out by 2017. The DTU provides the capability to load codes/software on Minuteman III ICBMs through 2030 and is critical to code change activities to secure the nuclear ICBMs.

- FY 2015 Accomplishments:**
- Completed Test Readiness Review and system qualification testing of Data Transfer Unit (DTU) engineering prototypes.
 - Certified design readiness for Full Rate Production decision
 - Verified and delivered technical data to accompany First Article Test and Evaluations.
 - Conducted a Milestone C

FY 2016 Plans:
N/A

FY 2017 Base Plans:
N/A

FY 2017 OCO Plans:
N/A

Title: LGM-30G Reentry Field Support Equipment (RFSE)	4.905	0.000	0.000	0.000	0.000
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Description: Design and develop RFSE to replace the current reentry system test set. RFSE will increase the Mean Time Between Failure, eliminate unneeded MK12 functions, and add new MK21 functions. It will provide

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016		
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B. Accomplishments/Planned Programs (\$ in Millions)					
capability to meet Department of Energy mandated Limited Life Component warhead swaps and to test electrical continuity during buildup of Minuteman III reentry systems.					
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> • Completed design, development, fabrication and testing of RFSE units. • Prepared and conducted successful Milestone C 					
FY 2016 Plans:					
N/A					
FY 2017 Base Plans:					
N/A					
FY 2017 OCO Plans:					
N/A					
Title: LGM-30G Strategic Targeting and Applications Computer System (STACS)					
Description: Design and develop a replacement for the STACS hardware, software and tape cartridge media, which are becoming obsolete and unsupported. STACS will provide new targeting computer equipment and software, and CD media for data import and export. STACS enables USSTRATCOM required OPLAN changes and updates to ICBM missile wings for execution.					
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> • Completed design and development activities. • Completed certification and delivered the STACS replacement to reach FOC. 					
FY 2016 Plans:					
N/A					
FY 2017 Base Plans:					
N/A					
FY 2017 OCO Plans:					
N/A					
Title: LGM-30G Transporter Erector Replacement Program (TERP)					
Description: Design and develop the capabilities necessary to replace the current Transporter Erector (TE). The TE is used to emplace, extract and transport Minuteman III boosters to and from the launch facilities. TERP					
	0.629	0.000	0.000	0.000	0.000
	9.429	1.000	0.100	0.000	0.100

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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will update existing drawings, specifications and technical orders to eliminate parts obsolescence and address intended usage through 2030 and will qualify the new system prior to production.

- FY 2015 Accomplishments:**
- Completed design, development, fabrication and testing of replacement TE.
 - Completed first article production, Test Readiness Review, and system qualification testing.
 - Planned redesign effort to address tractor failures identified during testing.

- FY 2016 Plans:**
- Complete tractor redesign, development, fabrication.
 - Conduct delta CDR for tractor redesign.

- FY 2017 Base Plans:**
- Complete delta Test Readiness Review, delta system qualification testing, and tractor redesign qualification testing.
 - Verification and delivery of tech data to accompany First Article Test and Evaluations accomplished.
 - Certify design readiness for Full Rate Production decision.
 - Conduct a successful Milestone C.

FY 2017 OCO Plans:
N/A

Title: LGM-30G Reentry Support Equipment Replacement Program (RSERP)	3.926	9.377	18.491	0.000	18.491
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Description: Design, develop, fabricate and test the RSERP to modify or replace the over 30 year old suite of test equipment necessary to continue checkout, screening, repair, and refurbishment of Mk12A/Mk21 Arming Fuzing Assemblies.

- FY 2015 Accomplishments:**
- Began the design, development, fabrication, and test of RSERP.

- FY 2016 Plans:**
- Continue to design, develop and fabricate the test program sets.
 - Conduct the Preliminary Design Review and Critical Design Review for the Automatic Test Equipment.

- FY 2017 Base Plans:**
- Prepare and conduct successful Milestone B
 - Begin to design, develop and fabricate System and Line Replaceable Unit (LRU) test program sets.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Conduct the Preliminary Design Review and Critical Design Review for the System and LRU test program sets. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: LGM-30G Payload Transporter Replacement (PTR)</p> <p>Description: Designs and develops the capabilities necessary to replace the current Payload Transporter tractor and trailer, mitigating emerging threat technologies and methods. The PTR replaces, extracts, and transports the MM III reentry system, propulsion system rocket engine, and missile guidance set. The new PTR design increases safety and security during transport activities and improves maintenance operations.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Continued development and completed fabrication of PTR. • Conducted system level Critical Design Review • Began fabrication of two PTR prototypes. • Finalized qualification test plans and procedures <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Completed fabrication of two PTR prototypes. • Conducted Test Readiness Review • Complete system qualification testing. • Complete FCA/PCA. • Certify design readiness for Full Rate Production decisions. • Verification and delivery of tech data to accompany First Article Test and Evaluations. • Conduct a successful Milestone C. • Obtain nuclear design certification. <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	7.659	4.000	0.000	0.000	0.000
<p>Title: LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU)</p> <p>Description: Designs and develops the capabilities to replace the current Performance Assessment Data System (PADS) Communications Equipment Interface Unit (CEIU) mitigating obsolescence and upgrading</p>	0.000	0.675	4.605	0.000	4.605

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-------------------------------------------------------------	---------	---------	--------------	-------------	---------------

<p>the system to transmit over the internet using Internet Protocols (IP). The system transmits MM III Inertial Measurement Unit (IMU) Performance Data (IPD) from Launch Control Centers to the PADS located at the support base. The new system will use the more reliable and secure IP transmission method. The update effort consists of rewriting the CEIU imbedded software to a robust language using secure coding practices, and change the CEIU design from telephone to IP transmission. In addition, the PADS interfacing system is to be updated to interface with the updated CEIU design.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Conduct a preliminary design review (PDR) • Prepared for and conduct a successful Milestone B • Begin Engineering Manufacturing Development phase <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Conduct a Critical Design review (CDR). • Prepare for Test Readiness Review (TRR). <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: LGM-30G G6B4 Build Equipment Replacement (G6B4 BER) - FY17 New Start</p> <p>Description: This effort will replace five unique pieces of equipment (stations) used in the repair and testing of the G6B4 Gyro. The G6B4 Gyro is a complex part required in the stabilization and guidance of the MM III. The five work stations to be replaced are the Hydrogen Fill station, Milling and Welding station, Balance station, Bearing Alignment station, and the power and cooling system for the "F" Coefficient station. Current equipment is over twenty years old and is becoming unsustainable. The program will address parts obsolescence and improve the reliability of the work stations critical to guidance set repair.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.000	0.000	0.958	0.000	0.958
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-------------------------------------------------------------	---------	---------	--------------	-------------	---------------

- Begin evaluation and replacement planning of the Milling and Welding station, Hydrogen Fill station, Balance station, Bearing Alignment station, and the GFS power, cooling and hydrolic station
- Conduct Preliminary Design Review and Milestone B
- Purchase COTS items for all 5 test stations
- Begin working updates for the integration of the COTS items

FY 2017 OCO Plans:
N/A

Title: LGM-30G Alignment Set Test Set (ASTS)	1.231	1.500	1.307	0.000	1.307
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Description: The ASTS is a one of a kind station built for the repair and calibration of the Alignment Set on a MM III guidance platform. ASTS completes the design, development, fabrication and installation of two operational systems and support equipment along with a Level III data package and source data as required for Technical Order (TO) creation.

- FY 2015 Accomplishments:**
- Conducted acquisition strategy review
 - Received new start approval for program resumption
 - Prepared and conducted successful Milestone B

- FY 2016 Plans:**
- Resume program effort following restructure and re-baseline
 - Perform re-calibration of hardware on engineering development unit
 - Resume software development effort for ASTS software suite
 - Conduct software integration testing on EDU
 - Resume assembly of production representative prototype unit (PRPU)
 - Conduct confidence testing/integration efforts and perform accuracy verification testing on PRPU

- FY 2017 Base Plans:**
- Complete Test Readiness Review and qualification and acceptance testing on PRPU
 - Complete the build and testing of second PRPU unit
 - Prepare and conduct successful Milestone C

FY 2017 OCO Plans:

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER) - FY17 New Start	0.000	0.000	2.608	0.000	2.608
Description: The Missile Guidance Set (MGS) repair is dependent on the proper functioning of the PIGA build equipment. The PIGA build and test equipment used at the repair facility is well over twenty years old and is becoming unsustainable due to obsolescence issues. This program will modify or replace two Digital Pickoff Alignment stations, two Electrical Alignment stations, two Alignment Test stations, one Torque Test station, one Temperature Probe Calibration station, two Fill stations and one Slip Ring/Module Test station.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: <ul style="list-style-type: none"> • Begin evaluation of the seven PIGA Test and Repair stations • Conduct Preliminary Design Review • Purchase COTS items for all 7 test stations • Begin drawing updates for the integration of the COTS items • Prepare and conduct successful Milestone B 					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	29.177	16.552	28.714	0.000	28.714

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF: BA03: Line Item # M30MLG: <i>MM III Modifications</i>	0.000	0.000	0.000	0.000	0.000	1.807	0.000	0.526	0.000	Continuing	Continuing
• MPAF: BA01: Line Item# 00099L: <i>Missile Replacement Eq-Ballistic</i>	12.926	78.576	56.016	0.000	56.016	51.884	44.017	53.231	50.674	Continuing	Continuing
• MPAF: BA04: Line Item #000999: <i>Replen Spares/Repair Parts</i>	11.029	0.000	3.413	0.000	3.413	0.202	0.094	0.024	0.000	Continuing	Continuing

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Support and test equipment replacement efforts are reviewed to determine the best method for execution including vendor qualification and procurement with no development required, develop and/or modification 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 Construct (FISAC) or competitive source selections. Nuclear Surety Cross Check Analysis (NSCCA) and Independent Verification and Validation (IV&V) efforts are contracted separately under a Cost Plus Award Fee (CPAF) Contract.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) EMD	C/FFP	TBD : TBD	-	0.000		0.000		0.447	May 2017	0.000		0.447	Continuing	Continuing	TBD
LGM-30G Code System Media (CSM)	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	0.427	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build Equipment Replacement (PIGA BER) EMD	TBD	TBD : TBD	-	0.000		0.000		2.371	Jan 2017	0.000		2.371	Continuing	Continuing	TBD
LGM-30G Reentry Field Support Equipment (RFSE) EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	2.282	Oct 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Reentry Support Equipment Replacement Program (RSERP) TPS	C/CPIF	TBD : TBD	-	0.000		5.676	Mar 2016	14.414	Mar 2017	0.000		14.414	Continuing	Continuing	-
LGM-30G Reentry Support Equipment Replacement Program (RSERP)	MIPR	VDATS Program Office : Warner Robins, GA	-	0.958	Jan 2016	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program (TERP) EMD	C/FPIF	DRS Environmental Systems : Cincinnati, OH	-	7.131	Feb 2015	0.800	Jan 2017	0.100	Feb 2017	0.000		0.100	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program (TERP) GFE	MIPR	414th Supply Chain : Hill AFB, UT	-	0.880	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Strategic Targeting and Applications Computer System (STACS) EMD	C/CPFF	Northrop Grumman : Salt Lake City, UT	-	0.466	Jan 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Payload Transporter Replacement (PTR) EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	6.355	Feb 2015	2.854	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Performance Assessment Data System Communications	SS/CPIF	Boeing : Layton, UT	-	0.000		0.573	Apr 2016	4.092	Apr 2017	0.000		4.092	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Equipment Interface Unit (PADS CEIU) Software Development															
LGM-30G G6B4 Build Equipment Replacement (G6B4 BER) EMD	TBD	TBD : TBD	-	0.000		0.000		0.849	Jan 2017	0.000		0.849	Continuing	Continuing	TBD
LGM-30G Alignment Set Test Set (ASTS) Engineering Development	SS/CPAF	Boeing : Heath, OH	-	1.231	Nov 2015	1.480	Nov 2016	1.287	Jan 2017	0.000		1.287	Continuing	Continuing	TBD
Subtotal			-	19.730		11.383		23.560		0.000		23.560	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) Integrated Support Contractor (ISC)	C/FP	BAE Systems : Layton, UT	-	0.000		0.000		0.143	Jul 2017	0.000		0.143	Continuing	Continuing	TBD
LGM-30G Reentry Field Support Equipment (RFSE) Integration Support	C/FP	BAE Systems : Layton, UT	-	0.200	Jan 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Reentry Support Equipment Replacement Program (RSERP) ISC	C/FP	BAE Systems : Layton, UT	-	0.425	Aug 2015	1.286	Aug 2016	3.475	Aug 2017	0.000		3.475	Continuing	Continuing	TBD
Subtotal			-	0.625		1.286		3.618		0.000		3.618	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Code System Media NSCCA-PATE	C/CPFF	Northrop Grumman Information : Clearfield, UT	-	0.181	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
LGM-30G Reentry Support Equipment Replacement Program (RSERP) IV&V	TBD	TBD : TBD	-	0.000		1.227	Jul 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Strategic Targeting and Applications Computer System (STACS) NSCCA/PATE	C/CPFF	Northrop Grumman : Clearfield, UT	-	0.156	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.337		1.227		0.000		0.000		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Control Monitor Procedure Trainer Upgrade (CMPT) PMA	Various	Various : TBD	-	0.000		0.000		0.055	May 2017	0.000		0.055	Continuing	Continuing	TBD
LGM-30G Code System Media (CSM) Eng Support	MIPR	Aerospace Research : El Segundo, CA	-	0.768	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Code System Media (CSM) PMA	Various	Various : TBD	-	0.022	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Reentry Support Equipment Replacement Program (RSERP) PMA	C/FP	BAE Systems : Layton, UT	-	2.543	Aug 2015	1.188	Aug 2016	0.602	Aug 2017	0.000		0.602	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program (TERP) PMA	Various	Various : TBD	-	1.418	Feb 2015	0.200	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G Pendulous Integrating Gyroscopic Accelerometer Build	TBD	TBD : TBD	-	0.000		0.000		0.237	Jan 2017	0.000		0.237	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
Equipment Replacement (PIGA BER) PMA																
LGM-30G G6B4 Build Equipment Replacement (G6B4 BER) PMA	TBD	TBD : TBD	-	0.000		0.000		0.109	Feb 2017	0.000		0.109	Continuing	Continuing	TBD	
LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU) PMA	TBD	TBD : TBD	-	0.000		0.102	Apr 2016	0.513	Apr 2017	0.000		0.513	Continuing	Continuing	TBD	
LGM-30G Payload Transporter Replacement (PTR) PMA	Various	Various : TBD	-	0.904	Feb 2015	0.920	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	TBD	
LGM-30G Payload Transporter Replacement (PTR) FFRDC	MIPR	Sandia National Laboratories : Albuquerque, NM	-	0.400	Apr 2015	0.226	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	TBD	
LGM-30G Reentry Field Support Equipment (RFSE) PMA	C/CPAF	BAE Systems : Layton, UT	-	2.423	Jan 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD	
LGM-30G Strategic Targeting and Applications Computer System (STACS) PMA	Various	Various : TBD	-	0.007	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD	
LGM-30G Alignment Set Test Set (ASTS) PMA	TBD	TBD : TBD	-	0.000		0.020	Feb 2016	0.020	Feb 2017	0.000		0.020	Continuing	Continuing	-	
Subtotal			-	8.485		2.656		1.536		0.000		1.536	-	-	-	
Project Cost Totals			-	29.177		16.552		28.714		0.000		28.714	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PADS CEIU PDR (Dec 2016)																												
PADS CEIU CDR (Aug 2017)																												
PADS CEIU Milestone C (May 2018)																												
PADS CEIU Production and Deployment Phase																												
PADS CEIU IOC (Jan 2019)																												
PADS CEIU FOC (Sep 2019)																												
PIGA BER Milestone B ()																												
PIGA BER EMD Phase																												
PIGA BER PDR ()																												
PIGA BER CDR (Jun 2018)																												
PIGA BER Milestone C ()																												
PIGA BER Production and Deployment Phase																												
PIGA BER IOC (Jul 2020)																												
PIGA BER FOC (Mar 2021)																												
G6B4 BER Milestone B (Oct 2016)																												
G6B4 BER Engineering and Manufacturing Development Phase																												
G6B4 BER PDR (Mar 2017)																												
G6B4 BER CDR (Oct 2017)																												
G6B4 Milestone C (Apr 2019)																												
G6B4 BER Production & Deployment Phase																												
G6B4 BER IOC (Oct 2020)																												
G6B4 BER FOC (MAR 2021)																												
ASTS MS B Review / Program Restart (Jul 2015)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
ASTS Engineering and Manufacturing Development Phase																																
ASTS MS C (Apr 2017)																																
ASTS Production and Deployment Phase																																
ASTS IOC/FOC (Mar 2018)																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CMPT Milestone B (Feb 2017)	2	2017	2	2017
CMPT Engineering and Manufacturing Development Phase	2	2017	1	2020
CMPT PDR (June 2017)	3	2017	3	2017
CMPT CDR (May 2018)	3	2018	3	2018
CMPT Milestone C (Dec 2019)	1	2020	1	2020
CMPT Production and Deployment Phase	2	2020	3	2020
CMPT IOC (Dec 2019)	1	2020	1	2020
CMPT FOC (Apr 2020)	3	2020	3	2020
CSM Engineering and Manufacturing Development Phase	1	2015	3	2015
CSM Milestone C (Jul 2015)	4	2015	4	2015
CSM Production and Deployment Phase	4	2015	2	2017
CSM IOC (Nov 2015)	1	2016	1	2016
CSM FOC (Jun 2016)	1	2017	1	2017
RFSE Engineering and Manufacturing Development Phase	1	2015	4	2015
RFSE Milestone C (Mar 2015)	2	2015	2	2015
RFSE IOC (Jun 2017)	3	2018	3	2018
RFSE FOC (Aug 2019)	4	2019	4	2019
RFSE Production & Deployment Phase	4	2015	4	2019
PTR Engineering and Manufacturing Development Phase	1	2015	4	2016
PTR Milestone C (Jul 2016)	4	2016	4	2016
PTR Production and Deployment Phase	4	2016	1	2021
PTR IOC (Jul 2017)	4	2017	4	2017
PTR FOC (Dec 2020)	1	2021	1	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
STACS Engineering and Manufacturing Development Phase	1	2015	2	2015
STACS FOC (Mar 2015)	2	2015	2	2015
TERP Engineering and Manufacturing Development Phase	1	2015	3	2017
TERP Milestone C (Apr 2017)	3	2017	3	2017
TERP Production and Deployment Phase	3	2017	1	2020
TERP IOC (Apr 2018)	3	2018	3	2018
TERP FOC (Sep 2019)	4	2019	4	2019
RSERP TMRR Phase	1	2015	1	2017
RSERP Milestone B (Nov 2016)	1	2017	1	2017
RSERP Engineering and Manufacturing Development Phase	1	2017	4	2018
RSERP System PDR (Oct 2016)	1	2017	1	2017
RSERP Line Replaceable Unit (LRU) PDR (Jan 2017)	2	2017	2	2017
RSERP System CDR (Apr 2017)	3	2017	3	2017
RSERP LRU CDR (Jun 2017)	3	2017	3	2017
RSERP Milestone C (Mar 2018)	2	2018	2	2018
RSERP Automated Test Equipment Long Lead Procurement	3	2016	4	2017
RSERP Production and Deployment Phase	2	2018	4	2019
RSERP IOC (Dec 2018)	1	2019	1	2019
RSERP FOC (Aug 2019)	4	2019	4	2019
PADS CEIU Milestone B (Mar 2016)	2	2016	2	2016
PADS CEIU Engineering and Manufacturing Development Phase	3	2016	3	2018
PADS CEIU PDR (Dec 2016)	1	2017	1	2017
PADS CEIU CDR (Aug 2017)	4	2017	4	2017
PADS CEIU Milestone C (May 2018)	3	2018	3	2018
PADS CEIU Production and Deployment Phase	3	2018	4	2019
PADS CEIU IOC (Jan 2019)	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
PADS CEIU FOC (Sep 2019)	4	2019	4	2019
PIGA BER Milestone B ()	2	2017	2	2017
PIGA BER EMD Phase	2	2017	2	2021
PIGA BER PDR ()	2	2017	2	2017
PIGA BER CDR (Jun 2018)	3	2018	3	2018
PIGA BER Milestone C ()	3	2019	3	2019
PIGA BER Production and Deployment Phase	3	2019	2	2021
PIGA BER IOC (Jul 2020)	4	2020	4	2020
PIGA BER FOC (Mar 2021)	2	2021	2	2021
G6B4 BER Milestone B (Oct 2016)	1	2017	1	2017
G6B4 BER Engineering and Manufacturing Development Phase	1	2017	2	2020
G6B4 BER PDR (Mar 2017)	2	2017	2	2017
G6B4 BER CDR (Oct 2017)	1	2018	1	2018
G6B4 Milestone C (Apr 2019)	3	2019	3	2019
G6B4 BER Production & Deployment Phase	3	2019	2	2021
G6B4 BER IOC (Oct 2020)	1	2021	1	2021
G6B4 BER FOC (MAR 2021)	2	2021	2	2021
ASTS MS B Review / Program Restart (Jul 2015)	4	2015	4	2015
ASTS Engineering and Manufacturing Development Phase	4	2015	3	2017
ASTS MS C (Apr 2017)	3	2017	3	2017
ASTS Production and Deployment Phase	3	2017	2	2018
ASTS IOC/FOC (Mar 2018)	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>				Project (Number/Name) 672986 / <i>MM Crypto Mods</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672986: <i>MM Crypto Mods</i>	-	39.589	32.845	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

MM Crypto Mods executes USSTRATCOM, Air Force Global Strike Command, and Nuclear Weapon 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 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LGM-30G ICBM Cryptography Upgrade II (ICU II)	39.589	32.845	0.000	0.000	0.000
Description: ICU II completes design and development, implements KS-60 remote key/code change, irreversible transformation capabilities, and prevents continuous signal lockout.					
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> • Completed A4 Drawer qualification and weapon system testing with preliminary central processor. • Finalized code and fabricated final central processor design. 					
FY 2016 Plans:					
<ul style="list-style-type: none"> • Weapon system testing with final central processor, nuclear certification for A4 Drawer. • Finish development, testing, certification of related system software. • Begin contract effort to develop Support Equipment (SE) and package manufactured processors for safe storage. • Prepare and conduct successful Milestone C. 					
FY 2017 Base Plans:					
N/A					
FY 2017 OCO Plans:					
N/A					
Accomplishments/Planned Programs Subtotals	39.589	32.845	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672986 / <i>MM Crypto Mods</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF: BA 03: Line Item# M30MLG: <i>MM III Modifications</i>	0.000	0.000	30.636	0.000	30.636	32.036	24.093	3.039	0.175	Continuing	Continuing
• MPAF: BA 04: Line Item #000999: <i>Replen Spares/Repair Parts</i>	0.000	0.000	2.367	0.000	2.367	5.671	0.000	0.024	0.000	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 Surety Cross Check Analysis/Performance Analysis and Technical Evaluation (NSCCA/PATE) Independent Validation & Verification (IV&V). The contract type is Cost Plus Fixed Fee, awarded to NG Technical Services. This contract is driven by critical nuclear surety requirements to perform an independent assessment of all modifications to nuclear-certified software. The FY16 Pre-Production contract will be awarded on the Ground Systems Sustainment Contract (GSSC).

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672986 / MM Crypto Mods
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G ICBM Cryptography Upgrade II EMD	C/CPIF	Northrop Grumman : Clearfield, UT	-	28.744	Feb 2015	26.086	Sep 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	28.744		26.086		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G ICBM Cryptography Upgrade II Nuclear Surety Support (NSCCA)	C/CPIF	Northrop Grumman : Clearfield, UT	-	3.491	Jun 2015	1.487	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
LGM-30G ICBM Cryptography Upgrade II Inter-DoD	MIPR	Navy Crane : Crane, IN	-	2.466	Feb 2015	1.552	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	5.957		3.039		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G ICBM Cryptography Upgrade II PMA	Various	Various : TBD	-	4.888	Jun 2015	3.720	Sep 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	4.888		3.720		0.000		0.000		0.000	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672986 / <i>MM Crypto Mods</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ICU II Engineering and Manufacturing Development Phase	1	2015	4	2016
ICU II Milestone C (Mar 2017)	2	2017	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>				Project (Number/Name) 672987 / <i>MM Ops Equip</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672987: <i>MM Ops Equip</i>	-	18.205	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 2016, Project 672987, MM Ops Equipment, the two ongoing efforts were transferred into PE 0605230F, Ground Based Strategic Deterrent (GBSD), Project 641025. The efforts transferred were the Solid Rocket Motor Modernization (SRMM) and Guidance Modernization Program (GMP).

A. Mission Description and Budget Item Justification

MM Operational Equipment program efforts will identify viable concepts and materiel solutions in support of the Air Force's GBSD. Funding supports design, development, test, integration and replacement of weapon system equipment including flight systems, Nuclear Command, Control and Communications (NC3), launch and control facilities, and Security/Ground Equipment upgrades. Efforts within the MM Operational Equipment program will ensure MM III operation through 2030 as well as support future GBSD requirements. MM Operational Equipment also provides for other unique government costs, studies, cost trades and acquisition planning activities for future GBSD requirements. In support of the future flight systems, the GMP effort will further define requirements, explore available technologies and architectures, select the most promising technology and architecture for development, and prepare acquisition plans. Efforts under the ICBM Demonstration and Validation Guidance Application Program (GAP), PE 0603851F, ICBM Dem/Val, will be leveraged to inform these efforts. Also in support of the future flight systems, the SRMM effort will define operational requirements, investigate available technologies and prepare an acquisition strategy for SRMM development. SRMM will design and replace the existing solid rocket motors with a qualified modern design. This effort, coupled with ICBM Demonstration and Validation Propulsion Application Program (PAP), PE 0603851F, ICBM Dem/Val, will support development of requirements and an implementation timeline for the SRMM program.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Guidance Modernization Program (GMP)	17.624	0.000	0.000	0.000	0.000
Description: GMP effort will provide modifications or replacements for the current MM III guidance subsystem necessary to ensure operations through 2030 and to support future GBSD requirements.					
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> • Continued technology assessment and development initiated under Dem/Val GAP • Established contracts with multiple contractors with promising technology and architectures relevant for a guidance replacement • Continued efforts to mature technologies, define requirements and modular architectures • Prepared acquisition strategies and plans for a GBSD Milestone A decision point • Began development of enhanced ground test capability and identify flight system integration requirements 					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672987 / <i>MM Ops Equip</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025 <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025 <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Solid Rocket Motor Modernization (SRMM)</p> <p>Description: SRMM effort will provide modifications or replacements for the current MM III booster subsystem necessary to ensure operations through 2030 and to support future GBSD requirements.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Continued technology assessment and development initiated under Dem/Val PAP. Prepared acquisition strategies and plans for a GBSD Milestone A decision point. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025 <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025 <p>FY 2017 OCO Plans: N/A</p>	0.581	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	18.205	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE: BA04: PE 0605230F: <i>Ground Based Strategic Deterrent</i>	0.000	75.166	113.919	0.000	113.919	293.959	321.054	1,034.249	1,576.429	Continuing	Continuing

Remarks

D. Acquisition Strategy
GMP prepared for Milestone A efforts by acquiring data and information from studies and market research performed throughout FY14/15 utilizing both Dem/Val GAP and GMP funding. Contracts were competitively awarded as Cost Plus Fixed Fee, and MIPRs were submitted through the Navy to leverage resources and knowledge.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0101213F / <i>Minuteman Squadrons</i>	672987 / <i>MM Ops Equip</i>

SRMM prepared for Milestone A efforts by acquiring data and information from studies and market research performed throughout FY14/15 utilizing both Dem/Val PAP and SRMM funding. The studies identified technologies needing continuous attention during the GBSD Program (TMRR & EMD). Results from the studies informed GBSD of potential risks, including technology and manufacturing readiness challenges. Contracts were competitively awarded as Cost Plus Fixed Fee to leverage resources and knowledge.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672987 / MM Ops Equip
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Guidance Modernization Program Instrument Technology Advancement	C/CPFF	Various : Various, UT	-	8.888	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	8.888		0.000		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Solid Rocket Motor Modernization Technical Engineering Services	C/FP	BAE : Hill AFB, UT	-	0.581	Apr 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Guidance Modernization Program Technical Engineering Services	C/FP	BAE : Hill AFB, UT	-	4.867	Jul 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	5.448		0.000		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Guidance Modernization Program EGT	C/FP	BAE : Clearfield, UT	-	3.496	May 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	3.496		0.000		0.000		0.000		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	C/Various	Various : Hill, AFB, UT	-	0.373	Jun 2016	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	0.373		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672987 / <i>MM Ops Equip</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Guidance Materiel Solution Analysis Phase	
SRM Materiel Solution Analysis Phase	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672987 / <i>MM Ops Equip</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Guidance Materiel Solution Analysis Phase	1	2015	2	2016
SRM Materiel Solution Analysis Phase	1	2015	2	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	176.887	31.046	28.358	39.148	0.000	39.148	25.662	0.000	0.000	0.000	0.000	301.101
675029: <i>ISPAN Increment 5</i>	0.000	0.000	0.000	8.911	0.000	8.911	0.000	0.000	0.000	0.000	0.000	8.911
675059: <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>	176.887	24.178	28.358	30.237	0.000	30.237	25.662	0.000	0.000	0.000	0.000	285.322
675368: <i>GSIN (Global Integrated Sensor Network)</i>	0.000	6.868	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.868

Program MDAP/MAIS Code: 481

Note

This program, BA 07 PE 0101313F, project 675029, Increment 5, is a new start.

In FY 2018, PE 0101313F, Strategic War Planning System - USSTRATCOM, Project 675029, ISPAN Increment 5 efforts will transfer to PE 0101324F, Integrated Strategic Planning and Analysis Network, Project 675029, ISPAN Increment 5, in order to provide improved transparency.

A. Mission Description and Budget Item Justification

The mission of the US Strategic Command (USSTRATCOM) is to establish and provide full-spectrum global strike, coordinate space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. To enable completion of these missions, USSTRATCOM is modernizing the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as Strategic War Planning System (SWPS)).

ISPAN is a multi-increment effort designed to incrementally add capability for USSTRATCOM and the National Command Authorities (NCA). The program is currently comprised of four increments (ISPAN Block 1, ISPAN Increment 2, Increment 4, and Increment 5.) Block 1, Increment 2, Increment 4, and FY17 Increment 5 are in PE 0101313F. FY18-21 Increment 5 are in PE 0101324F. ISPAN Block 1 modified and delivered capability for both the Global Adaptive Planning Collaborative Information Environment (GAP CIE) and the Mission Planning and Analysis System (MPAS) components. It achieved Full Deployment in July 2010. ISPAN Increment 2 further developed and provided increased capability for GAP CIE. ISPAN Increment 4 starts the modernization of MPAS. ISPAN Increment 5 will complete the modernization. MPAS modernization will enable USSTRATCOM to revitalize its unique Force Planning mission of developing Joint Staff Level 1 through Level IV nuclear and conventional attack options for national and theater requirements. Force planning has become more complicated due to weapons reductions, increased accuracy requirements and delivery options, changing targeting requirements, shortened timelines for senior leader decision-making, and reduced financial resources to develop and sustain these national planning capabilities. ISPAN will modernize MPAS and allow it to fulfill the requirements for a more timely, flexible, and agile planning capability. When ISPAN Increment 5 is complete the system will support the warfighter in both deliberate and adaptive planning environments while allowing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>
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the National Command Authority (NCA) to employ the full spectrum of kinetic and non-kinetic weapons. Additionally, studies and analyses will be conducted to identify options for evolving the system as interfacing weapon systems are matured, new systems are developed, and the threat changes (particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD)).

The FY 2017 funding request was reduced by \$1.8 million to account for the availability of prior year execution balances.

GSIN establishes a unified schema integrating disparate Missile Warning/Missile Defense (MW/MD) data into a single exposed data set providing redundant MW/MD data to facilitate the rapid exchange of information across multiple missions and removes information ambiguity that delays time critical national C2 decision-making processes. GSIN nets together all sensors, from tactical to strategic (including the Nation's most modern and capable assets) taking advantage of their larger numbers, improved algorithms, mobility and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. GSIN will permit an IP-based User Defined Operational Picture (UDOP) to augment voice conferencing and rapidly build a single, unambiguous missile event picture allowing real-time senior collaboration for nuclear C2 and improved senior leader situational awareness (SA) and decision-making.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	32.014	28.481	32.402	0.000	32.402
Current President's Budget	31.046	28.358	39.148	0.000	39.148
Total Adjustments	-0.968	-0.123	6.746	0.000	6.746
• Congressional General Reductions	0.000	-0.123			
• 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	-0.968	0.000			
• Other Adjustments	0.000	0.000	6.746	0.000	6.746

Change Summary Explanation

- FY 2017 RDT&E increased \$8.9M for ISPAN Increment 5 risk reduction development activities.

- FY 2017 RDT&E funding request was reduced by \$1.8 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675029: <i>ISPAN Increment 5</i>	0.000	0.000	0.000	8.911	0.000	8.911	0.000	0.000	0.000	0.000	0.000	8.911
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0101313F, project 675029, Increment 5, is a new start.

In FY 2018, PE 0101313F, Strategic War Planning System - USSTRATCOM, Project 675029, ISPAN Increment 5 efforts will transfer to PE 0101324F, Integrated Strategic Planning and Analysis Network, Project 675029, ISPAN Increment 5, in order to provide improved transparency.

A. Mission Description and Budget Item Justification

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. Increment 5 will fulfill MPAS requirements by reducing Crisis Action Planning and Time Sensitive Planning timelines, integrating nuclear and conventional kinetic weapon capabilities with non-kinetic effects, providing the capability to integrate planning and analysis capabilities of future Global Strike weapons, updating the MPAS system to provide the ability to train users in significantly less time, and leveraging new technologies to lower sustainment costs. Increment 5 is an evolution of the ISPAN Increment 4 baseline system using proven technologies.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Increment 5	0.000	0.000	8.911	0.000	8.911
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 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Pre- and post- Milestone B developments for increment 5 Risk Reduction Activities to outline the software architecture for development activities and identify the software build and evaluation approach for MPAS Increment 5 modernization. - Refine System / Subsystem Design Descriptions (SSDD)					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Conduct software reuse analysis - Evaluate user interface and data integration prototypes - Generate program milestone products and artifacts - Preliminary Design Review preparation <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.911	0.000	8.911

C. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy
Increment 5 will develop and modernize software for the combatant commanders using an evolutionary acquisition strategy with development contracts that are negotiated and awarded in a competitive environment. Additionally, selected program management activities will be accomplished through the use of various contracting vehicles such as Military Interdepartmental Purchase Requests (MIPRs)

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.

E. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Pre-Milestone B Risk Reduction	Various	Offutt AFB : Offutt AFB, NE	0.000	0.000		0.000		6.684	Nov 2016	0.000		6.684	0.000	6.684	-
Subtotal			0.000	0.000		0.000		6.684		0.000		6.684	0.000	6.684	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Engineering Operations	Various	Offutt AFB : Offutt AFB, NE	0.000	0.000		0.000		2.227	Nov 2016	0.000		2.227	0.000	2.227	-
Subtotal			0.000	0.000		0.000		2.227		0.000		2.227	0.000	2.227	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	8.911	0.000	8.911	0.000	8.911	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ISPAN Inc 5 (MPAS) Pre-B Risk Reduction Activities	[REDACTED]																											
	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ISPAN Inc 5 (MPAS) Pre-B Risk Reduction Activities	1	2017	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>				Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675059: <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>	176.887	24.178	28.358	30.237	0.000	30.237	25.662	0.000	0.000	0.000	0.000	285.322
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as SWPS) is a USSTRATCOM system that must be capable of both deliberate and adaptive planning employing the full spectrum of kinetic and non-kinetic weapons. The planning system will continue to evolve as weapon systems are matured, new systems are developed, and the threat changes, particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD).

ISPAN Increment 4 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. Increment 4 will fulfill MPAS requirements by reducing Crisis Action Planning and Time Sensitive Planning timelines, integrating nuclear and conventional kinetic weapon capabilities with non-kinetic effects, providing the capability to integrate planning and analysis capabilities of future Global Strike weapons, updating the MPAS system to provide the ability to train users in significantly less time, and leveraging new technologies to lower sustainment costs. ISPAN Inc 4 is an evolution of the ISPAN Block 1 baseline system using proven technologies.

The FY 2017 funding request was reduced by \$1.8 million to account for the availability of prior year execution balances.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: ISPAN Increment 4	24.178	28.358	30.237	-	30.237
Description: ISPAN Increment 4 (aka MPAS Modernization) will reduce Crisis Action Planning and Time Sensitive Planning timelines, integrates nuclear and conventional kinetic weapon capabilities with non-kinetic effects, and provides the capability to integrate planning and analysis capabilities of future Global Strike weapons. ISPAN Inc 4 is an evolution of the Block 1 baseline system using proven technologies.					
FY 2015 Accomplishments:					
- Continued requirements analysis, design, coding, and test activities for development of a new Mission Planning and Analysis System (MPAS) capability					
- Completed initial development of ISPAN Increment 4 Spiral 1 capability					
-- Developed ability to accomplish Time Sensitive Planning (TSP) faster than today's system can support					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-- Provided partial Plan Management capability for a more automated approach to planning missile missions (partial TSP Weaponeering)</p> <p>-- Provided Attack Structure Management capability for system-assisted deliberate plan management</p> <p>-- Provided ability to add, edit, and delete courses of action (COAs) to existing plans in response to changes in the operational environment or shifts in priorities or guidance</p> <p>-- Initiated some foundational development activities necessary to orchestrate work assignments among MPAS subsystems</p> <p>-- Modernized a portion of the Air Vehicle Planning System to improve maintainability and simplify the addition of new capabilities</p> <p>- Started Spiral 1 Government-sponsored Development Test and Evaluation (GDT&E)</p> <p>- Initiated Spiral 2 Development Efforts</p> <p>FY 2016 Plans:</p> <p>- Complete Spiral 1 Government-sponsored Development Test and Evaluation (GDT&E)</p> <p>- Will continue requirements analysis, design, coding, and test activities for development of a new Mission Planning and Analysis System (MPAS) capability</p> <p>- Will complete target development, Nuclear Weaponeering/Aimpoint Construction, and TSP Weaponeering</p> <p>- Initiate development of ISPAN Increment 4 Spiral 2 capability.</p> <p>-- Develop ability to provide integrated conventional kinetic and non-kinetic plans for integration into level 4 nuclear plans</p> <p>-- Continue foundational development activities necessary to orchestrate work assignments among MPAS subsystems</p> <p>-- Continue to modernize a portion of the Air Vehicle Planning System to improve maintainability and simplify the addition of new capabilities</p> <p>- Initiate Spiral 2 Government-sponsored Development Test and Evaluation (GDT&E)</p> <p>- Initiate Spiral 3 Development activities</p> <p>FY 2017 Base Plans:</p> <p>- Complete Spiral 2 Government-sponsored Development Test and Evaluation (GDT&E)</p> <p>- Continue requirements analysis, design, coding, and test activities for development of a new Mission Planning and Analysis System (MPAS) capability with Spiral 3</p> <p>-- Complete development of initial Spirals 1 and 2 planning capabilities (e.g. Plan Management, Operational Orchestration, Attack Structure Management, Weapon Allocation Optimization, and Deliberate and Crisis Action Planning Application improvements)</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-- Complete modernization of the Air Vehicle Planning System to enhance sustainment and enhance capabilities to support Deliberate and Crisis Action Planning - Complete Spiral 3 Development - Prepare for Initial Operational Test and Evaluation (IOT&E) of ISPAN Increment 4 capability - Initiate planning for the analysis, design, and coding of the Post Increment Enhancement (PIE) phase					
Accomplishments/Planned Programs Subtotals	24.178	28.358	30.237	-	30.237

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 833560: <i>Integrated Strategic Planning and Analysis Network</i>	9.060	9.597	9.331	0.000	9.331	9.100	8.980	9.138	9.302	Continuing	Continuing

Remarks
Beginning in FY15 OPAF funds for all ISPAN efforts were transferred from WSC 833140, Strategic Command and Control to WSC 833560, Integrated Strategic Planning and Analysis Network (ISPAN) to provide improved transparency.

D. Acquisition Strategy
ISPAN develops and modernizes strategic planning tools for the combatant commanders using an evolutionary acquisition strategy with development contracts that are negotiated and awarded in a competitive environment.

The program development is accomplished via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. Other efforts such as Program Management Administration are accomplished via Fixed Price (FP) contracts. Activities are also accomplished via Military Interdepartmental Purchase Requests (MIPR).

Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) and the 55 CONS office at Offutt AFB are contracting authorities for ISPAN and provide Contracts, Legal, and Comptroller Support.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/BM) is the PEO and Milestone Decision Authority (MDA) is the Under Secretary of Defense, Acquisition Technology & Logistics (AT&L).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ISPAN Increment 2	C/CPIF	Various : Various	114.006	0.000		0.000		0.000		0.000		0.000	0.000	114.006	114.006
ISPAN Inc 4 Pre-B Risk Reduction	C/CPIF	Various : Various	12.548	0.000		0.000		0.000		0.000		0.000	0.000	12.548	12.548
ISPAN Inc 4 Spiral 1 Dev	C/CPIF	Various : Various	16.430	9.933	Feb 2015	0.000		0.000		0.000		0.000	0.000	26.363	26.363
ISPAN Inc 4 Spiral 2 Dev	C/CPIF	Various : Various	0.000	10.045	Jul 2015	16.598	Jan 2016	0.000		0.000		0.000	0.000	26.643	26.642
ISPAN Inc 4 Spiral 3 Dev	C/CPIF	Various : Various	0.000	0.000		6.684	Jul 2016	24.832	Oct 2016	0.000		24.832	0.000	31.516	31.516
ISPAN Inc 4 Post IOC Enhancements	C/CPIF	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	20.257	20.257	20.257
Subtotal			142.984	19.978		23.282		24.832		0.000		24.832	20.257	231.333	231.332

Remarks
- Inc 4 Spiral 3 Dev will be awarded in July 2016 and incrementally funded with FY17 to completion.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ISPAN Responsible Test Organization	C/CPIF	RTO : Bellevue, NE	1.527	0.185	Oct 2014	0.190	Oct 2015	0.210	Oct 2016	0.000		0.210	0.210	2.322	2.322
ISPAN Certification and Accreditation	MIPR	JTIC : Ft Hichuaha, AZ	0.701	0.075	Oct 2014	0.075	Oct 2015	0.075	Oct 2016	0.000		0.075	0.075	1.001	1.001
Subtotal			2.228	0.260		0.265		0.285		0.000		0.285	0.285	3.323	3.323

Remarks
- Responsible Test Organization is funded at the beginning of the each FY for testing performed during the FY

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ISPAN Inc 4 (MPAS) Spiral 1 Development Testing				■																								
ISPAN Inc 4 (MPAS) Spiral 2 Development				■	■	■	■	■																				
ISPAN Inc 4 (MPAS) Spiral 2 Development Testing								■	■	■	■	■																
ISPAN Inc 4 (MPAS) Spiral 3 Development								■	■	■	■	■																
ISPAN Inc 4 (MPAS) Spiral 3 Development Testing												■	■	■	■	■												
ISPAN Inc 4 (MPAS) Post IOC Enhancements												■	■	■	■	■												
ISPAN Inc 4 (MPAS) FDD (Jun 2018)																■												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675059 / <i>Integrated Strategic Planning and Analysis Network (ISPAN)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ISPAN Inc 4 (MPAS) Spiral 1 Development Testing	4	2015	1	2016
ISPAN Inc 4 (MPAS) Spiral 2 Development	4	2015	4	2016
ISPAN Inc 4 (MPAS) Spiral 2 Development Testing	4	2016	1	2017
ISPAN Inc 4 (MPAS) Spiral 3 Development	4	2016	4	2017
ISPAN Inc 4 (MPAS) Spiral 3 Development Testing	1	2018	3	2018
ISPAN Inc 4 (MPAS) Post IOC Enhancements	1	2018	3	2019
ISPAN Inc 4 (MPAS) FDD (Jun 2018)	3	2018	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>				Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675368: <i>GSIN (Global Integrated Sensor Network)</i>	0.000	6.868	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.868
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The mission of USSTRATCOM is to establish and provide full-spectrum, global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter. This mission has been defined by the 2011 Unified Command Plan (UCP) change 1, the CJCS GSIN Planning Order (PLANORD) dated 06/1400Z Mar 10, the USSTRATCOM GSIN PLANORD dated 29/1943Z Jan 10 and a memorandum from the Senior Warfighter Forum (SWarF) to the VCJCS dated 13 October 2011 documenting data and information sharing deficiencies and recommendations to address them. GSIN directly supports this mission as it nets together selected systems and sensors, from tactical to strategic, including the Nation's most modern and capable assets, taking advantage of their larger numbers, improved algorithms, mobility and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. Using these traditionally stove-piped systems and sensors, GSIN enables the warfighter in several ways. First it will enable a User Defined Operating Picture (UDOP) to provide a single, unambiguous missile event picture allowing real-time senior collaboration for nuclear C2 and improved senior leader situational awareness (SA) for effective decision-making. Secondly, it will improve Space Situational Awareness (SSA) by tapping additional sensor capability. Finally, GSIN will dramatically improve the ingestion of non-traditional, but readily available non-US government and commercial data to the space catalog.

GSIN establishes a unified schema integrating disparate Missile Warning/Missile Defense (MW/MD) data into a single exposed data set providing redundant MW/MD data to facilitate the rapid exchange of information across multiple missions and removes information ambiguity that delays time critical national C2 decision-making processes. GSIN enables existing sensors to provide data in net-centric formats consumable by other authorized systems and mission areas, thus reducing the need to acquire more sensors. Activities also include studies and analysis to support both current program planning, execution, and future program planning.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Sensor Data Exposure: NDPP, TPY-2, MASINT	4.862	0.000	0.000	0.000	0.000
Description: Non traditional Data Pre Processor (NDPP): Designs, develops, exposes, and integrates Space Situational Awareness (SSA) data from Commercial, Owner-Operator, and Allied non-traditional sensors into space production systems and Space Catalog via the Global Information Grid. Develops implementation plans					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>to mature data exposure capabilities. Army Navy Transportable Radar (AN/TPY-2): Designs, develops, tests, exposes, and integrates Space Situational Awareness (SSA) data from the missile defense AN/TPY-2 sensor into space production systems and the Global Information Grid. Develops implementation plans to mature data exposure capabilities. Measurement and Signals (MASINT)/Technical Intelligence (TI): Designs, develops, exposes, and integrates data from MASINT and Technical Intelligence sensors in regions of the world where we currently do not have coverage. Provides near real time data from sensors that previously reported hours or days after events.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of NDPP capability and integration the Space Catalog -- Developed implementation plans to mature data exposure capabilities - Continued sensor development and prepared for verification testing of the exposure of SSA data from the missile defense AN/TPY-2 sensor - Continued development of C2BMC SSA capability to accomodate TPY-2 sensor - Integration development with space production systems - Completed development of MASINT Phase 1 exposure capability <p>FY 2016 Plans: NA</p> <p>FY 2017 Base Plans: NA</p> <p>FY 2017 OCO Plans: NA</p>					
<p>Title: Data Integration: Launch Characterization Data Services Net Centric Data Integration Schema Configuration Control Technical Outreach</p> <p>Description: Develop common XML net-enabled data schemas and configuration management processes and procedures for Missile Warning, Missile Defense, Space, MASINT/Technical Intelligence, and Sensor data to manage the XML schema and associated XML messaging and services. Develop technical outreach for potential new GSIN data consumers and providers who require GSIN sensor data. Upgrade GSIN capabilities as DISA Enterprise Services evolve. Support integration of GSIN sensor data into appropriate registries/catalogs. Continue development of GSIN data services to enable visualization in a common operating picture. Conduct</p>	2.006	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>studies and demonstrations of SSA capabilities, data correlation, launch event characterization and assessment services for risk reduction evaluations.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued to develop common XML net-enabled data schemas to integrate additional sensor data and continued to develop configuration control processes and technical outreach processes for new GSIN data consumers and providers - Upgraded GSIN capabilities as DISA Enterprise Services evolved - Continued data services development activities - Finalized schema changes for MASINT/TI Phase 1 as data became available for consumption and accomplished data service updates <p>FY 2016 Plans: NA</p> <p>FY 2017 Base Plans: NA</p> <p>FY 2017 OCO Plans: NA</p>					
Accomplishments/Planned Programs Subtotals	6.868	0.000	0.000	0.000	0.000

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

Remarks

D. Acquisition Strategy

GSIN uses existing government contract vehicles (from such agencies such as Missile Defense Agency (MDA) or Air Force Life Cycle Management Center (AFLCMC)) to develop and modernize the combined Space Situational Awareness/Missile Warning/Missile Defense data exposure architecture and solution. The contracts are managed by the relevant customers contracting office. GSIN does not award or manage any contracts.

The Air Force Life Cycle Management Center at Hanscom AFB, (AFLCMC/HB) provides necessary program management, contracting, legal, and financial management support for GSIN.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Data Correlation, Visualization Architecture, Data Filtering Studies	C/CPFF	MIT/LL : Boston, MA	0.000	0.230	Nov 2014	0.000		0.000		0.000		0.000	0.000	0.230	-
Common Schema, Configuration and Control	C/CPFF	BAH : Omaha, NE	0.000	0.350	Nov 2014	0.000		0.000		0.000		0.000	0.000	0.350	-
CExpose Space Situational Awareness Data--Commercial, Owner/Operator, Allied	C/CPAF	Lockheed Martin : Colorado Springs, CO	0.000	0.900	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.900	-
Expose Space Situational Awareness Data - AN/TPY-2 Sensor	C/CPAF	Raytheon : Woburn, MA	0.000	1.190	Jan 2015	0.000		0.000		0.000		0.000	0.000	1.190	-
Expose Space Situational Awareness Data - AN/TPY-2 Sensor (2)	C/CPAF	Lockheed Marting : Huntsville, AL	0.000	2.212	Jan 2015	0.000		0.000		0.000		0.000	0.000	2.212	-
Expose Space Situational Awareness Data - MASINT/TI	C/CPAF	MIT/LL : Boston, MA	0.000	0.570	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.570	-
Subtotal			0.000	5.452		0.000		0.000		0.000		0.000	0.000	5.452	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MW, MD, Space Subject Matter Expert Support	C/CPFF	Various : Omaha, NE	0.000	0.250	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.250	-
Subtotal			0.000	0.250		0.000		0.000		0.000		0.000	0.000	0.250	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GSIN - Data Exposure (NDPP) Design and Development	██████████																											
GSIN - Data Exposure (NDPP) Operational Testing				████																								
GSIN - Data Exposure (TPY-2) Design and Development	██████████																											
GSIN - Data Exposure (NC2) Design and Development				████																								
GSIN - Data Exposure (MASINT Phase 1) Design and Development	████																											
GSIN - Data Exposure (MASINT Phase 1) Operational Testing		████████																										
GSIN - Data Exposure (MASINT Phase 1) Capability Fielded (Sep 15)			████																									
GSIN - Data Integration (Schema) Spiral 2 Design and Development	████																											
GSIN - Data integration (Schema) Spiral 2 Operational Testing		████████																										
GSIN - Data Integration (Schema) Spiral 2 Delivery (tied to MASINT/TI)			████																									
GSIN - Data Integration (Schema) Spiral 3 Design and Development			████████																									
GSIN - Data integration (Schema) Spiral 3 Operational Testing				████																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / <i>Strat War Planning System - USSTRATCOM</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GSIN - Data Exposure (NDPP) Design and Development	1	2015	4	2015
GSIN - Data Exposure (NDPP) Operational Testing	4	2015	4	2015
GSIN - Data Exposure (TPY-2) Design and Development	1	2015	4	2015
GSIN - Data Exposure (NC2) Design and Development	4	2015	4	2015
GSIN - Data Exposure (MASINT Phase 1) Design and Development	1	2015	1	2015
GSIN - Data Exposure (MASINT Phase 1) Operational Testing	2	2015	3	2015
GSIN - Data Exposure (MASINT Phase 1) Capability Fielded (Sep 15)	3	2015	3	2015
GSIN - Data Integration (Schema) Spiral 2 Design and Development	1	2015	1	2015
GSIN - Data integration (Schema) Spiral 2 Operational Testing	2	2015	3	2015
GSIN - Data Integration (Schema) Spiral 2 Delivery (tied to MASINT/TI)	3	2015	3	2015
GSIN - Data Integration (Schema) Spiral 3 Design and Development	3	2015	4	2015
GSIN - Data integration (Schema) Spiral 3 Operational Testing	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101314F I Night Fist - USSTRATCOM
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.087	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675152: NIGHTFIST	-	0.000	0.087	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Classified details upon request.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.087	0.067	0.000	0.067
Current President's Budget	0.000	0.087	0.000	0.000	0.000
Total Adjustments	0.000	0.000	-0.067	0.000	-0.067
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	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	-0.067	0.000	-0.067

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

	FY 2015	FY 2016	FY 2017
Title: Misc Analysis	-	0.087	-
Description: Provide analysis, assessments and modeling support for proof of concept demonstrations and technical and analytical support during exercises.			
FY 2016 Plans: Provide analysis, assessments and modeling support for proof of concept demonstrations and technical and analytical support during exercises.			
Accomplishments/Planned Programs Subtotals			
	-	0.087	-

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

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0101314F / *Night Fist - USSTRATCOM*

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

Remarks

E. Acquisition Strategy

N/A

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101314F / <i>Night Fist - USSTRATCOM</i>	Project (Number/Name) 675152 / <i>NIGHTFIST</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Misc Analysis	TBD	Not specified. : TBD	-	0.000		0.087	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	0.000
Subtotal			-	0.000		0.087		0.000		0.000		0.000	-	-	0.000

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.087	0.000	0.000	0.000	-	-	0.000

Remarks
Conduct product development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101314F / <i>Night Fist - USSTRATCOM</i>	Project (Number/Name) 675152 / <i>NIGHTFIST</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Misc Analysis	
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101314F / <i>Night Fist - USSTRATCOM</i>	Project (Number/Name) 675152 / <i>NIGHTFIST</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Misc Analysis	2	2016	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.315	6.042	0.000	6.042	6.286	0.983	2.457	2.501	Continuing	Continuing
671820: <i>Strategic Automated Command and Control System</i>	-	0.000	5.315	6.042	0.000	6.042	6.286	0.983	2.457	2.501	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY15 funding received \$3.5M (not reflected above) through approved Above Threshold Reprogramming to initiate the SACCS program.

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.

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 Chief 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.

This program is in Budget Activity 07, 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 years.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	5.315	6.102	0.000	6.102
Current President's Budget	0.000	5.315	6.042	0.000	6.042
Total Adjustments	0.000	0.000	-0.060	0.000	-0.060
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	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	-0.060	0.000	-0.060

Change Summary Explanation

No Significant Program Changes

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SACCS Replacement	0.000	5.315	6.042	0.000	6.042
Description: Design and develop replacement Strategic Automated Command Control System (SACCS). Replaces all SACCS network components (e.g. Subnet Communications Processor (SCP), Base Communication Processor (BCP), Port Expansion Processor (PEP), and end user terminals). New equipment resolves cybersecurity issues, improves Mean Time Between Failure rates, reliability, availability, improves user interface, decreases annual sustainment costs, addresses Diminishing Manufacturing Sources and Material Shortages and obsolescence challenges, and meets Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).					
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					
- Enter into Technology Maturation and Risk Reduction (TMRR) phase to complete design for a full system modernization					
- Prepare for System Design Review (SDR)					
- Develop robust cybersecurity controls					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Fund Program Office support (A&AS, FFRDC) required for SACCS risk reduction and Engineering and Manufacturing Development (EMD) efforts FY 2017 Base Plans: - Manage TMRR phase through successful SDR, System Functional Review (SFR), and Preliminary Design Review (PDR) - Complete Milestone B documentation to support a Milestone B decision - Enter EMD and manage effort and prepare for Critical Design Review (CDR) in FY18 - Fund necessary A&AS and FFRDC to successfully manage the contract, complete Milestone B, and support EMD FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	5.315	6.042	0.000	6.042

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item #833140:: <i>Strategic Command and Control</i>	0.000	0.248	0.246	0.000	0.246	0.492	1.377	1.279	1.302	Continuing	Continuing
• OPAF: BA05: Line Item <i>#861900: Spares and Repair Parts</i>	0.610	1.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

E. Acquisition Strategy
 Programmed funds will leverage technology development and architecture analysis conducted by AF Research Labs to execute a SACCS Replacement Program and conduct pre-Milestone B activities leading to a future Milestone B decision and Engineering and Manufacturing Development contract award.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TMRR	C/CPFF	TBD : TBD	-	0.000		3.624	Jun 2016	3.181	Jun 2017	0.000		3.181	Continuing	Continuing	TBD
EMD	SS/T&M	309th Mnx Wing : Hill AFB, UT	-	0.000		0.000		1.000	Jun 2017	0.000		1.000	Continuing	Continuing	TBD
Subtotal			-	0.000		3.624		4.181		0.000		4.181	-	-	-

Remarks
 \$3.5M FY15 ATR approved in September 2015; funding received in November 2015. \$3.031M allocated for SACCS development. \$0.469M allocated for A/AS.
 EMD work will be conducted internally by the 309th Maintenance Wing at Hill AFB. Funds will be transferred as required.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SACCS Development FFRDC Support	SS/FFP	Hill AFB : TBD	-	0.000		0.399	Dec 2015	0.444	Dec 2016	0.000		0.444	Continuing	Continuing	TBD
SACCS Development A/ AS Support	SS/FFP	TBD : TBD	-	0.000		0.494	Jun 2016	0.550	Dec 2016	0.000		0.550	Continuing	Continuing	TBD

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SACCS Materiel Development Decision			■																									
SACCS Technology Maturation/Risk Reduction					■	■	■	■																				
SACCS PDR											■																	
SACCS Milestone B											■																	
SACCS Engineering and Manufacturing Development											■	■	■	■	■	■												
SACCS CDR													■															
SACCS Milestone C																							■					
SACCS Production and Deployment																									■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SACCS Materiel Development Decision	3	2015	3	2015
SACCS Technology Maturation/Risk Reduction	1	2016	3	2017
SACCS PDR	3	2017	3	2017
SACCS Milestone B	3	2017	3	2017
SACCS Engineering and Manufacturing Development	3	2017	2	2019
SACCS CDR	2	2018	2	2018
SACCS Milestone C	2	2019	2	2019
SACCS Production and Deployment	2	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102110F / <i>UH-1N Replacement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	14.116	0.000	14.116	19.675	15.675	0.000	0.000	0.000	49.466
672021: <i>UH-1N Replacement Program</i>	-	0.000	0.000	14.116	0.000	14.116	19.675	15.675	0.000	0.000	0.000	49.466
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 This program, BA 07 PE 0102110F, project 672021, Design and Integration, is a new start.
 This program, BA 07 PE 0102110F, project 672021, Test and Evaluation, is a new start.

A. Mission Description and Budget Item Justification

The UH-1N Replacement program will replace the Air Force fleet of UH-1N aircraft with modern helicopters that will close significant mission capability gaps associated with the current fleet of UH-1N aircraft. The replacement aircraft will provide vertical airlift and support the requirements of five Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force District of Washington, Air Education and Training Command, Pacific Air Forces, and Air Force Materiel Command. AFGSC is the Air Force lead command and operational capability requirements sponsor. This program is an element of the Air Force's nuclear enterprise reform initiatives.

This program 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	14.116	0.000	14.116
Total Adjustments	0.000	0.000	14.116	0.000	14.116
• 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	14.116	0.000	14.116

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102110F / <i>UH-1N Replacement Program</i>
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Change Summary Explanation

Based on CY2015 market research, the Air Force believes the UH-1N Replacement program will include a need to integrate certain non-developmental military equipment and capabilities into an existing in-production commercial or military helicopter. This requirement will involve one-time systems engineering activities to integrate this equipment into an existing technical and manufacturing baseline, and revise the aircraft type and airworthiness certifications accordingly. Additional systems engineering activities will be needed to integrate UH-1N Replacement program requirements into operational mission planning and aircrew training systems associated with the aircraft solution. The Air Force also believes live fire test and evaluation activities will be necessary to assess compliance with aircraft protection and survivability requirements. Qualification and operational test and evaluation will be necessary to validate the solution's operational performance, effectiveness, and suitability. These RDT&E-related requirements emerged subsequent to the previous President's Budget, and form the basis for requesting RDT&E, AF funding in the current President's Budget.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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<p>Title: Design and Integration</p> <p>Description: Design and integration of non-developmental equipment and other capabilities into existing aircraft system and technical/manufacturing baselines to achieve UH-1N Replacement operational capability requirements.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Initiate systems engineering efforts to incorporate non-developmental equipment and capabilities into existing aircraft technical and manufacturing baselines to achieve operational capability requirements, including associated mission planning and aircrew training systems. Includes contractor and government systems engineering tasks to revise aircraft type and airworthiness certifications.</p>	0.000	0.000	9.366
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<p>Title: Test and Evaluation</p> <p>Description: System and subsystem test and evaluation of the UH-1N Replacement solution.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans:</p>	0.000	0.000	4.750
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102110F / <i>UH-1N Replacement Program</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Initiate test planning activities and conduct early operational assessment of the UH-1N Replacement vendor's existing commercial/military baseline aircraft system; initiate planning for system/subsystem live fire test and evaluation (LFT&E); procure subsystem component test articles for LFT&E			
Accomplishments/Planned Programs Subtotals	0.000	0.000	14.116

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item #H0106O: <i>UH-1N Replacement</i>	0.000	0.000	18.337	0.000	18.337	171.420	224.111	281.948	292.647	-	-
• APAF: BA05: Line Item #H0106O: <i>UH-1N Replacement</i>	0.000	2.456	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
• APAF: BA06: Line Item #000999: <i>Initial Spares/Repair Parts</i>	0.000	0.000	0.000	0.000	0.000	6.032	9.227	12.555	12.811	-	-
• MILCON: PE 0207576F: <i>Consolidated Helicopter Operations, Tactical Response Force Alert, and Aircraft Maintenance Facilities</i>	0.000	19.700	0.000	0.000	0.000	61.900	58.600	0.000	0.000	-	-

Remarks

E. Acquisition Strategy
 The Air Force intends to procure an in-production commercial/government-off-the-shelf helicopter that requires only minimal integration of existing non-developmental military equipment (e.g. forward looking infrared sensors, personnel recovery hoists, auxiliary internal fuel tanks, cockpit/cabin armor, etc.) as necessary to meet all operational capability requirements. The overarching program acquisition strategy will be determined in 3Q/FY2016. Specific acquisition and contracting strategies for RDT&E funded design/integration tasks and the test & evaluation program will be determined as parts of the overall program strategy. The Air Force intends to enter the acquisition process at Milestone C, and contract for this program no later than the end of 3Q/FY2017.

F. Performance Metrics
 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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672021 / UH-1N Replacement Program								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
UH-1N Replacement weapon system design, integration, and type/airworthiness certification	TBD	TBD : TBD	-	0.000		0.000		8.116	Jun 2017	0.000		8.116	Continuing	Continuing	22.466	
Subtotal			-	0.000		0.000		8.116		0.000		8.116	-	-	22.466	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
UH-1N Replacement live fire, qualification, and operational test and evaluation and technical support	Various	Various : TBD	-	0.000		0.000		4.750	Mar 2017	0.000		4.750	Continuing	Continuing	23.250	
Subtotal			-	0.000		0.000		4.750		0.000		4.750	-	-	23.250	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
UH-1N Replacement program management activity	Various	Various : TBD	-	0.000		0.000		1.250	Jan 2017	0.000		1.250	Continuing	Continuing	3.750	
Subtotal			-	0.000		0.000		1.250		0.000		1.250	-	-	3.750	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672021 / UH-1N Replacement Program				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.000	0.000		14.116	0.000	14.116	-	-	49.466	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program	Project (Number/Name) 672021 / UH-1N Replacement Program

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Strategy Panel																												
Milestone C Decision Review and Contract Award																												
Weapon System Design and Integration																												
-- Design and Integration																												
-- Aircraft Type and Airworthiness Certification Revisions																												
Operational Assessment (OA)																												
-- OA Planning																												
-- OA Execution and Reporting																												
Live Fire Test and Evaluation (LFTE)																												
-- LFTE Planning, Test Article Build																												
-- LFTE Execution and Reporting																												
Qualification Test and Evaluation (QTE)																												
-- QTE Planning																												
-- QTE Execution and Reporting																												
Operational Test and Evaluation																												
-- OTE Planning																												
-- OTE Execution and Reporting																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program	Project (Number/Name) 672021 / UH-1N Replacement Program

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Strategy Panel	3	2016	3	2016
Milestone C Decision Review and Contract Award	3	2017	3	2017
Weapon System Design and Integration	4	2017	2	2020
-- Design and Integration	4	2017	2	2019
-- Aircraft Type and Airworthiness Certification Revisions	3	2018	2	2020
Operational Assessment (OA)	2	2017	1	2018
-- OA Planning	2	2017	3	2017
-- OA Execution and Reporting	4	2017	1	2018
Live Fire Test and Evaluation (LFTE)	4	2017	3	2020
-- LFTE Planning, Test Article Build	4	2017	1	2019
-- LFTE Execution and Reporting	2	2018	3	2020
Qualification Test and Evaluation (QTE)	2	2018	1	2020
-- QTE Planning	2	2018	2	2019
-- QTE Execution and Reporting	2	2019	1	2020
Operational Test and Evaluation	1	2019	2	2020
-- OTE Planning	1	2019	4	2019
-- OTE Execution and Reporting	1	2020	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.229	0.000	10.868	0.000	10.868	12.721	0.000	0.000	0.000	Continuing	Continuing
674592: <i>R/SAOC MODERNIZATION</i>	-	1.229	0.000	10.868	0.000	10.868	12.721	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

BATTLE CONTROL SYSTEM-FIXED (BCS-F) is a weapon system that comprises operational equipment in the fixed air defense sites, Region/Sector Air Operations Center (R/SAOC), also known as Region Air Operations Center-Air Defense Sector (RAOC-ADS). The BCS-F program supports a battle management command and control system with capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture. BCS-F systems serve as Air Force Homeland Defense battle management command and control hubs and integrators for data from radar sensors, data links and supporting communications architecture. 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. The ACAT I BCS-F Increment 3 program declared full deployment in November 2012. BCS-F baseline also includes Remote Tactical Air Picture/Remote Work Station (RTAP/RWS). BCS-F is a bi-national program with Canada, ensuring air defense and surveillance capability across the CONUS, Canada, Alaska and Hawaii. NATIONAL CAPITAL REGION - INTEGRATED AIR DEFENSE SYSTEM (NCR-IADS) is a post-September 11, 2001 rapidly fielded capability that improves low altitude detection capability in order to prosecute airborne threats to the NCR. NCR-IADS provides ground-based air defense of the National Capital Region airspace, and provides an integrated air picture, ground air defense weapons, enhanced regional situational awareness and forensic data collection capabilities for the warfighter mission to protect the NCR.

BCS-F efforts will include systems engineering, development, prototyping, risk reduction, integration, and test & evaluation of the BCS modernization upgrades program for areas that will include but not be limited to: Mods supporting Battle Control Center (BCC) expansion (e.g., 3-D Coordinate System/Whole Earth); Ingestion/processing of advanced communications/sensors/data streams (such as ADS-B, Mode 5/S capability increase, and Live Virtual Construction (LVC) Distributed Mission Operations (DMO), Wide Area Surveillance (WAS) and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS)); System re-architecture/upgrade (such as cybersecurity upgrades, RTAP publish/subscribe architecture, system throughput/processing improvements (including 64-bit processing), and additional operator workstation capacity). Some aspects of the development are classified and will be provided on a need to know basis. Activities also include studies and analysis supporting current and future program planning and development.

NCR-IADS efforts may include system engineering, development, integration, and test & evaluation in support of the NCR-IADS sustainment transfer of the Enhanced Regional Situational Awareness (ERSA) system. Activities also include studies and analysis supporting future program planning and development.

This program is in Budget Activity 07, 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 2017 Air Force **Date:** February 2016

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
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.272	0.000	0.000	0.000	0.000
Current President's Budget	1.229	0.000	10.868	0.000	10.868
Total Adjustments	-0.043	0.000	10.868	0.000	10.868
• 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	-0.043	0.000			
• Other Adjustments	0.000	0.000	10.868	0.000	10.868

Change Summary Explanation

No FY 2016 RDT&E funding.
FY17 funds will support the incorporation of ADS-B into the BCS baseline.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Battle Control System - Fixed Increment 3	1.229	0.000	10.868
Description: -The development, systems engineering, test and evaluation of the BCS modernization upgrades program to include Release 3.2.3 efforts and beyond.			
FY 2015 Accomplishments: -Work continues on efforts that include Radiant Mercury (RM) Redundancy, Automatic Dependent Surveillance – Broadcast (ADS-B) analysis, requirements development, and risk reduction. ADS-B work will resume in FY17.			
FY 2016 Plans: N/A			
FY 2017 Plans: -Efforts will include: Systems engineering, development, risk reduction, integration, and test & evaluation of the BCS system for: Mods supporting Battle Control Center (BCC) expansion ; ingestion/processing of advanced communications/sensors/data streams ; system re- architecture/upgrade.			
Accomplishments/Planned Programs Subtotals	1.229	0.000	10.868

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA07: Line Item # 833030: <i>Battle Control System - Fixed</i>	2.704	1.682	5.677	0.000	5.677	7.380	4.047	4.118	4.192	Continuing	Continuing

Remarks

E. Acquisition Strategy

- The BCS modernization upgrades uses sole source contracting strategy for the on-going Radiant Mercury (RM) redundancy effort.
- Acquisition Strategy for Ingestion/processing of advanced communications/sensors/data streams as well as system re-architecture/upgrades will be evolutionary utilizing competition.
- Management strategy for Mods supporting BCC Expansion and Automatic Dependent Surveillance Broadcast (ADS-B), as well as Ingestion/processing of advanced communications/sensors/data streams, and System re-architecture/upgrades is under the purview of the Air Force Program Executive Officer for Battle Management (AFPEO BM); and Air Force Life Cycle Management Center (AFLCMC) as the Contracting Authority. The Mods Supporting BCC expansion and ADS-B integration, test and evaluation, and fielding programs will be managed under the umbrella Battle Control Systems (BCS) Program Management Office (PMO).
- Contracting strategy for Mods supporting BCC Expansion and ADS-B as well as ingestion/processing of advanced communications/sensors/data streams, and system re-architecture/upgrades will utilize full and open competition procedures with small business set-aside if possible. Cost Plus contracts with some Fixed Price CLINs will be utilized where possible and appropriate.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

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
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BCS Modernization Upgrade (ADS-B)	Various	Various : Various	-	0.000		0.000		8.773	Apr 2017	0.000		8.773	Continuing	Continuing	0.000
ADS-B Risk Reduction	Various	Various : Various	-	0.918	Mar 2016	0.000		0.000		0.000		0.000	0.000	0.918	-
RM Redundancy	SS/CPFF	Thales Raytheon Systems : Fullerton, CA	-	0.140	Mar 2016	0.000		0.000		0.000		0.000	0.000	0.140	0.000
Subtotal			-	1.058		0.000		8.773		0.000		8.773	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46th Test Wing/Other Test Act	Various	Various : Various	-	0.000		0.000		0.232	Apr 2017	0.000		0.232	Continuing	Continuing	0.000
Subtotal			-	0.000		0.000		0.232		0.000		0.232	-	-	0.000

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management and Administration	Various	Various : Various	-	0.171	Oct 2014	0.000		1.863	Oct 2016	0.000		1.863	Continuing	Continuing	0.000
Subtotal			-	0.171		0.000		1.863		0.000		1.863	-	-	0.000

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>	Project (Number/Name) 674592 / <i>R/SAOC MODERNIZATION</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BCS-F RM Redundancy	1	2015	2	2017
BCS-F Ingestion/processing of adv. comms/sensors/data streams	1	2015	1	2019
BCS-F ADS-B Risk Reduction	2	2016	2	2017
BCS Modernization Upgrades (Mods Supporting BCC Expansion)	2	2017	1	2019
BCS Modernization Upgrades (System re-architecture/upgrade)	2	2017	2	2019
BCS Modernization Upgrades (ADS-B)	2	2017	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.079	8.090	8.674	0.000	8.674	9.414	9.463	10.309	10.484	Continuing	Continuing
670373: <i>DCIP</i>	-	0.000	0.497	0.491	0.000	0.491	0.491	0.491	0.492	0.500	Continuing	Continuing
672486: <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>	-	3.079	2.527	2.693	0.000	2.693	2.631	2.680	2.721	2.770	Continuing	Continuing
67A011: <i>Space Analysis and Application Development</i>	-	0.000	5.066	5.490	0.000	5.490	6.292	6.292	7.096	7.214	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Critical Infrastructure Program (DCIP) is a Department of Defense (DoD) risk management program that seeks to ensure the availability of networked assets critical to DoD missions. An October 2014 memorandum of agreement between USSTRATCOM and Deputy Assistant Secretary of Defense for Defense Continuity and Mission Assurance transferred budget authority for SPACE SECTOR DCIP to USSTRATCOM to streamline the execution of funding. Critical infrastructure assets can include installations, facilities, antennas, vehicles, computing systems, and communications links. DCIP manages the identification, prioritization, assessment, and assurance of Defense Critical Infrastructure as a comprehensive program. The program includes the development of adaptive plans and procedures to mitigate risk.

Navigation Warfare (Navwar) is deliberate defensive and offensive action to assure positioning, navigation, and timing (PNT) information through coordinated employment of space, cyberspace, and electronic warfare (EW) operations. The JNWC develops and maintains the Department's premier collection of Navwar knowledge, and provides subject matter expertise support to warfighters, Department decision makers, the Federal Interagency (the Department of Homeland Security and other civil agencies concerned with the Critical National Infrastructure), and the Coalition. Navwar expertise is developed in part by execution of PNT Operational Field Assessments (POFAs), modeling and simulation, analysis, and exercise and training support. JNWC-conducted POFAs are a key element in evaluating US and Coalition Navwar capabilities and vulnerabilities and adversary capabilities and vulnerabilities, both crucial to executing PNT superiority mission sets in potentially denied / degraded PNT environments. JNWC helps develop defensive and offensive PNT capabilities by focusing on three Lines of Effort (LOE) to fulfill the mission tasks:

1. Create NAVWAR Knowledge – Conduct PNT operational field assessments, studies and analyses, analyze and disseminate NAVWAR intelligence, and maintain a NAVWAR armory
2. Operationalize PNT Superiority – Enable NAVWAR operations and provide planning subject matter expertise to Combatant Commands, Services, interagency partners and the coalition
3. Institutionalize PNT Superiority– Advocate DoD-wide NAVWAR activities to fully integrate NAVWAR into military operations and the future force structure

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>
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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 the Synthetic Theater Operations Research Model (STORM) campaign level M&S tool. 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.

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. These data isolation challenges result from network isolation, incomplete communications architectures, data security, incompatible information formats, security release policy, etc., inhibiting effective and efficient consolidation of decision quality strategic, operational and tactical information. The DIFC develops machine to machine solutions capable of ingesting Title 10 data at multiple classification levels, to include Special Access Program data, and associating/correlating with National Technical Means at multiple classification levels to both enhance and amplify the Common Operational Picture. The DIFC works closely with DoD SAPCO and elements of the Director of National Intelligence, to include NSA, NRO and CIA, to both identify and address policy barriers, architectures and training opportunities necessary to enable seamless flow of data from all available sensors to warfighters during time of conflict, primarily leveraging currently fielded tactical data links. Though some recommended solutions validated during demonstration events may not transition to operations immediately, but nevertheless provide validated architecture solutions and approved security policies for use should conflict arise versus ad hoc attempts to solve data movement issues during conflict.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	3.134	8.090	8.176	0.000	8.176
Current President's Budget	3.079	8.090	8.674	0.000	8.674
Total Adjustments	-0.055	0.000	0.498	0.000	0.498
• 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	-0.055	0.000			
• Other Adjustments	0.000	0.000	0.498	0.000	0.498

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / <i>DCIP</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
670373: <i>DCIP</i>	-	0.000	0.497	0.491	0.000	0.491	0.491	0.491	0.492	0.500	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The USSTRATCOM Space Sector 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. DCIP is directed by the Office of the Assistant Secretary of Defense (Homeland Defense & Americas' Security Affairs) [OASD (HD&ASA)]. Space Sector DCIP manages the identification, prioritization, assessment, and assurance of Critical Infrastructure as a comprehensive program that includes the development of adaptive plans.

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

	FY 2015	FY 2016	FY 2017
<p>Title: Assett Dependency / Risk Characterization, Mitigation, and Prototyping</p> <p>Description: Supports 1) systems engineering analysis for the decomposition of mission systems and assets, and supporting networks and infrastructure that execute USSTRATCOM mission, 2) research, studies, 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>Supports analysis for the identification and development of risk mitigation and remediation options through research, studies, analysis and assessment of current and future tactics, techniques and procedures and materiel solutions, enabling USSTRATCOM mission assurance planning, coordination, integration, synchronization supporting the reduction of risk to CDRUSSTRATCOM acceptable levels.</p> <p>Supports three spiral development cycles annually consisting of concept and requirement development, tool engineering, algorithm development, prototyping, and testing to support rapid mission impact assessment, risk assessment, and risk management.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: - Analysis of USSTRATCOM Space Sector critical infrastructure assets and dependencies for space and missile defense missions - Research multiple vulnerability assessments reports and various threat and hazard assessment sources for critical infrastructure</p>	0.000	0.497	0.491

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / <i>DCIP</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Remediation analysis of identified vulnerabilities at specific critical infrastructure assets key to USSTRATCOM space and missile defense missions - Research and identify risk mitigation options to ensure mission accomplishment - Concept and requirement development, design development, tool engineering, prototyping, and test & evaluation of a graphical mission impact tool. <p><i>FY 2017 Plans:</i></p> <ul style="list-style-type: none"> - Continued analysis, studies and research of Space Sector critical infrastructure assets and dependencies supporting all USSTRATCOM assigned missions - Future critical infrastructure vulnerability assessments and researching the various sources to perform threats and hazards assessments - Remediation analysis of identified vulnerabilities at critical infrastructure assets necessary for individual USSTRATCOM missions - Research and identify risk mitigation options to ensure mission accomplishment. - Spiral improvements to the graphical mission impact tool - Concept and requirement development, design development, tool engineering, prototyping, and test & evaluation of a tool combining risk assessment methodology with threat and hazard evaluations of critical infrastructure assets 			
Accomplishments/Planned Programs Subtotals	0.000	0.497	0.491

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

N/A

Remarks

D. Acquisition Strategy

Competitive contracts will be used to the maximum extent possible.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / <i>DCIP</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / DCIP
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Asset Dependency and Risk Characterization Research	C/Variou	TBD : TBD	-	0.000		0.497	Jan 2016	0.491	Jan 2017	0.000		0.491	Continuing	Continuing	-
Subtotal			-	0.000		0.497		0.491		0.000		0.491	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.497	0.491	0.000	0.491	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / <i>DCIP</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Asset Dependency, Risk Mitigation, Ops Research, Design/Development, Modeling and Simulation, Test and Evaluation



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 670373 / <i>DCIP</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Asset Dependency, Risk Mitigation, Ops Research, Design/Development, Modeling and Simulation, Test and Evaluation	1	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>				Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672486: <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>	-	3.079	2.527	2.693	0.000	2.693	2.631	2.680	2.721	2.770	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 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. Navwar expertise is developed in part by execution of PNT Operational Field Assessments (POFAs). GYPSY assessments are linked to USSTRATCOM's Tier 1 GLOBAL Series exercises and other CCMD exercises and provide operational realistic threat-representative, GPS-contested environments for analytical assessment of air, ground, or maritime mission capability. FORTUNE POFAs are smaller-scale PNT capability and vulnerability assessments used as future assessment risk reduction or as stand-alone PNT capability assessments. Assessments inform 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.

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

	FY 2015	FY 2016	FY 2017
Title: PNT Operational Field Assessment (GYPSY)	1.666	1.482	1.215
Description: The JNWC will operationally assess, and simulate potential threats and mitigation strategies for potential denial of blue force PNT capabilities as well as preventing the hostile use of Positioning, Navigation and Timing (PNT) information.			
This will be accomplished primarily through the use of operational field assessments both GYPSY and Fortune, laboratories, employment of competitively selected contractors, universities, other government agencies, and Federally Funded Research and Development Centers (FFRDCs).			
FY 2015 Accomplishments:			
- Investigate, operationally assess, and simulate potential threats and mitigation strategies for potential denial of blue force PNT capabilities			
- Develop mitigation strategies for preventing the hostile use of Positioning, Navigation and Timing (PNT) information.			
FY 2016 Plans:			
- Investigate, operationally assess, and simulate potential threats and mitigation strategies for potential denial of blue force PNT capabilities			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Develop mitigation strategies for preventing the hostile use of Positioning, Navigation and Timing (PNT) information.</p> <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Operational assessments - Simulate potential threats and mitigation strategies for potential denial of blue force PNT capabilities - Continuing development to prevent the hostile use of Positioning, Navigation and Timing (PNT) information. 				
<p>Title: PNT Operational Field Assessments (FORTUNE)</p> <p>Description: The FORTUNE Operational Field Assessments serve as a series of risk mitigation events that lead up to GYPSY PNT Operational Field Assessments (POFA).</p> <p>FORTUNE POFAs are planned and executed to demonstrate various PNT system capabilities and platform vulnerabilities to increase the Joint Navigation Center's understanding of test objectives to be undertaken during a GYPSY event.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Test range support for operational field assessments - Range time, engineering, modeling and simulation - Equipment needed to conduct operational field assessment. Modeling and Simulation tool kit, data collection and recording systems, instrumentation and transmitters, receivers, etc. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Test range support for FORTUNE operational field assessments - Equipment needed to conduct operational field assessment. Modeling and Simulation tool kit, data collection and recording systems, instrumentation and transmitters, receivers, etc. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Conduct FORTUNE Operational Field Assessments - Serve as a series of risk mitigation events that are incorporated into GYPSY events 		1.413	1.045	1.478

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Create Navigation Warfare knowledge and Tactics Techniques and Procedures to mitigate Position Navigation and Timing (PNT) vulnerabilities			
Accomplishments/Planned Programs Subtotals	3.079	2.527	2.693

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

N/A

Remarks

D. Acquisition Strategy

New contracts will be awarded using competitive procedures to the maximum extent possible.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PNT Operational Field Assessments (Gypsy and Fortune)	PO	Multiple : Kirtland AFB, NM	-	3.079	Oct 2014	2.527	Oct 2015	2.693	Oct 2016	0.000		2.693	Continuing	Continuing	-
Subtotal			-	3.079		2.527		2.693		0.000		2.693	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.079	2.527	2.693	0.000	2.693	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Operational Field Assessments - Fortune events	[REDACTED]																											
Operational Field Assessments - GYPSY events	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Operational Field Assessments - Fortune events	2	2015	4	2021
Operational Field Assessments - GYPSY events	1	2015	3	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>				Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A011: <i>Space Analysis and Application Development</i>	-	0.000	5.066	5.490	0.000	5.490	6.292	6.292	7.096	7.214	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, Project 67A011, Space Analysis and Application Development, includes new start efforts for the Data Integration and Fusion Center

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 the Synthetic Theater Operations Research Model (STORM) campaign level M&S tool. 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.

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.

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

	FY 2015	FY 2016	FY 2017
Title: Space Campaign Modeling and Simulation, Development/Modification/Verification/Validation	0.000	5.066	4.500
Description: Develops, modifies, verifies, and validates new models for space mission areas and modifies existing models to portray new capabilities.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: - Enhance STORM non-lethal effects modeling			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Continue modifications to support upcoming AOAs and studies - Continue integration of Ionospheric scintillation forecast accuracy modifications into mission models and various communication analysis tools <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Determine touchpoints between space capabilities and the Offensive Counter Air and Fighter Escort / Fighter Sweep mission tasks within STORM - Refine/develop software code to represent US and adversary space interactions in engagement and mission level models - Develop software to input space effects from engagement and mission level models into STORM campaign-level M&S to determine effect of degraded space on U.S. military campaigns and global operations - Develop test cases to evaluate performance of campaign model - Analyze/assess modeling results to determine impact/effects of space activities on U.S. military campaigns and global operations 				
<p>Title: Data Integration and Fusion Center</p> <p>Description: 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.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: The DIFC will investigate, experiment, and disseminate various Title 10 and Title 50 data sources from collect through dissemination to tactical platforms using machine to machine solutions to move data more efficiently and affect kill chain timelines.</p>		0.000	0.000	0.990
Accomplishments/Planned Programs Subtotals		0.000	5.066	5.490

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Model Space effects for two mission tasks and integrate into STORM for joint campaign analysis	TBD	TBD : TBD	-	0.000		5.066	Oct 2015	4.500	Oct 2016	0.000		4.500	Continuing	Continuing	-
Data Integration and Fusion Center	C/Various	Multiple Gov/Civ Agencies : Schriever AFB, CO	-	0.000		0.000		0.990	Oct 2016	0.000		0.990	Continuing	Continuing	-
Subtotal			-	0.000		5.066		5.490		0.000		5.490	-	-	-

Remarks
Best value to the government selected contractors, universities, government facilities, federally funded research and development centers, laboratories, or other organizations

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>			Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.000	5.066		5.490	0.000	5.490	-	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / <i>Service Support to STRATCOM - Space Activities</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Model Space effects for Offensive Counter Air/ Attack Operations and Suppression of Enemy Air Defenses Mission Tasks	1	2016	4	2016
Model Space effects for Offensive Counter Air Fighter Escort and Fighter Sweep Mission Tasks	1	2017	4	2017
Model Space effects for Defensive Counter Air High Value Airborne Asset Defense and Point Defense Mission Tasks	1	2018	4	2018
Model Space effects for Defensive Counter Air Area Defense and Passive Air and Missile Defense Mission Tasks	1	2019	4	2019
Model Space effects for Anti-Surface Warfare and Anti-Submarine Warfare Mission Tasks	1	2020	4	2020
Model Space effects for Intelligence, Surveillance, Reconnaissance and Electronic Warfare Mission Tasks	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	817.828	141.528	122.731	151.373	0.000	151.373	163.951	158.839	163.482	166.382	Continuing	Continuing
675246: <i>MQ-9 Development and Fielding</i>	817.828	141.528	122.731	120.481	0.000	120.481	112.635	44.098	8.080	74.235	0.000	1,441.616
675247: <i>Squadron Operations Centers (SOC)*</i>	0.000	0.000	0.000	0.000	0.000	0.000	7.243	5.792	0.000	0.000	0.000	13.035
675249: <i>MQ-9 Upgrade</i>	0.000	0.000	0.000	30.892	0.000	30.892	44.073	108.949	155.402	92.147	Continuing	Continuing

Program MDAP/MAIS Code: 424

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2017

Note

This program, BA 07 PE 0205219F, project 675249, MQ-9 Upgrade, is a new start.

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 on specific aircraft and control station configurations to be tailored to fit mission needs.

In FY17, the MQ-9 Reaper system has two separate development programs:

1. 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 and support equipment.
2. MQ-9 Upgrade. This effort is to develop improvements for existing systems and to field new capabilities for the baseline MQ-9 fleet using a Hybrid Acquisition Strategy.

In FY18, an additional development program will commence:

Squadron Operations Centers (SOC). This effort is for development and fielding of standardized operations centers to provide mission data and tasking information to the aircrew and disseminate and/or exchange mission data with decision-makers and the intelligence community.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV
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This program 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	148.598	123.439	141.969	0.000	141.969
Current President's Budget	141.528	122.731	151.373	0.000	151.373
Total Adjustments	-7.070	-0.708	9.404	0.000	9.404
• Congressional General Reductions	0.000	-0.708			
• 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	-2.165	0.000			
• SBIR/STTR Transfer	-4.905	0.000			
• Other Adjustments	0.000	0.000	9.404	0.000	9.404

Change Summary Explanation

Funding increase in FY17 to initiate MQ-9 Upgrade program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

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
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675246: MQ-9 Development and Fielding	817.828	141.528	122.731	120.481	0.000	120.481	112.635	44.098	8.080	74.235	0.000	1,441.616
Quantity of RDT&E Articles	3	-	-	-	-	-	-	-	-	-	-	-

Note

Quantity of RDT&E Articles refers only to test aircraft.

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 on specific aircraft and control station 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) as a Synthetic Aperture Radar, 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: increasing the maximum gross takeoff 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 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); integrating additional precision weapons, hardware and software upgrades to the ground control station. 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, and safety issues. Activities also include 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.

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

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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 line-of-sight 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.

This project will also increase interoperability among developed systems by developing common standards and tools.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: MQ-9 System Development and Demonstration (SDD)</p> <p>Description: Complete development to meet MQ-9 Capabilities Production Document (CPD) requirements. Includes engineering change orders and associated studies and general research.</p> <p>FY 2015 Accomplishments: Continued MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system capability development to include:</p> <ul style="list-style-type: none"> • Developmental test for High Capacity Starter-Generator • Predator Primary Data Link (PPDL) that will lead to CDL compliance • Two ARC-210 Radios • Redesigned Forward Avionics Bay • Dashboard w/ Integrated Sensor Control System (ISCS) • Mission Control Module/Payload Control Computer • Improved BRU-71/A Bomb Rack • Improved Stores Management System • High-Definition Multi-spectral Targeting System (MTS-B) • Improved Heavyweight Landing Gear • Integration and productionization • 904.6 software development • Initiated the development and productionization of a complete Block 1 to Block 5 retrofit kit to support future fleet upgrade and modernization. <p>FY 2016 Plans: Continue MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system capability development to include:</p> <ul style="list-style-type: none"> • Developmental test for High Capacity Starter Generator • Predator Primary Data Link (PPDL) that will lead to CDL compliance • Two ARC-210 Radios, Redesigned Forward Avionics Bay • Dashboard w/ Integrated Sensor Control System (ISCS) • Mission Control Module/Payload Control Computer 	25.909	11.737	18.387	0.000	18.387

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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- Improve BRU- 71/A Bomb Rack
 - Improve Stores Management System
 - High Definition Multi-spectral Targeting System (MTS-B)
 - Improved Heavyweight Landing Gear
 - 904.6 software development to include integration of numerous approved Software Change Requests (SCRs)
 - Conduct Electromagnetic Environmental Effects (E3) and Hazards of Electromagnetic Radiation to Ordnance (HERO) testing on the developed MQ-9 Block 5 aircraft system
- Begin Follow-on Operational Test and Evaluation (FOT&E) as required to field the Block 5 aircraft and the 904.6 software to include:
- Development of verified Technical Orders (Flight Manual and Maintenance Manual)
 - Training completion following successful Developmental Test (DT) completion
 - Software regression testing with the fielded Block 1 aircraft system

- FY 2017 Base Plans:**
- Will complete Predator Primary Data Link (PPDL) characterization efforts on the MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system
 - Will complete non-FOT&E dependent testing to fully characterize the MQ-9 development to include items such as Wet Runway testing
 - Will complete Electromagnetic Environmental Effects (E3) and Hazards of Electromagnetic Radiation to Ordnance (HERO) testing on the developed MQ-9 Block 5 aircraft system

FY 2017 OCO Plans:
N/A

Title: Block 30 Ground Control Station (GCS) Development	9.718	4.027	0.000	0.000	0.000
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Description: Develop Block 30 Ground Control Station (GCS) capabilities.

- FY 2015 Accomplishments:**
Continued Development of Block 30 Ground Control Station (GCS) capabilities:
- 904.6 OFP Software development
 - Audio Multi-Level Security (MLS)
 - Field Service Representative (FSR) support during FOT&E

FY 2016 Plans:
Complete Block 30 GCS development.

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Continue Field Service Representative (FSR) support during FOT&E. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
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Title: Block 50 Ground Control Station (GCS) Development Description: Develop Ground Control Station (GCS) capabilities. Major capabilities include payload separation, open system architecture, multi-level security, ergonomic cockpit design, and reducing or eliminating known deficiencies in legacy GCS. FY 2015 Accomplishments: Continued Block 50 GCS design/development, including: <ul style="list-style-type: none"> • Hardware and software integration • Systems Requirement Review • Integrated Baseline Review • Reduce or eliminate known deficiencies in legacy GCS • Payload separation to incorporate required Block 50 GCS architecture FY 2016 Plans: Continue Block 50 design/development of hardware and software: <ul style="list-style-type: none"> • Preliminary Design Review to allow initial test asset procurement • Sub-system Critical Design Reviews will begin • Initial hardware purchase of 3 Block 50 GCS Development Test assets (3 of 7 total Development Test assets) FY 2017 Base Plans: Will continue Block 50 design/development, manufacturing and test <ul style="list-style-type: none"> • Hardware/Software Development • Integration and test • Cockpit Evaluation Team 3 • Critical Design Review • Procure additional 2 Block 50 GCS Development Test assets • Begin Contractor test build FY 2017 OCO Plans:	31.539	52.151	57.191	0.000	57.191
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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N/A					
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<p>Title: MQ-9 MTS-B Electro-Optic / Infrared (EO/IR) Sensor</p> <p>Description: Develop improved Multi-Spectral Targeting System (MTS-B) modes of operation and upgrade full motion video capability to include an all digital architecture employing High-Definition (HD) camera formats, imagery improvements across all multi-spectral bands (color and infrared) and Target Location Accuracy (TLA) enhancements to support future use of coordinate seeking weapons, and integration of High Definition Electro-optical Infra-red sensor upgrades.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Conducted production readiness review to assure system is ready for production • Completed HD TLA MTS-B system qualification, design verification, and extended reliability testing • Supported backwards compatibility integration and test of completed HD TLA MTS-B system and MTS software on MQ-9 platform <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Manage obsolescence of HD TLA MTS-B system parts • Support final integration and test of all functions of HD TLA MTS-B system on MQ-9 Block 5 • Support backwards compatibility integration and test of completed HD TLA MTS-B system and MTS software on MQ-9 platform <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Will manage obsolescence of HD TLA MTS-B system parts • Will support final integration and test of all functions of HD TLA MTS-B system on MQ-9 Block 5 • Will support backwards compatibility integration and test of completed HD TLA MTS-B system and MTS software on MQ-9 platform <p>FY 2017 OCO Plans: N/A</p>	11.723	0.390	0.381	0.000	0.381
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<p>Title: Operator Simulator Block 30</p> <p>Description: Develop Block 30 Ground Control Station (GCS) operator simulators for training and updates to keep Operator Simulator current with upgrades to aircraft and Ground Control Station (GCS) to include Joint Urgent Operational Need (JUON) supported emerging Air Force Special Operations Command (AFSOC) configurations.</p>	7.091	10.415	5.379	0.000	5.379
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Continued to implement updates which will keep the Operator Simulator current with the aircraft and Ground Control Station, including, but not limited to:</p> <ul style="list-style-type: none"> • Sensors • Databases • Weapons upgrades <p><i>FY 2016 Plans:</i> Continue to implement updates which will keep the Operator Simulator current with the aircraft and Ground Control Station, including, but not limited to:</p> <ul style="list-style-type: none"> • Sensors • Databases • Weapons upgrades <p><i>FY 2017 Base Plans:</i> Will continue to implement updates which will keep the Operator Simulator current with the aircraft and Ground Control Station, including, but not limited to:</p> <ul style="list-style-type: none"> • Sensors • Databases • Weapons upgrades <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Synthetic Aperture Radar (SAR) Enhancements</p> <p><i>Description:</i> Improvements in MQ-9 capability to disseminate SAR data via a fleet-wide common architecture, improve Moving Target Indicator (MTI) tracking, automation of data exploitation via Continuous Look Attack Management for Predator (CLAMP) and improvement of all-weather GPS weapon targeting.</p> <p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> • Continued development and began integration/test of MQ-9 data dissemination common architecture using dual firewall capability • Continued development of SAR Stationary Targeting Improvements for GPS-based weapons (STIG) <p><i>FY 2016 Plans:</i></p>	8.499	0.467	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Complete development for initial GCS Block 15 fielding of MQ-9 data dissemination common architecture using dual firewall capability • Adjust STIG development to decouple from GCS development schedule <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Hybrid Release 1 and Release 2</p> <p>Description: Hybrid Release 1 and Hybrid 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 Hybrid Release).</p> <p>FY 2015 Accomplishments: Began implementation of the Hybrid Release 1 effort, including:</p> <ul style="list-style-type: none"> • Video Oriented Transceiver for EXchange of Information (VORTEX) Phase 1 data link to provide encrypted video to tactical users • Upgrades AGM-114R Hellfire missile with Common Weapon Library • Integration of High Definition Electro-optical/Infra-red sensor upgrades • Integration and testing of other communications, sensors and weapons capabilities <p>Tech Maturation FY15 effort included initial meetings and Software Readiness Review (SRR) associated with:</p> <ul style="list-style-type: none"> • Guided Bomb Unit (GBU)-54 • Extended Range for Block 5 aircraft • Barrett Asymmetric Digital Datalink Computer (BADDC) <p>FY 2016 Plans: Begin developing and integrating the software and data to update the MQ-9 Block 5 UAS to include Hybrid Release 1 capabilities, including:</p> <ul style="list-style-type: none"> • Video Oriented Transceiver for EXchange of Information (VORTEX) Phase 1 data link • Upgrades AGM-114R Hellfire missile with Common Weapon Library • Integration of High Definition Electro-optical Infra-red sensor upgrades 	2.047	42.059	34.384	0.000	34.384

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Integration and testing of other communications, sensors and weapons capabilities • Systems Integration Laboratory and Hardware In Loop Laboratory testing • Systems engineering data development, technical publication (TOs) and training documentation development, and test planning <p>Begin Tech Maturation events including:</p> <ul style="list-style-type: none"> • Program Design Review (PDR) • Capability Design Review (CDR) • Technology Readiness Review (TRR) • Drawings • T-2 Mods/Technical Orders • Ground test • Safety and Airworthiness certifications • Start of specification work <p>FY 2017 Base Plans: Will make final selection for components of Hybrid Release 1 and continue developing and integrating the software and data to update the MQ-9 Block 5 UAS including:</p> <ul style="list-style-type: none"> • Test and delivery of updated Operational Flight Program (OFP) releases of increased communications, sensors and weapons capabilities • Systems Integration Laboratory and Hardware In Loop Laboratory testing • Systems engineering data development • Technical publication (TOs) and training documentation development • Test planning • Integrated test execution (development test & operational test) • Initial training • Preparation for limited fielding of aircraft (logistics activities) <p>Begin developing and integrating the software and data to update the MQ-9 Block 5 UAS to include Hybrid Release 2 capabilities, including:</p> <ul style="list-style-type: none"> • Guided Bomb Unit (GBU)-54 • Extended Range for Block 5 aircraft • Barrett Asymmetric Digital Datalink Computer (BADDC) <p>FY 2017 OCO Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Test Support</p> <p>Description: Provides Other Government Agency 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 Reliability and Maintainability (R&M) upgrades.</p> <p>FY 2015 Accomplishments: Continued test support.</p> <p>FY 2016 Plans: Continue test support.</p> <p>FY 2017 Base Plans: Will continue test support.</p> <p>FY 2017 OCO Plans: N/A</p>	1.220	0.532	1.405	0.000	1.405
<p>Title: Communications</p> <p>Description: Develop MQ-9 communications capabilities including, but not limited to, encrypted and improved Line of Sight (LoS) data links to ROVER/Video Data Link terminals (VORTEX/Airborne Platform Video Data Link) and Bandwidth Efficient (BE) Common Data Link (CDL) for Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) transmission to Ground Control Stations (GCS), as well as improved (including BE) Beyond LoS (BLOS) military Satellite Communications (SATCOM) usage. Development and integration of an IP-based Remote Split Operations (RSO) network/infrastructure to include: Improvements to Ground Data Terminals (GDT), Design, development, and test of IP-based network interfaces, Improved Predator Primary Data Link (PPDL) capabilities, network systems managers, SATCOM and relay site capabilities upgrades, drafting Technical Orders (TO) and support documentation, training materials, production drawings, and retrofit acceptance plans.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Continued development of Fixed Site Satellite Terminal (FSST) and Satellite Earth Terminal Sub-Systems (SETSS) and relay site equipment, electronics • Continued development of Technical Orders and training course • Continued logistics support analysis 	3.184	0.953	0.200	0.000	0.200

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<ul style="list-style-type: none"> • Continued integration of Internet Protocol (IP)-based Remote Split Operations (RSO) network infrastructure • Continued development of advance PPDL and SATCOM capabilities <p>FY 2016 Plans: Continue the development of:</p> <ul style="list-style-type: none"> • Fixed Site Satellite Terminal (FSST) and Satellite Earth Terminal Sub-System (SETSS) and relay site equipment • Electronics Technical Orders • BE-CDL and BE-SATCOM • Remote Split Operations(RSO) Technical Orders • Training courses • Logistics support analysis • IP-based equipment upgrades <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Will continue SATCOM and Predator Primary Data Link (PPDL), both Line of Sight (LoS) and Beyond Line of Sight (BLoS), improvements and upgrades • Will enhance Remote Split Operations (RSO) network and supporting communications equipment, including associated Tech Orders, training, and interface updates <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: MQ-9 Technology Insertion</p> <p>Description: Develop program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System.</p> <p>FY 2015 Accomplishments: Completed development of program protection Technology Insertion capabilities, functionality, documentation and drawings for the MQ-9 Weapon System including:</p> <ul style="list-style-type: none"> • Aircraft • Sensors • Ground Control Station <p>FY 2016 Plans:</p>	24.457	0.000	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: Reliability and Maintainability Description: Develop MQ-9 modification improvements for aircraft and ground base infrastructure. Includes engineering change orders and associated studies and general research. FY 2015 Accomplishments: Continued development of MQ-9 modification improvements for aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability cost. FY 2016 Plans: N/A FY 2017 Base Plans: Will continue development of MQ-9 modification improvements for aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability cost. FY 2017 OCO Plans: N/A	0.999	0.000	3.154	0.000	3.154
Title: Extended Range Description: Develop Extended Range Blk 1 capability to increase operational range and endurance of the baseline MQ-9. FY 2015 Accomplishments: Completed development of Extended Range Blk 1 capability to increase operational range and endurance of the baseline MQ-9, including: • Modified wings • External fuel tanks • Non-Recurring Engineering • Technical data (flight manual, maintenance manual, technical orders, and flight test)	15.142	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
• Addressing any deficiency reports resulting from developmental or operational testing to support fielding recommendations and airworthiness FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	141.528	122.731	120.481	0.000	120.481

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item # PRDTB1: MQ-9	418.218	627.428	122.522	366.030	488.552	250.255	298.957	142.677	102.557	61.870	2,390.514
• APAF: BA06: Line Item # PRDTB1: MQ-9	78.549	129.273	40.943	87.000	127.943	52.601	105.978	50.372	67.989	217.270	829.975
• APAF: BA05: Line Item # PRDTB2: MQ-9 Mods	155.445	184.051	132.139	5.068	137.207	133.081	209.991	156.039	136.045	1,267.303	2,379.162
• APAF: BA07: Line Item # PRDTB1: MQ-9	48.591	5.000	35.650	0.000	35.650	36.310	25.882	26.360	26.846	0.000	204.639
• APAF: BA06: PRDTB3: MQ-9 UAS Payloads	6.790	5.342	2.905	0.000	2.905	0.216	0.000	0.000	0.000	-	-

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. 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 a Hybrid 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 (referred to as a Hybrid Release). This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

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E. Performance Metrics

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 2017 Air Force **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-9 System Development and Demonstration (SDD)	SS/CPPIF	GA-ASI : Poway, CA	313.086	23.891	Nov 2014	10.095	Jan 2016	16.512	Jan 2017	0.000		16.512	1.220	364.804	364.804
Block 30 Ground Control Station (GCS) Development	SS/CPFF	GA-ASI : Poway, CA	15.059	8.961	Jan 2015	3.464	Mar 2016	0.000		0.000		0.000	0.000	27.484	27.484
Block 50 Ground Control Station (GCS) Development	SS/CPFF	GA-ASI : Poway, CA	109.964	29.082	Nov 2014	44.858	Oct 2015	51.906	Oct 2016	0.000		51.906	78.593	314.403	314.403
MQ-9 Electro-Optical / Infrared (EO/IR) Sensor	SS/CPFF	Raytheon : McKinney, TX	98.305	10.810	Oct 2014	0.335	Jun 2016	0.344	Jun 2017	0.000		0.344	0.353	110.147	110.147
Operator Simulator	SS/CPPIF	L3 Comm : Salt Lake City, UT	21.792	7.091	Dec 2014	10.415	Feb 2016	5.379	Feb 2017	0.000		5.379	11.862	56.539	56.539
Synthetic Aperture Radar (SAR) Enhancements	SS/CPFF	GA-RSG : Poway, CA	40.008	7.838	Oct 2014	0.402	Jan 2016	0.000		0.000		0.000	0.000	48.248	48.248
Hybrid R1 and R2	SS/CPFF	GA-ASI : Poway, CA	0.000	1.887	Feb 2016	36.178	Aug 2016	30.875	Mar 2017	0.000		30.875	127.221	196.161	196.161
Communication	SS/CPFF	GA-ASI : Poway, CA	12.776	3.184	Mar 2015	0.953	Mar 2016	0.200	Mar 2017	0.000		0.200	0.202	17.315	17.315
MQ-9 Program Protection Technology Insertion	SS/CPFF	GA-ASI : Poway, CA	17.186	22.553	Oct 2014	0.000		0.000		0.000		0.000	0.000	39.739	39.739
Reliability and Maintainability	SS/CPFF	GA-ASI : Poway, CA	2.891	0.969	Feb 2015	0.000		1.094	Dec 2016	0.000		1.094	2.121	7.075	7.075
Extended Range	SS/CPFF	GA-ASI : Poway, CA	22.312	13.963	Feb 2015	0.000		0.000		0.000		0.000	0.000	36.275	36.275
Completed Efforts	SS/Various	Various : Various	42.406	0.028	Aug 2015	0.000		0.000		0.000		0.000	0.000	42.434	42.434
Miscellaneous Prior	Various	Various : Various	71.532	0.000		0.000		2.058	Mar 2017	0.000		2.058	2.118	75.708	75.708
Subtotal			767.317	130.257		106.700		108.368		0.000		108.368	223.690	1,336.332	1,336.332

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

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
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Continuing MQ-9 System Development and Demonstration (SDD) / Modernization																												
MQ-9 System Development and Demonstration (SDD) / Modernization FOT&E																												
Block 30 Ground Control Stations (GCS) Development																												
Block 50 Ground Control Station (GCS) Development																												
Block 50 GCS Preliminary Design Review (June, 2016)																												
Block 50 GCS Critical Design Review (May, 2017)																												
MTS-B Updates (Electro-Optic/Infrared (EO/IR) Sensor)																												
MTS-B Test Readiness Review																												
MTS-B Target Location Accuracy Improvements Integration and Test on Block 5 aircraft																												
Block 30 Operator Simulator																												
Synthetic Aperture Radar (SAR) enhancements																												
Test and field SAR data dissemination architecture																												
Hybrid Release 1																												
Hybrid Release 2																												
Test Support																												
Communications																												
MQ-9 Technology Insertion																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

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
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Extended Range (ER) Block 1																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Continuing MQ-9 System Development and Demonstration (SDD) / Modernization	1	2015	4	2021
MQ-9 System Development and Demonstration (SDD) / Modernization FOT&E	2	2016	4	2016
Block 30 Ground Control Stations (GCS) Development	1	2015	4	2016
Block 50 Ground Control Station (GCS) Development	1	2015	1	2021
Block 50 GCS Preliminary Design Review (June, 2016)	3	2016	3	2016
Block 50 GCS Critical Design Review (May, 2017)	3	2017	3	2017
MTS-B Updates (Electro-Optic/Infrared (EO/IR) Sensor)	1	2015	4	2017
MTS-B Test Readiness Review	2	2015	2	2016
MTS-B Target Location Accuracy Improvements Integration and Test on Block 5 aircraft	2	2017	3	2017
Block 30 Operator Simulator	1	2015	4	2021
Synthetic Aperture Radar (SAR) enhancements	1	2015	4	2016
Test and field SAR data dissemination architecture	3	2016	4	2016
Hybrid Release 1	3	2015	3	2018
Hybrid Release 2	1	2017	1	2020
Test Support	1	2015	4	2021
Communications	1	2015	4	2021
MQ-9 Technology Insertion	1	2015	2	2017
Extended Range (ER) Block 1	1	2015	1	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675249: MQ-9 Upgrade	0.000	0.000	0.000	30.892	0.000	30.892	44.073	108.949	155.402	92.147	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0205219F, project 675249, MQ-9 Upgrade, is a new start.

A. Mission Description and Budget Item Justification

The MQ-9 Reaper Upgrade Program will develop improvements for existing systems and field new capabilities for the MQ-9 fleet through a Hybrid Acquisition Strategy. The objective is to enable fielding of new hardware and/or software for integration into the MQ-9 fleet on an 18-month schedule. The first two releases are under the auspices of the baseline MQ-9 Development and Fielding program. Release 3 and 4 upgrades include, but are not limited to, repositioning Airhandler equipment from the payload tray into "cheeks" on the MQ-9 aircraft fuselage, implementing VORTEX Phase II, replacing the GPS with a differential GPS, implementing an Autonomous Systems upgrade, upgrading the data links to use the new Bandwidth Efficient Common Data Link (BE-CDL), enhancing the Joint Direct Attack Munition (JDAM) targeting capability, the Universal Armament and Sensor Interface and Miniature/Store Interface, implementing the results of the Technology Insertion program, Beyond Line of Sight (BLoS), Barrett Asymmetric Digital Datalink Computer (BADDCC), Guided Bomb Unit (GBU)-54, and fielding of the hardware and software required to separate the payload software from the operational flight program (OFF) software to enable fielding of new sensors, weapons, and payloads without requiring changes in the OFF.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: MQ-9 Upgrade	0.000	0.000	29.122	0.000	29.122
<p>Description: Will develop upgrade capabilities to support Releases 3 and 4 of the Hybrid Acquisition strategy. New capabilities will include upgrades of existing aircraft, Ground Control Station (GCS), communication, and payload systems as well as the addition of new capabilities and subsystems. Final lists of upgrades included in each release will be determined as part of future Configuration Steering Board direction and inputs from JUONs and Urgent Operational Need request. Formal approval of Release 3 content will be established in FY 2016 and is currently subject to fluctuation pending customer priorities. Some current candidates for Release 3 include the following:</p> <ul style="list-style-type: none"> • Autonomous Systems upgrades • Communication Systems upgrades to include the following efforts: <ul style="list-style-type: none"> • Video Orientated Transceiver for EXchange of Information (VORTEX) Phase 2 will complete the Ground Control Station (GCS) upgrade allowing functionality within the GCS only currently available via laptop computer • Bandwidth Efficient (BE)Common Data Link (CDL) for Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) transmission to Ground Control Stations (GCS) 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Improved (including BE) Beyond LoS (BLOS) military SATCOM usage • Development and integration of an IP-based Remote Split Operations (RSO) network/infrastructure to include: Improvements to Ground Data Terminals (GDT), • Design, development, and test of IP-based network interfaces, Improved Predator Primary Data Link (PPDL) capabilities, network systems managers, SATCOM and relay site capabilities upgrades, drafting Technical Orders (TO) and support documentation, training materials, production drawings, and retrofit acceptance plans • Differential Global Positioning System (GPS) enhancements • AH Cheeks • JDAM targeting improvement • Tech Insertion integration • Beyond Line of Sight (BLoS) • Barrett Asymmetric Digital Datalink (BADDC) • Guided Bomb Unit - 54 (GBU-54) <p>Some current candidates for Release 4 include the following:</p> <ul style="list-style-type: none"> • Flight/Payload OFP software separation • Block 5 aircraft systems synchronized with Block 50 GCS • Will provide Other Government Agency 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 Reliability and Maintainability (R&M), upgrades. <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Will develop upgrade capabilities to include, but not limited to:</p> <ul style="list-style-type: none"> • BLoS - Stations 1 & 7 • BADDC • GBU-54 • Global Positioning System (GPS) enhancements • Communication Systems to include the following efforts: • Video Orientated Transceiver for EXchange of Information (VORTEX) Phase 2 will complete the Ground Control Station (GCS) upgrade allowing functionality within the GCS only currently available via laptop computer 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Encrypted and improved Line of Sight (LoS) data links to ROVER terminals (VORTEX) • Bandwidth Efficient (BE) Common Data Link (CDL) for Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) transmission to Ground Control Stations (GCS) • Improved (including BE) Beyond LoS (BLOS) military SATCOM usage • Development and integration of an IP-based Remote Split Operations (RSO) network/infrastructure to include: Improvements to Ground Data Terminals (GDT), • Design, development, and test of IP-based network interfaces, Improved Predator Primary Data Link (PPDL) capabilities, network systems managers, SATCOM and relay site capabilities upgrades, drafting Technical Orders (TO) and support documentation, training materials, production drawings, and retrofit acceptance plans • Formal approval of Release 3 content will be established in FY 2016 and is currently subject to fluctuation pending customer priorities • Will provide Other Government Agency 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 Reliability and Maintainability (R&M), upgrades. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Operator Simulator Block 50</p> <p>Description: Will develop Block 50 Ground Control Station (GCS) operator simulators for training and updates to keep Operator Simulator current with upgrades to aircraft and Ground Control Station (GCS) to include Joint Urgent Operation Need (JUON) supported emerging Air Force Special Operations Command (AFSOC) configurations.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> • Will develop Block 50 GCS operator simulators for training and updates to keep Operator Simulator current with upgrades to aircraft and Ground Control Station (GCS) to include Joint Urgent Operation Need (JUON) supported emerging Air Force Special Operations Command (AFSOC) configurations. <p>FY 2017 OCO Plans:</p>	0.000	0.000	1.770	0.000	1.770

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	30.892	0.000	30.892

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA06 Line Item	0.000	0.000	0.000	0.000	0.000	0.000	5.340	17.200	0.000	335.380	357.920
# PRDTB1: MQ-9 Spares											
• APAF: BA05 Line Item	0.000	0.000	9.790	107.000	116.790	69.780	26.700	73.400	104.700	1,603.537	1,994.907
# PRDTB2: MQ-9 Mods											

Remarks

D. Acquisition Strategy

Acquisition of MQ-9 upgrades will initially be accomplished via sole-source contracts with General Atomics-ASI and L-3 Communications, the prime contractors. Management of development and fielding of new capabilities will be through a Hybrid 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 (referred to as a Hybrid Release). This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-9 Upgrade - Hybrid Release 3 and out	SS/CPFF	GA-ASI : Poway, CA	0.000	0.000		0.000		25.600	Apr 2017	0.000		25.600	548.453	574.053	574.053
Operator Simulator	SS/CPIF	L3 Comm : Salt Lake City, UT	0.000	0.000		0.000		1.770	Jun 2017	0.000		1.770	91.841	93.611	93.611
Reliability and Maintainability	SS/CPFF	GA-ASI : Poway, CA	0.000	0.000		0.000		0.000		0.000		0.000	10.386	10.386	10.386
Urgent Services	SS/CPFF	GA-ASI : Poway, CA	0.000	0.000		0.000		0.000		0.000		0.000	16.637	16.637	16.637
Subtotal			0.000	0.000		0.000		27.370		0.000		27.370	667.317	694.687	694.687

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	Various	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Costs	Various	TBD; TBD : TBD	0.000	0.000		0.000		3.522	Jun 2017	0.000		3.522	117.386	120.908	120.909
Subtotal			0.000	0.000		0.000		3.522		0.000		3.522	117.386	120.908	120.909

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Technology Maturation Effort																												
Release 3																												
Release 4																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technology Maturation Effort	3	2017	4	2021
Release 3	2	2018	3	2021
Release 4	1	2020	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205671F I Joint Counter RCIED Electronic Warfare
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674518: <i>JCREW VEHICLE INTEGRATION</i>	-	0.000	0.300	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

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

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.300	0.000	0.000	0.000
Current President's Budget	0.000	0.300	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

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

	FY 2015	FY 2016	FY 2017
Title: CREW device integration	-	0.300	-
Description: CREW device integration is FY16 OCO funding only.			
FY 2016 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205671F / <i>Joint Counter RCIED Electronic Warfare</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
CREW device integration			
Accomplishments/Planned Programs Subtotals	-	0.300	-

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA04: Line Item # 845100: <i>Engineering and EOD Equipment</i>	116.334	64.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks
 Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. CREW devices are self-protection systems critical to Mine Resistant, Ambush Protected (MRAP) vehicle mounted, Explosive Ordinance Disposal dismounted and Entry Control Point operations. Includes integration of the devices into currently fielded systems.

E. Acquisition Strategy
 N/A

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / Joint Counter RCIED Electronic Warfare	Project (Number/Name) 674518 / JCREW VEHICLE INTEGRATION
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Services	C/CPFF	NAVSEA PMS-408 : Washington, DC	-	0.000		0.300		0.000		0.000		0.000	Continuing	Continuing	0.300
Subtotal			-	0.000		0.300		0.000		0.000		0.000	-	-	0.300

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.300	0.000	0.000	0.000	-	-	0.300

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / <i>Joint Counter RCIED Electronic Warfare</i>	Project (Number/Name) 674518 / <i>JCREW VEHICLE INTEGRATION</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

JCREW Vehicle Integration	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / <i>Joint Counter RCIED Electronic Warfare</i>	Project (Number/Name) 674518 / <i>JCREW VEHICLE INTEGRATION</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JCREW Vehicle Integration	2	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	16.200	14.853	0.000	14.853	13.409	13.650	13.810	0.000	Continuing	Continuing
674809: A-10 Squadrons	-	0.000	16.200	14.853	0.000	14.853	13.409	13.650	13.810	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The A-10 is a twin engine, single seat weapon system capable of delivering a full range of air-to-ground munitions and self-defense air-to-air missiles. The A-10 is an essential capability for successful joint air operations and represents a crucial component of the Combat Air Forces. The A-10 concept of operations requires a flexible, adaptable and survivable weapon system to conduct close air support (CAS), combat search and rescue and special operations missions. The A-10 must conduct around-the-clock air operations under various weather conditions against numerous and varied enemy threats.

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, increase situational awareness and enhance targeting capabilities as they become available. The funds budgeted continue regular OFP suite development efforts. Additionally, these funds will ensure concurrency with systems impacted by OFP development, including but not limited to the Full Mission Trainer (FMT), mission planning and support equipment.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	16.200	14.853	0.000	14.853
Total Adjustments	0.000	16.200	14.853	0.000	14.853
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	16.200			
• 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	14.853	0.000	14.853

Change Summary Explanation

FY16 Congressional Add of \$16.2M for OFP restoral

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons
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FY17 increase of \$14.853M for continued OFP sustainment

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: OFP Development Description: Updates to the A-10C OFP Suite software to permit timely integration of new precision weapons, updated targeting pods, improved avionics and enhanced electronic warfare capabilities. These upgraded capabilities are in response to evolving operational requirements, including Urgent Operational Needs, generated by the ever-changing operational environment of air combat. FY 2015 Accomplishments: N/A FY 2016 Plans: Funds Suite 9 candidate software design, development and integration. FY 2017 Base Plans: Funds Suite 9 candidate development by completing the software design, development and integration. In addition, we will complete Suite 10 requirement maturation efforts and start software design. FY 2017 OCO Plans: N/A	0.000	16.200	14.853	0.000	14.853
Accomplishments/Planned Programs Subtotals	0.000	16.200	14.853	0.000	14.853

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• A-10 Squadrons, PE 0207131F APAF: BA05: Line Item # A01000:	0.000	0.000	1.289	23.850	25.139	0.000	0.000	0.000	0.000	0.000	25.139

Remarks

E. Acquisition Strategy

A-10 OFP development efforts will be conducted organically by the 309th Software Maintenance Group at Ogden Air Logistics Complex, Hill AFB UT. 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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F. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons	Project (Number/Name) 674809 / A-10 Squadrons
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Development 2nd Qtr FY16 (309th SMXG)	PO	309th SMXG : Hill AFB, UT	-	0.000		2.200	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
OFP Development (309th SMXG)	PO	309th SMXG : Hill AFB, UT	-	0.000		6.900	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
OFP Development 3rd Qtr FY16 (309 SMXG)	PO	309th SMXG : Hill AFB, UT	-	0.000		2.200	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
OFP Development 4th Qtr (309 SMXG)	PO	309th SMXG : Hill AFB, UT	-	0.000		3.000	Jul 2016	0.000		0.000		0.000	Continuing	Continuing	-
OFP Development 1st Qtr FY17 (309 SMXG)	PO	309th SMXG : Hill AFB, UT	-	0.000		0.000		1.300	Nov 2016	0.000		1.300	Continuing	Continuing	-
OFP Development Materials (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		0.400	Dec 2016	0.000		0.400	Continuing	Continuing	-
OFP Development 2nd Qtr FY17 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		2.400	Jan 2017	0.000		2.400	Continuing	Continuing	-
OFP Development (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		3.873	Mar 2017	0.000		3.873	Continuing	Continuing	-
OFP Development 3rd Qtr FY17 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		2.400	Apr 2017	0.000		2.400	Continuing	Continuing	-
OFP Development 4th Qtr FY17 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		2.400	Jul 2017	0.000		2.400	Continuing	Continuing	-
OFP Dev (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	0.000		0.000		0.150	Sep 2017	0.000		0.150	Continuing	Continuing	-
Subtotal			-	0.000		14.300		12.923		0.000		12.923	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
USAF (Multiple)	Various	Various : Various	-	0.000		0.100	Sep 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.100		0.000		0.000		0.000	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons	Project (Number/Name) 674809 / A-10 Squadrons
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Suite 9 - OFP System Design, Development and Flight Test	2	2016	1	2019
Suite 9 - OFP Fields	1	2019	1	2019
Suite 10 - OFP System Design, Development and Flight Test	3	2017	1	2020
Suite 10 - OFP Fields	1	2020	1	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	130.376	166.297	132.795	0.000	132.795	235.894	199.455	140.398	146.203	Continuing	Continuing
672671: <i>F-16 Squadrons</i>	-	130.376	166.297	132.795	0.000	132.795	235.894	199.455	140.398	146.203	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207133F, project 672671, Comm Suite Radio Upgrade (Post Block), 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 that comprises 50% 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. The F-16 has been selected by more than 20 air forces around the world and Foreign Military Sales (FMS) production continues in the 21st century. The F-16 System Program Office continues to develop, integrate, and qualify systems/subsystems to enhance the overall performance of the F-16 weapon system to meet new mission requirements.

Modernization programs include: Operational Flight Program (OFP) development on Block 40/42/50/52 OFPs required to integrate new precision weapons, advanced targeting pods, improved avionics, hardware (HW) and software (SW) mods to meet DoD mandates and keep the F-16, the respective training simulators, and other hardware subsystems current; Legacy Service Life Extension Program (SLEP), which is a two-phased RDT&E effort, includes a Full Scale Durability Test (FSDT) and Engineering, Manufacturing and Development (EMD) to support structural modifications to Block 40/42/50/52 aircraft to increase Certified Service Life (CSL) from 8,000 Equivalent Flight Hours (EFH) to 10,000 EFH (Threshold), or 12,000 EFH (Objective); 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)/Display Generator Upgrade resolves shortfalls in mission computer memory and throughput brought on by the addition of incremental combat capability and 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; Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER) on F-16 Blk 40/42/50/52 aircraft, and includes NRE, test assets, SEEK EAGLE, integration, and flight test; improved satellite communication (SATCOM) radio updates to meet next-gen tactical narrowband SATCOM with better crypto capabilities; and an active electronically scanned array (AESA) radar that offers advanced electronic protection capabilities as well as improved reliability and maintainability on F-16 aircraft that perform the aerospace alert control mission.

This program is in Budget Activity 7, Operational System Development because it 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 2017 Air Force **Date:** February 2016

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
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	133.105	148.297	141.118	0.000	141.118
Current President's Budget	130.376	166.297	132.795	0.000	132.795
Total Adjustments	-2.729	18.000	-8.323	0.000	-8.323
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-22.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	40.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.728	0.000			
• Other Adjustments	-0.001	0.000	-8.323	0.000	-8.323

Change Summary Explanation

FY15: SBIR Reduction: \$2.728M

FY16: \$40M Congressional Add for AESA Homeland Defense Radar; \$22M Congressional Reduction for OFP M8+ Early To Need

FY17: \$11M reduction due to program rephase of RDT&E funds; \$4.0M RMD add for Comm Suite Radio Upgrade (Post Block); \$1.323M reduction due to non-pay inflation

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: OFP Updates Blk 40-52 OFP	66.235	55.614	87.541	0.000	87.541
<p>Description: OFP M-tapes are updated continually to integrate new weapons, targeting pods, and improved avionics. M6.5+/M7+ is in Phase III development with M6.5+ common candidates to include Universal Armament Interface (UAI) and Embedded GPS/INS (EGI) updates and M7.1+ candidates to include AIM-9X Block II. The USAF M6.5+ OFP is not intended to field and is the baseline for the 309 SMXG (Hill AFB) developed M7.1+ which will field in FY2017. M7.2+ OFP is in SW design phase and will incorporate DoD mandates. M8+ is in the early stages of planning and will incorporate the MMC upgrade architecture and Display Generator Upgrade. The OFP effort also contains Program Management Administration (PMA) support activities to include travel, office supplies, training courses, Video Teleconferencing (VTC) and support contractors.</p> <p>FY 2015 Accomplishments: M6.2+ completed Combat Air Force (CAF-wide) installations in December 2015. Continued M7.1+ OFP Developmental Test (DT) efforts. M7.2+ completed Multifunctional Cockpit Review Team (MCRT) #3 for OFP</p>					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>candidate finalization and began design and code of candidate development. Initiated procurement of M7.2+ test assets to meet OFP Mandates.</p> <p>FY 2016 Plans: M7.1+ continues DT and enters dedicated Operational Test (OT) for fielding in FY 2017. M7.2+ continues design and code of selected candidates. The program office will finalize procurement of M7.2+ test assets to meet OFP Mandates. Begin M8+ assessment for incorporating MMC Upgrade architecture and Display Generator Upgrade, continue PMA support activities.</p> <p>FY 2017 Base Plans: M7.1+ completes OT and fields in FY 2017. M7.2+ begins SIL and developmental flight test. Finalize procurement of M7.2+ test assets to meet OFP Mandates. M8+ Conduct Multifunctional Cockpit Review (MCR) of baseline candidates, start SW design and code for rehosting MMC upgrade architecture and Display Generator Upgrade, begin assessment for Design Try Out (DTO) test planning, and initiate procurement of test assets. Continue PMA support activities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Flight Test</p> <p>Description: Development Test and Evaluation (DTE) at Edwards AFB and Development Test/Operational Test (DT/OT) at Eglin AFB including integration test of associated subsystems and weapons as well as maintain test schedule for F-16 Block 40-52 MMC OFPs, weapons integration, and sub-systems to ensure capabilities meet CAF's fielding schedule.</p> <p>FY 2015 Accomplishments: Continued support of DTE Infrastructure and M7.1+ DTE testing.</p> <p>FY 2016 Plans: Continue support of DTE infrastructure. Complete M7+ DT/OT testing, initiate M7.2+ DTO test planning. Support out-of-cycle regression testing.</p> <p>FY 2017 Base Plans: M7.1+ completes OT and fields in FY 2017. Continue support of DTE infrastructure. M7.2+ begins developmental flight test, initiate M8+ DTO test planning. Support out-of-cycle regression testing.</p> <p>FY 2017 OCO Plans:</p>	19.647	17.600	17.836	0.000	17.836

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Legacy Service Life Extension Program (SLEP) Structures</p> <p>Description: F-16 Legacy Service Life Extension Program (SLEP): A two-phased RDT&E effort which includes Full Scale Durability Test (FSDT) and Engineering, Manufacturing and Development (EMD) to support structural modifications to Block 40/42/50/52 F-16 aircraft to increase service life. FSDT is required to prove finite element models and to develop the airworthiness certification basis to extend the current Certified Service Life from 8,000 Equivalent Flight Hours (EFH) to 10,000 EFH (Threshold), or 12,000 EFH (Objective). SLEP EMD develops the engineering solutions necessary to resolve the life-limiting structural issues defined in FSDT and develop the airworthiness certification recommendation.</p> <p>FY 2015 Accomplishments: Began FSDT aircraft teardown and inspection, risk reduction and final requirements definition, Critical Design Review (CDR) 2 completed June 2015. Full Scale Durability Testing completed July 2015. EMD activities finalized engineering designs and analysis of kits, tooling, TCTOs, and procurement of Kit Proof HW. FSDT completion enables for the release of the preliminary Technical Data Package to support initial production acquisition activities.</p> <p>FY 2016 Plans: Receive final FSDT tear-down report and submit airworthiness Compliance Report for Kit Proof aircraft March 2016. Complete Milestone B in April 2016 and initiate Kit Proof in July 2016.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	16.002	27.977	0.000	0.000	0.000
<p>Title: EMD HW/Advanced Capabilities Improvements</p> <p>Description: Funding to develop, test, and qualify aircraft weapons systems including F-16 subsystems replaced or modified due to requirements changes, P3I, and/or DMS and parts obsolescence.</p> <p>FY 2015 Accomplishments:</p>	0.500	0.200	0.200	0.000	0.200

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Continued support to develop, test, and qualify aircraft weapons systems including F-16 subsystems replaced or modified due to requirements changes, P3I, DMS and/or parts obsolescence.</p> <p>FY 2016 Plans: Continue support to develop, test, and qualify aircraft weapons systems including F-16 subsystems replaced or modified due to requirements changes, P3I, DMS and/or parts obsolescence.</p> <p>FY 2017 Base Plans: Continue support to develop, test, and qualify aircraft weapons systems including F-16 subsystems replaced or modified due to requirements changes, P3I, DMS and/or parts obsolescence.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: MMC Upgrade / Display Generator Upgrade</p> <p>Description: The MMC upgrade resolves shortfalls in mission computer memory and throughput. Funding includes NRE, design, development, integration, and ground/flight test for fielding with the M8+ OFP. The addition of an Ethernet High Speed Data Network (HSDN) facilitates future increments of combat capability with the OFP (e.g., digital targeting pod video). The Display Generator 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 Programmable Display Generator.</p> <p>FY 2015 Accomplishments: Initiated NRE for HSDN, began contract RFP activities for NRE, MMC and Display Generator Upgrade asset procurement, design, development, integration, and ground/flight test for fielding with the M8+ OFP.</p> <p>FY 2016 Plans: Continue NRE activities for HSDN, continue contracting activities for NRE, MMC and Display Generator Upgrade asset procurement. RFP for MMC released October 2015 and RFP for Display Generator released in November 2015. Finalize contract award for both programs, begin NRE & initiate asset procurement.</p> <p>FY 2017 Base Plans:</p>	19.992	18.356	16.782	0.000	16.782
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue NRE activities for HSDN, MMC and Display Generator Upgrade for design, development, integration, and ground/flight test for fielding with the M8+ OFP. FY 2017 OCO Plans: N/A					
Title: JASSM-ER Description: Integrates JASSM-ER on F-16 Blk 40/42/50/52 aircraft, including NRE, SEEK EAGLE, test assets, integration, and flight test. This capability will be fielded with M7.2+. FY 2015 Accomplishments: Continued NRE and procure test assets for integration of JASSM-ER capability on F-16 Blk 40/42/50/52 aircraft. FY 2016 Plans: Continue NRE for integration of JASSM-ER capability on F-16 Blk 40/42/50/52 aircraft. FY 2017 Base Plans: Finalize NRE for integration of JASSM-ER capability on F-16 Blk 40/42/50/52 aircraft. FY 2017 OCO Plans: N/A	8.000	4.500	4.000	0.000	4.000
Title: Simulator Trainers Description: Enables the USAF to exercise and train using the latest F-16 capabilities available to Block 40/42/50/52 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. FY 2015 Accomplishments: N/A FY 2016 Plans: Begin 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. FY 2017 Base Plans:	0.000	2.050	2.475	0.000	2.475

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue contract efforts for managing and maintaining F-16 simulator trainers, to include tech order development. This funding also supports development, test, and integration of simulator upgrades, to include new aircraft OFPs.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: HLD AESA Radars (JUON)</p> <p>Description: This effort is a USNORTHCOM Joint Urgent Operational Need (JUON) for F-16 active electronically scanned array (AESA) radars. It provides an upgrade from the current APG-68 system to an AESA radar that offers advanced electronic protection capabilities as well as improved reliability and maintainability to support the Aerospace Control Alert (ACA) mission for Homeland Defense (HLD).</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Initiate contract efforts for source selection on the active electronically scanned array (AESA) radar, contract award expected late 2016.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	40.000	0.000	0.000	0.000
<p>Title: Comm Suite Radio Upgrade (Post Block)</p> <p>Description: Provides updates to the ARC-210 satellite communication (SATCOM) radios to with improved capabilities, including SATURN, MUOS, and improved crypto.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.000	0.000	3.961	0.000	3.961

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Initiate contract effort for NRE, Integration and test on the F-16.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	130.376	166.297	132.795	0.000	132.795

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # F01600: <i>F-16 Aircraft Modifications</i>	9.042	10.134	97.331	0.000	97.331	155.264	256.513	320.251	298.085	Continuing	Continuing
• APAF: BA07: Line Item # F0160P: <i>F-16 Post Production Support</i>	9.994	8.969	15.155	0.000	15.155	15.459	16.431	19.129	19.418	Continuing	Continuing
• APAF: BA06: Line Item # F01600: <i>F-16 Initial Spares</i>	0.090	0.472	2.059	0.000	2.059	2.453	6.135	9.794	9.975	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.

OFP software will be continually updated on a 3-year cycle to bring new capabilities to the warfighter. The current OFP development effort (M7.1+) is the first software tape to be completely developed with organic software development at 309 SMXG (Hill AFB). Subsequent tapes will incorporate DoD approved mandates (Automatic Dependent Surveillance-Broadcast (ADS-B), Multifunctional Information Distribution System (MIDS), B61-12) and the MMC/PDG architecture.

The Legacy SLEP program completed FSĐT to determine the engineering solutions necessary to resolve life-limiting structural issues, and to feed the EMD effort to develop mod kits and airworthiness certification recommendation. Currently performing aircraft teardown and structural analysis, and begins kit proof in FY 2016.

The EMD HW/Advanced capability improvements will develop, test, and qualify aircraft weapons systems, including subsystems, replaced/modified due to requirements changes, P3I and DMS/parts obsolescence.

Contract types are Time and Material, Cost Plus Incentive Fee, Cost Plus Fixed Fee and Firm Fixed Price.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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The acquisition strategy for Phase 1 of the USNORTHCOM JUON includes the development, testing, and USG integration of an AESA radar to meet the limited JUON requirements of improved air-air detect and track. This phase includes the procurement of five (5) EMD assets with support equipment.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / F-16 Squadrons	Project (Number/Name) 672671 / F-16 Squadrons
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Updates Blk 40-52	Various	Various : Various	-	58.031	Nov 2014	47.439	Nov 2015	79.261	Nov 2016	0.000		79.261	Continuing	Continuing	TBD
Service Life Extension Program (SLEP) Structures	Various	Various : Various	-	16.002	Feb 2015	27.977	Nov 2015	0.000		0.000		0.000	0.000	43.979	TBD
MMC Upgrade / Display Generator Upgrade	Various	Various : Various	-	19.992	Feb 2015	18.356	Sep 2016	16.782	Mar 2017	0.000		16.782	Continuing	Continuing	TBD
JASSM-ER	Various	Various : Various	-	8.000	Mar 2015	4.500	Mar 2016	4.000	Mar 2017	0.000		4.000	0.000	16.500	24.500
EMD HW / Advanced Capabilities	Various	Various : Various	-	0.500	Aug 2015	0.200	Aug 2016	0.200	Aug 2017	0.000		0.200	Continuing	Continuing	TBD
Simulator Trainers	Various	Various : Various	-	0.000		2.050	Mar 2016	2.475	Mar 2016	0.000		2.475	Continuing	Continuing	TBD
HLD AESA Radars (JUON)	Various	Various : Various	-	0.000		40.000	Nov 2016	0.000		0.000		0.000	Continuing	Continuing	-
Comm Suite Radio Upgrade (Post Block)	Various	Various : Various	-	0.000		0.000		3.961	Jan 2017	0.000		3.961	Continuing	Continuing	-
Subtotal			-	102.525		140.522		106.679		0.000		106.679	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Tests	Various	Various : Various	-	19.647	Nov 2014	17.600	Nov 2015	17.836	Nov 2016	0.000		17.836	Continuing	Continuing	TBD
Subtotal			-	19.647		17.600		17.836		0.000		17.836	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>	Project (Number/Name) 672671 / <i>F-16 Squadrons</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FSDT complete				■																								
SLEP MS B							■																					
MMC Upgrade / Display Generator Upgrade HW MS B								■																				
MMC Upgrade / Display Generator Upgrade Contract Award(s)								■																				
Begin SLEP Kit Proof								■																				
M7.1+ OFP Field										■																		
M8+ OFP Multifunctional Cockpit Review											■																	
M7.2+ OFP Field															■													
MMC Upgrade / Display Generator Upgrade DT Start																								■				
M9+ OFP System Functional Review																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>	Project (Number/Name) 672671 / <i>F-16 Squadrons</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FSDT complete	4	2015	4	2015
SLEP MS B	3	2016	3	2016
MMC Upgrade / Display Generator Upgrade HW MS B	4	2016	4	2016
MMC Upgrade / Display Generator Upgrade Contract Award(s)	4	2016	4	2016
Begin SLEP Kit Proof	4	2016	4	2016
M7.1+ OFP Field	1	2017	1	2017
M8+ OFP Multifunctional Cockpit Review	4	2017	4	2017
M7.2+ OFP Field	2	2019	2	2019
MMC Upgrade / Display Generator Upgrade DT Start	3	2020	3	2020
M9+ OFP System Functional Review	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	233.898	205.979	356.717	0.000	356.717	216.006	200.672	177.836	231.937	0.000	1,623.045
670131: <i>Initial Operational Test and Evaluation</i>	0.000	71.159	44.969	86.926	0.000	86.926	0.000	0.000	0.000	0.000	0.000	203.054
676020: <i>F-15</i>	0.000	162.739	161.010	269.791	0.000	269.791	216.006	200.672	177.836	231.937	0.000	1,419.991

Note

This program, BA 07 PE 0207134F, project 670131, Mode 5/ADS-B, is a new start.

In FY 2015, PE 0207134F, F-15E Squadrons, Project 670131, Initial Operational Test and Evaluation, F-15 EPAWSS development efforts were transferred to PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS in order to provide budget transparency.

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, upgrades to the F-15 (avionics, armament, airframe, and engines) are critical to maintaining combat viability (lethality, survivability, and supportability). 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. This includes technical and acquisition-related studies to ensure F-15 lethality and survivability beyond 2040.

The 2017 funding request was reduced by \$4.238 million to account for the availability of prior year execution balances.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	241.969	179.283	255.081	0.000	255.081
Current President's Budget	233.898	205.979	356.717	0.000	356.717
Total Adjustments	-8.071	26.696	101.636	0.000	101.636
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-6.100			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	32.796			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-8.071	0.000			
• Other Adjustments	0.000	0.000	101.636	0.000	101.636

Change Summary Explanation

FY16 was increased by \$20M for AESA Radars for ANG and \$12.796M for requested transfer from APAF for MIDS JTRS. Also reduced \$6.1M for IRST Delays.
 FY17 - increase of \$13.3M to address Mode 5/Automatic Dependent Surveillance Broadcast (ADS-B) and ADCP II

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons				Project (Number/Name) 670131 / Initial Operational Test and Evaluation			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
670131: <i>Initial Operational Test and Evaluation</i>	0.000	71.159	44.969	86.926	0.000	86.926	0.000	0.000	0.000	0.000	0.000	203.054
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207134F, project 670131, Mode 5/Automatic Dependent Surveillance Broadcast (ADS-B), is a new start.

In FY 2015, PE 0207134F, F-15E Squadrons, Project 670131, Initial Operational Test and Evaluation, F-15 EPAWSS development efforts were transferred to PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS in order to provide budget transparency.

A. Mission Description and Budget Item Justification

This includes development of the F-15C and F-15E Advanced Display Core Processor (ADCP) II and Mode 5/ADS-B new start. The ADCP II will develop a common mission computer for the F-15C and F-15E. The current mission computers of both platforms have reached their limits of speed, memory and throughput. Additionally, digital systems have changed the security requirements of both platforms and the older mission computers cannot be upgraded to meet these new requirements. A common mission computer is expected to reduce overall development costs as well as long term maintenance costs. The program will also develop a new F-15C cockpit display to replace an obsolete one. Mode 5 enables the NSA-mandated Mode 5 encryption and anti-jam for Air-Air Interrogator (AAI) and Identification Friend or Foe (IFF) systems. ADS-B provides Air Traffic Control position and other secondary surveillance data and must be installed on all CONUS aircraft by 2020 IAW FAA mandate.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Advanced Display Core Processor (ADCP) II	71.159	44.969	78.626	0.000	78.626
Description: Program provides a new central computer for the entire F-15E fleet, replacing the ADCP I. Program also provides a new central computer, Remote Interface Unit and Vertical Situation Display Replacement for the AESA-radar F-15C fleet, replacing the VCC and the existing F-15C Vertical Situation Display. This includes technical and acquisition-related studies.					
FY 2015 Accomplishments: Conducted EMD activities. Continued software and hardware development and testing. Began F-15E Electronic Systems Integration Lab (ESIL) Testing. Continued delivery of EMD ADCP II LRUs. Began prequalification					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 670131 / Initial Operational Test and Evaluation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>for Flight Worthiness Testing (FWT). Prepared for developmental testing (DT) flight testing on F-15E aircraft. Completed USDR, SRR, PDR & CDR. This includes technical and acquisition-related studies.</p> <p>FY 2016 Plans: Conducted EMD activities. Completed FWT and continue qualification activities and ESIL testing. Began F-15C ESIL Testing. Completed hardware deliveries for ADCP II LRU, VSDR & RIU. Began F-15E Developmental Flight Test. Conducted F-15E System Verification Review #1. This includes technical and acquisition-related studies.</p> <p>FY 2017 Base Plans: Complete F-15E Development Flight Test, begin F-15C Development Flight Test, and begin F-15C and F-15E Force Development Evaluation (FDE). Conduct F-15C System Verification Review #1. Conduct Milestone C and conduct Flight Qualification Testing (FQT). This includes technical and acquisition-related studies.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Mode 5/ADS-B</p> <p>Description: Mode 5 enables the NSA-mandated Mode 5 encryption and anti-jam for Air-Air Interrogator (AAI) and Identification Friend or Foe (IFF) systems. The Mode 5 program will remove, upgrade, and then replace the existing APX-114 and APX-119 on all F-15 aircraft in order to add Mode 5 capability. ADS-B provides Air Traffic Control position and other secondary surveillance data and must be installed on all CONUS aircraft by 2020 IAW FAA mandate. The ADS-B program will upgrade the APX-119 on all F-15 aircraft in order to meet the FAA mandate.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Funding will be used for Mode 5 and ADS-B development. This includes technical and acquisition-related studies.</p> <p>FY 2017 OCO Plans:</p>	0.000	0.000	8.300	0.000	8.300

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 670131 / Initial Operational Test and Evaluation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	71.159	44.969	86.926	0.000	86.926

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA07: Line Item # F01500: <i>Aircraft Modification: F-15: PEs</i> 0207130/0207134/0207445/0809731	387.314	644.336	476.060	0.000	476.060	489.257	530.457	0.000	0.000	Continuing	Continuing
• APAF: BA07: Line Item # 000071: <i>Aircraft Replacement</i> <i>Support Equip (BP12)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA07: Line Item # F0150P: <i>F-15 Post Production Support</i>	1.122	3.253	3.039	0.000	3.039	2.583	2.613	0.000	0.000	Continuing	Continuing
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts (BP16)</i>	24.785	61.961	58.263	0.000	58.263	37.805	38.512	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Program is a continuation of effort which includes the development for 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.

E. Performance Metrics

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 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons					Project (Number/Name) 670131 / Initial Operational Test and Evaluation				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-15 ADCP II Contract	SS/CPIF	Boeing : St Louis, MO	0.000	55.808	Nov 2014	33.532	Nov 2015	75.331	Nov 2016	0.000		75.331	0.000	164.671	-
F-15 ADCP II	C/Various	Various : Various	0.000	13.981	Mar 2015	10.210	Mar 2016	2.076	Mar 2017	0.000		2.076	0.000	26.267	-
F-15 EPAWSS (Pre-MDAP)	TBD	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
F-15 C/D/E Mode 5/ADS-B	TBD	TBD : TBD	0.000	0.000		0.000		8.300	Aug 2017	0.000		8.300	0.000	8.300	-
Subtotal			0.000	69.789		43.742		85.707		0.000		85.707	0.000	199.238	-

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.

FY15PB - Project Number 670131 includes ADCP II only. EPAWSS is now under PE 027171F, Project Number 676038.

FY16PB - Project Number 670131 includes ADCP II only. EPAWSS is moved in FY 16 from PE 027171F, Project Number 676038 to PE 027171F, Project Number 657108.

FY17PB - Project Number 670131 includes ADCP II & Mode 5/ADS-B. EPAWSS is moved in FY 16 from BA07 PE 027171F, Project Number 676038 to BA05 PE 027171F, Project Number 657108.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 670131 / Initial Operational Test and Evaluation
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support Costs	Various	Various : Various	0.000	1.370	Sep 2015	1.227	Sep 2016	1.219	Sep 2017	0.000		1.219	0.000	3.816	-
Subtotal			0.000	1.370		1.227		1.219		0.000		1.219	0.000	3.816	-

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	71.159	44.969	86.926	0.000	86.926	0.000	203.054	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>	Project (Number/Name) 670131 / <i>Initial Operational Test and Evaluation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ADCP II EMD	1	2015	4	2018
ADCP II F-15E DT	3	2016	3	2017
ADCP II F-15C DT	1	2017	4	2017
ADCP II FDE	4	2017	2	2018
ADCP II MS C	4	2017	4	2017
ADCP II Production Contract Award	2	2018	2	2018
Mode 5/ADS-B DT	3	2017	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons				Project (Number/Name) 676020 / F-15			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676020: F-15	0.000	162.739	161.010	269.791	0.000	269.791	216.006	200.672	177.836	231.937	0.000	1,419.991
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) and Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS).

The Radar Enhancements (EP) will upgrade the digital Active Electronic Scanned Array (AESA) radar capabilities to counter sophisticated electronic threats. Suite 7C introduces EP into the C/D-model fleet. Initial EP capability for APG-82(V)1 equipped E model aircraft will take place in Suite 8E. Suite 9 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 allows the Air Force to release software upgrades approximately every 3 years. 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 in a radar-denied 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)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Operational Flight Program (OFP) Development Efforts	109.602	77.200	102.077	0.000	102.077
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 2015 Accomplishments: Continued Suite 7C (S7C) development and operational flight testing. Continued coding, conducted bench testing and flight testing of Suite 8E (S8E). Continued integration of Litening, Alpha 2 Lite, AIM-9X, and Joint-Air-to-Surface Standoff Missile-Extended Range (JASSM-ER), Universal Armament Interface (UAI) into the S8E OFP. Continued Small Diameter Bomb (SDB)-II and B61-12 Life Extension Program (LEP, aka B61-12) weapon integration into S8E OFP. Accomplished acquisition actions to integrate B61-12 into Suite 8.0.1N. Continued					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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B. Accomplishments/Planned Programs (\$ in Millions)

Suite 9 development. Continued organic software support and Special Projects development efforts. Continued funding support for all F-15 trainers. Continued Problem Reports (PR) and Deficiency Reports (DR) fixes.

FY 2016 Plans:

Delivered S7C to the field. Continued integration of Sniper on the F-15C to meet critical PACOM requirement. Completed S8E development and flight testing. Completed JASSM-ER and Litening integration and flight testing to field with S8E. Awarded contract for B61-12 LEP integration into S8.01N. Continued S9 development and integration of major line items; such as Data Transfer Module (DTM) II, Passive Attack Display (PAD), and EPAWSS. Additionally, MIDS-JTRS will be integrated into F-15 OFPs. Continued organic software support and Special Projects development efforts. Continued funding support for all F-15 trainers. Continued ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040.

FY 2017 Base Plans:

Deliver S8E to the field. Continue B61-12 weapon integration into S8.0.1N OFF. Continue S9 development and integration of major line items: such as DTM II, PAD, EPAWSS, MIDS-JTRS and rehosting B61-12LEP. Additionally, MIDS-JTRS will be integrated into the F-15 OFPs. Continuation of organic software support and Special Projects development efforts. Continue funding support for all F-15 trainers. Continue ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040.

FY 2017 OCO Plans:

N/A

Title: Flight Test

Description: Flight tested improvements initiated in prior years. Baselined infrastructure and personnel support for F-15 Developmental Test (DT) and Initial Operational Test & Evaluation (IOT&E) operations. Purchased long-lead test support assets and unique aircraft test instrumentation. This included technical and acquisition related studies.

FY 2015 Accomplishments:

F-15 Flight Test Support provided contractor support cadre at Eglin and Nellis for DT/IOT&E support, avionics integration, lab operations and maintenance (O&M), Combined Test Facility (CTF) O&M, and long-lead test unique equipment; i.e., program specific aircraft instrumentation, AIM-120 instrumentation kits, data reduction/

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Suite 9 development. Continued organic software support and Special Projects development efforts. Continued funding support for all F-15 trainers. Continued Problem Reports (PR) and Deficiency Reports (DR) fixes.</p> <p><i>FY 2016 Plans:</i> Delivered S7C to the field. Continued integration of Sniper on the F-15C to meet critical PACOM requirement. Completed S8E development and flight testing. Completed JASSM-ER and Litening integration and flight testing to field with S8E. Awarded contract for B61-12 LEP integration into S8.01N. Continued S9 development and integration of major line items; such as Data Transfer Module (DTM) II, Passive Attack Display (PAD), and EPAWSS. Additionally, MIDS-JTRS will be integrated into F-15 OFPs. Continued organic software support and Special Projects development efforts. Continued funding support for all F-15 trainers. Continued ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040.</p> <p><i>FY 2017 Base Plans:</i> Deliver S8E to the field. Continue B61-12 weapon integration into S8.0.1N OFF. Continue S9 development and integration of major line items: such as DTM II, PAD, EPAWSS, MIDS-JTRS and rehosting B61-12LEP. Additionally, MIDS-JTRS will be integrated into the F-15 OFPs. Continuation of organic software support and Special Projects development efforts. Continue funding support for all F-15 trainers. Continue ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p> <p><i>Title:</i> Flight Test</p> <p><i>Description:</i> Flight tested improvements initiated in prior years. Baselined infrastructure and personnel support for F-15 Developmental Test (DT) and Initial Operational Test & Evaluation (IOT&E) operations. Purchased long-lead test support assets and unique aircraft test instrumentation. This included technical and acquisition related studies.</p> <p><i>FY 2015 Accomplishments:</i> F-15 Flight Test Support provided contractor support cadre at Eglin and Nellis for DT/IOT&E support, avionics integration, lab operations and maintenance (O&M), Combined Test Facility (CTF) O&M, and long-lead test unique equipment; i.e., program specific aircraft instrumentation, AIM-120 instrumentation kits, data reduction/</p>	19.858	20.246	20.549	0.000	20.549

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>handling equipment. Richter Lab security upgrades nearing completion. Advanced Electronically Scanned Array (AESA) radar synthetic doppler target generator design and prototypes completed.</p> <p>FY 2016 Plans: F-15 Flight Test Support provides prime contractor support cadre at Eglin and Nellis for DT/IOT&E 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. Completed Richter Lab security upgrades and lay in provisions for AESA radar equipment. Provided field-ready AESA radar target generators for Eglin and Nellis. Repaired APG-63 and APG-82 radar test aircraft instrumentation. This includes technical and acquisition-related studies.</p> <p>FY 2017 Base Plans: F-15 Flight Test Support provides contractor support cadre at Eglin and Nellis for DT/IOT&E 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 radar test aircraft instrumentation. Begin design of replacement radar test aircraft obsolete instrumentation. Complete Richter Labs AESA radar provisions. This includes technical and acquisition-related studies.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: F-15 Radar Enhancements</p> <p>Description: Improvements to F-15 Radar Enhancements (EP). This includes technical and acquisition related studies.</p> <p>FY 2015 Accomplishments: Continued implementation of EP into Suite 8 (S8E) & Suite 9 (S9). Continued radar integration in support of S9 EP development. Continued jammer development. Continued Special Projects testing support.</p> <p>FY 2016 Plans: Continued implementation of EP into S8E & S9. Continued Special Projects testing support. Began EP and Combat ID candidate risk reduction for future OFP integration. Studied and analyzed F-15 radar performance against future threat baselines. Developed and tested low technology readiness level (TRL) radar candidates for future integration. This includes technical and acquisition-related studies.</p> <p>FY 2017 Base Plans:</p>	28.008	18.421	64.191	0.000	64.191

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Continue implementation of EP into S8E & S9. Continue Special Projects testing support. Begin EP and Combat ID candidate risk reduction for future OFP integration. Study and analyze F-15 radar performance against future threat baselines. Develop and test low technology readiness level (TRL) radar candidates for future integration. This includes technical and acquisition-related studies.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: F-15 Infrared Search and Track (IRST)</p> <p>Description: The Infrared Search and Track (IRST) system will provide the F-15C/Ds with the capability to detect and track objects by infrared radiation. The IRST complements other onboard sensors by scanning a large volume of air space, fills gaps left by other sensors. This capability complements the radar to enhance survivability and lethality against air-to-air threats, provides a passive infrared sensor system that searches for and detects infrared energy, and provides the aircraft mission computer track file data on infrared targets.</p> <p>FY 2015 Accomplishments: Initiated technical and acquisition related studies. Initiated early acquisition planning.</p> <p>FY 2016 Plans: Initiated technical and acquisition related studies. Continued acquisition planning. Executed risk reduction activities required to support the Integration phase.</p> <p>FY 2017 Base Plans: Continue technical and acquisition related studies. Continue acquisition planning including Integration (including OFP updates), Test, and Deployment contracts award. Execute risk reduction activities required to support the Integration phase.</p> <p>FY 2017 OCO Plans: N/A</p>	5.271	12.347	38.838	0.000	38.838
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<p>Title: F-15 Multifunctional Information Distribution System - Joint Tactical Radio System (MIDS-JTRS)</p> <p>Description: This upgrade integrates and installs a new Link 16 system on the F-15C & 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 2020.</p> <p>FY 2015 Accomplishments:</p>	0.000	12.796	44.136	0.000	44.136
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>FY 2016 Plans: This upgrade integrated and installed a new Link 16 system on the F-15C& 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 2020. This includes technical and acquisition-related studies.</p> <p>FY 2017 Base Plans: Funding will be used for buying test articles, updating the software on LRUs, and integrating the LRUs with Suite 9 OFP. This includes technical and acquisition-related studies.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: V3</p> <p>Description: The Non Recurring Effort (NRE) will develop and deliver draft Time Compliance Technical Orders (TCTO) to upgrade F-15 D aircraft to the APG-63 (V)3 configuration. This includes aircraft currently equipped with the APG-63(V)0 and APG-63(V)1 Mechanically Scanned Array (MSA) radar systems. This effort will also allow for the retention of the existing APX-114 AAI and the APX-119 Mode 5 IFF Modification.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: The Non Recurring Effort (NRE) will develop and deliver draft Time Compliance Technical Orders (TCTO) to upgrade F-15 D aircraft to the APG-63 (V)3 configuration. This includes aircraft currently equipped with the APG-63(V)0 and APG-63(V)1 Mechanically Scanned Array (MSA) radar systems. This effort will also allow for the retention of the existing APX-114 AAI and the APX-119 Mode 5 IFF Modification.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	20.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	162.739	161.010	269.791	0.000	269.791

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF: BA05: Line Item # F01500: F-15 Modification of In-Service Aircraft, PEs 0207130, 0207134, 0207445, 0809731	387.314	644.336	476.060	0.000	476.060	489.257	530.457	0.000	0.000	Continuing	Continuing
• APAF: BA06: Line Item # 000999: Initial Spares/Repair Parts (BP16)	24.785	61.961	58.263	0.000	58.263	37.805	38.512	0.000	0.000	Continuing	Continuing
• APAF: BA07: Line Item # F0150P: F-15 Post Production Support	1.122	3.253	3.039	0.000	3.039	2.565	2.613	0.000	0.000	Continuing	Continuing
• APAF: BA07: Line Item # 000071: Aircraft Replacement Support Equip (BP12)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Suite 7/8/9/10 Development and Test	SS/ Various	Boeing : St. Louis, MO	0.000	108.886	Aug 2015	76.083	Aug 2016	100.927	Aug 2017	0.000		100.927	394.436	680.332	-
OFP Suite 7/8/9/10 Development and Test Various	C/Various	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
F-15 Radar Enhancement	SS/ Various	Boeing : St Louis, MO	0.000	27.660	Aug 2015	18.421	Aug 2016	64.191	Aug 2017	0.000		64.191	215.852	326.124	-
F-15 Radar Enhancement Various	C/Various	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
F-15 Infrared Search and Track	SS/ Various	TBD : TBD	0.000	5.271	Aug 2016	12.347	Aug 2016	38.838	Jul 2017	0.000		38.838	141.450	197.906	-
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)	SS/ Various	Boeing : St. Louis, MO	0.000	0.000		12.796	Aug 2016	44.136	Jun 2017	0.000		44.136	0.000	56.932	-
V3	SS/ Various	Boeing : St. Louis, MO	0.000	0.000		20.000	Dec 2016	0.000		0.000		0.000	0.000	20.000	-
Subtotal			0.000	141.817		139.647		248.092		0.000		248.092	751.738	1,281.294	-

Remarks
The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, telemetry kits, etc. that are required to meet each program's objectives. The execution vehicles between these DoD entities vary by effort.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Boeing (Contractor Test Support)	SS/CPFF	Boeing : St. Louis, MO	0.000	19.858	Sep 2015	20.246	Sep 2016	20.549	Aug 2017	0.000		20.549	74.713	135.366	-
Flight Test Support	Various	Various : TBD	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
Subtotal			0.000	19.858		20.246		20.549		0.000		20.549	74.713	135.366	-

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 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Mgt Support Costs	Various	Various : Various	0.000	1.064	Sep 2015	1.117	Sep 2016	1.150	Sep 2017	0.000		1.150	0.000	3.331	-
Subtotal			0.000	1.064		1.117		1.150		0.000		1.150	0.000	3.331	-

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	162.739	161.010	269.791	0.000	269.791	826.451	1,419.991	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OFP Continuous Development																												
OFP Suite 7C Fielding																												
OFP Suite 8E Fielding																												
OFP Suite 9 MS B																												
OFP Suite 9 EMD Award																												
OFP Suite 9 Fielding																												
Radar Enhancements Suite 8E Fielding																												
Infrared Search and Track Integration and Test																												
Infrared Search and Track Integration and Test MS B																												
Infrared Search and Track Integration and Test EMD Award																												
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>	Project (Number/Name) 676020 / <i>F-15</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
OFP Continuous Development	1	2015	4	2019
OFP Suite 7C Fielding	1	2016	1	2016
OFP Suite 8E Fielding	1	2017	2	2017
OFP Suite 9 MS B	2	2016	3	2016
OFP Suite 9 EMD Award	3	2016	3	2016
OFP Suite 9 Fielding	1	2019	3	2020
Radar Enhancements Suite 8E Fielding	4	2016	4	2016
Infrared Search and Track Integration and Test	2	2015	3	2021
Infrared Search and Track Integration and Test MS B	4	2017	4	2017
Infrared Search and Track Integration and Test EMD Award	3	2017	3	2017
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)	4	2016	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	14.413	14.860	14.773	0.000	14.773	15.062	15.347	15.631	15.909	Continuing	Continuing
674595: F-16 HARM Targeting Sys	-	14.413	14.860	14.773	0.000	14.773	15.062	15.347	15.631	15.909	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Manned Destructive Suppression (MDS) program element funds the development, procurement, and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD 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 HTS Revision 7 (HTS R7) 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 F-35 or a yet to be defined system. HTS R7 derived precision targeting data can be provided to all Joint Forces via Link-16. This effort continues preplanned product improvements (P3I) for the HTS and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program and HTS R7 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	14.831	14.860	14.921	0.000	14.921
Current President's Budget	14.413	14.860	14.773	0.000	14.773
Total Adjustments	-0.418	0.000	-0.148	0.000	-0.148
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.418	0.000			
• Other Adjustments	0.000	0.000	-0.148	0.000	-0.148

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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Change Summary Explanation

No significant program changes.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: P3I R7 Software Upgrade (SWUP)</p> <p>Description: P3I R7 Software Upgrade (SWUP)</p> <p>FY 2015 Accomplishments: HTS R7.8 SWUP continued software development and commenced baseline flight testing, test data analysis, software fixes, and release of updated software for iterative flight testing. Studies continued on risk reduction efforts for future P3I phase(s). Mission support (i.e., program management for administrative and technical support) continued. The major thrusts of this year were R7.8 SWUP baseline flight testing and preparation for formal development flight testing.</p> <p>FY 2016 Plans: Continue HTS R7.8 SWUP software development and formal development flight testing, test data analysis, software fixes, and release of updated software for iterative flight testing. Risk reduction will include a minor software update (maintenance release) in support of F-16 OFP 7.2+ and studies will continue risk reduction efforts for future P3I phase(s). Mission support (i.e., program management for administrative and technical support) will continue. The major thrusts for FY16 are R7.8 SWUP for formal development flight testing and the start of risk reduction activities for subsequent SWUP upgrades.</p> <p>FY 2017 Base Plans: Continue HTS R7.8 SWUP software development and complete flight testing, test data analysis, software fixes, and software FCA. Risk reduction will include minor software updates (maintenance releases) in support of F-16 OFP 7.2+ and studies continue on risk reduction efforts for future P3I phase(s). Mission support (i.e., program management for administrative and technical support) will continue. The major thrusts for FY17 are R7.8 SWUP for formal development flight testing and continued risk reduction activities for subsequent SWUP upgrades.</p> <p>FY 2017 OCO Plans: N/A</p>	10.433	11.660	12.823	0.000	12.823
<p>Title: Flight Test</p> <p>Description: Flight Test</p> <p>FY 2015 Accomplishments:</p>	1.950	2.300	1.050	0.000	1.050

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Government flight test operations completed planning phase and entered into baseline flight testing of R7.8 SWUP software capabilities. This funding also included test data analysis support and baselining requirements from actual test data results during flight testing. Ground testing such as anechoic chamber testing was conducted, as needed. The test organization conducted each mission to include F-16 test aircraft operations, threat/test ranges and associated support, air re-fueling, and range control support. Post-mission support for each mission occurred.</p> <p>FY 2016 Plans: Government flight test operations will continue in formal development flight testing of R7.8 SWUP software capabilities. This funding also includes test data analysis support and baselining requirements from actual test data results during flight testing. Conduct ground testing such as anechoic chamber testing, as needed. The test organization will conduct each mission to include F-16 test aircraft operations, threat/test ranges and associated support, air re-fueling, and range control support. Post-mission support for each mission is planned.</p> <p>FY 2017 Base Plans: Government flight test operations will continue in formal development flight testing of R7.8 SWUP software capabilities. This funding also includes test data analysis support and baselining requirements from actual test data results during flight testing. Conduct ground testing such as anechoic chamber testing, as needed. The test organization will conduct each mission to include F-16 test aircraft operations, threat/test ranges and associated support, air re-fueling, and range control support. Post-mission support for each mission is planned.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Mission Planning</p> <p>Description: Joint Mission Planning System (JMPS) (Formerly Air Force Mission Support System (AFMSS))</p> <p>FY 2015 Accomplishments: Continued mission planning in conjunction with HTS R7.8 software upgrade. This effort included continued development and testing of candidate upgrades and incremental engineering releases in support of fielding as well as JMPS mandated updates.</p> <p>FY 2016 Plans:</p>	2.030	0.900	0.900	0.000	0.900
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue mission planning in conjunction with HTS R7.8 software upgrade and future P3I upgrades. This effort includes continued development and testing of candidate upgrades and incremental engineering releases in support of fielding. FY 2017 Base Plans: Continue mission planning in conjunction with HTS R7.8 software upgrade and future P3I upgrades. This effort includes continued development and testing of candidate upgrades and incremental engineering releases in support of fielding. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	14.413	14.860	14.773	0.000	14.773

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• No other investment funding: <i>N/A</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

E. Acquisition Strategy

The HTS R7 acquisition improvement strategy includes accomplishment of risk reduction studies and selection of appropriate contracting strategies for P3I and upgrade of HTS inventory.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>	Project (Number/Name) 674595 / <i>F-16 HARM Targeting Sys</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HTS R7 SWUP/P3I	SS/CPIF	Raytheon Systems Co. : Tucson, AZ	-	9.536	May 2015	10.731	May 2016	12.064	Jul 2017	0.000		12.064	Continuing	Continuing	-
JMPS (Formerly AFMSS)	MIPR	Multiple : Multiple	-	2.030	Jan 2015	0.900	Jan 2016	0.900	Jan 2017	0.000		0.900	Continuing	Continuing	-
Subtotal			-	11.566		11.631		12.964		0.000		12.964	-	-	-

Remarks

HTS R7.8 SWUP risk reduction completed in May 2013. HTS R7.8 development began in May 2013 and is projected to continue until 2017.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	PO	412 TW : Edwards AFB, CA	-	1.950	Jan 2015	2.300	Jan 2016	1.050	Jan 2017	0.000		1.050	Continuing	Continuing	-
Subtotal			-	1.950		2.300		1.050		0.000		1.050	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	C/Various	Multiple : Eglin AFB, FL	-	0.897	Jan 2015	0.929	Oct 2015	0.759	May 2017	0.000		0.759	Continuing	Continuing	-
Subtotal			-	0.897		0.929		0.759		0.000		0.759	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>				Project (Number/Name) 674595 / <i>F-16 HARM Targeting Sys</i>			
	Prior Years	FY 2015		FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.413		14.860		14.773	0.000	14.773	-	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>	Project (Number/Name) 674595 / <i>F-16 HARM Targeting Sys</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
R7.8 SWUP Contract	1	2015	2	2017
R7.8 SWUP Flight test (CT&E/DT&E)	2	2015	1	2017
R7.8 Software Release	3	2017	3	2017
R7.9 SWUP (R7.8X MNX Update) Risk Reduction	2	2016	3	2018
R7.8X MNX1 Update Release	3	2017	3	2017
R7.9 SWUP Contract	2	2018	3	2021
R7.9 SWUP (CT&E/DT&E)	4	2017	1	2021
R7.9 Software Release	4	2021	4	2021
R7.8X MNX2 Update Release	4	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	3,528.203	146.291	231.599	387.564	0.000	387.564	423.005	418.700	393.663	430.233	Continuing	Continuing
674785: <i>F-22</i>	3,528.203	143.328	178.274	286.270	0.000	286.270	290.508	284.452	370.704	290.605	Continuing	Continuing
674788: <i>F-22 Tactical Mandates</i>	0.000	2.963	53.325	101.294	0.000	101.294	132.497	134.248	22.959	139.628	0.000	586.914

Note

This program, BA 07 PE 0207138F, project 674785, Helmet Mounted Display and Cueing System (HMDCS), is a new start.
 This program, BA 07 PE 0207138F, project 674785, F-22 Global Positioning System (GPS) Military Code (M-Code), is a new start.

This program, BA 07 PE 0207138F, project 674788, TACLink 16, is a new start.

Totals include funding for PRCP Program Number 265, F-22A Squadrons.

In FY13, a separate Program Element (0605213F) was created for Increment 3.2B. All Increment 3.2B efforts and associated funding prior to FY13 are included in the F-22A Squadrons (0207138F) budget documentation.

In FY15, a separate Project (Budget Program Activity Code [BPAC] 674788) was created for F-22 Tactical Mandates, formerly known as F-22 Mandates.

A. Mission Description and Budget Item Justification

The F-22 Raptor provides air superiority to the Joint Force; access in the highly contested operational environment; as well as, homeland and cruise missile defense for the next 25+ years. The F-22 is the only operational multi-mission fighter aircraft that combines stealth, supercruise, maneuverability and integrated avionics to make it the world's most capable combat aircraft. The Engineering and Manufacturing Development (EMD) phase of F-22 acquisition is complete. The program is now continuing pre-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, and Intelligence Surveillance Reconnaissance (ISR) capabilities.

The FY2017 funding request was reduced by \$.600 million to account for the availability of prior year execution balances.

BA7 - This program is in Budget Activity 7, Operational Systems Development--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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	146.299	262.552	382.198	0.000	382.198
Current President's Budget	146.291	231.599	387.564	0.000	387.564
Total Adjustments	-0.008	-30.953	5.366	0.000	5.366
• Congressional General Reductions	0.000	-30.000			
• 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	-0.008	-0.953	5.366	0.000	5.366

Change Summary Explanation

FY2016: -\$30M reduction for congressional reduction for underexecution/forward financed.

2017: \$5.366 increase in FY17 was the net total of a +25.3M add for M-Code and -20M rephrase for sensor enhancements and TacLink.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674785: F-22	3,528.203	143.328	178.274	286.270	0.000	286.270	290.508	284.452	370.704	290.605	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207138F, project 674785, Helmet Mounted Display and Cueing System (HMDCS), is a new start.
 This program, BA 07 PE 0207138F, project 674785, F-22 Global Positioning System (GPS) Military Code (M-Code), is a new start.

Totals include funding for PRCP Program Number 265, F-22A Squadrons.

In FY13, a separate Program Element (0605213F) was created for Increment 3.2B upon designation as an ACAT I program. All Increment 3.2B efforts and associated funding prior to FY13 are included in the F-22A Squadrons (0207138F) budget documentation.

In FY15, a separate Budget Project Activity Code (BPAC 674788) was created for F-22 Tactical Mandates, formerly known as F-22 Mandates.

F-22 development and production are complete. The remaining program consists of F-22 Operational Flight Program (OFP) updates, capability enhancements, and mandates necessary to sustain F-22 weapon system survivability, lethality and availability. The "Continuing" Cost to Complete and Total Cost reflect these initiatives.

A. Mission Description and Budget Item Justification

The F-22 Raptor represents the USAF's priority placed on providing the Joint Force with air dominance, operational access, and homeland & cruise missile defense for the next 25+ years. The F-22 is a multi-mission fighter aircraft that combines stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable combat aircraft. While F-22 Engineering and Manufacturing Development (EMD) and aircraft production completed May 2012, funding for F-22 modernization is "continuing" beyond the FYDP.

This program funds all non-MDAP development efforts for the F-22. The program is now continuing the pre-planned and evolutionary modernization effort through incremental development phases that enhance the F-22 anti-access / area denial, Air Superiority and Global Strike capabilities. The development program modernizes and upgrades the air vehicle, engine, avionics, and training systems to improve/enhance F-22 weapons, communications, and intelligence, surveillance, reconnaissance (ISR) capabilities.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Increment 3.2A	2.218	0.427	0.104	0.000	0.104
Description: The F-22 Increment 3.2A Modernization Program is software development to improve Electronic Protection, Combat Identification and Link-16 interoperability.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p><i>FY 2015 Accomplishments:</i> Completed Increment 3.2A software development, integration, and test. Developmental and operational test were completed. Increment 3.2A Operational Flight Program (OFP) upgrade on combat coded F-22 aircraft began July 2015 and is scheduled to complete in FY19 (concurrent with Increment 3.1).</p> <p><i>FY 2016 Plans:</i> Updating F-22 3.2A performance models in the Rail/AIL.</p> <p><i>FY 2017 Base Plans:</i> Updating F-22 3.2A performance models in the Rail/AIL.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
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<p><i>Title:</i> Update 5</p> <p><i>Description:</i> Update 5 (U5) is one of the F-22's planned software updates that develops, tests, and fields new capabilities and capability enhancements. Software updates include changes driven by real world evolving threats, emergency/safety of flight issues, and deficiency reports. The U5 Operational Flight Program (OFP) includes Automatic Ground Collision Avoidance System (AGCAS), Intra Flight Data Link (IFDL) 5th to 4th generation interoperability mode (IFDL Gateway Mode), and basic Block I AIM-9X missile launch capability.</p> <p><i>FY 2015 Accomplishments:</i> Completed Update 5 OFP developmental and operational flight test.</p> <p><i>FY 2016 Plans:</i> Complete Fleet Release.</p> <p><i>FY 2017 Base Plans:</i> Not applicable.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>	18.000	0.000	0.000	0.000	0.000
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<p><i>Title:</i> Update 6 Interoperability</p> <p><i>Description:</i> Update 6 (U6) Interoperability, is an OFP update providing cryptographic updates required by the National Security Agency (NSA) to IFDL, Link-16, and Tactical Secure Voice (TSV) to maintain interoperability with Link-16 and secure voice networks. The U6 Interoperability program builds upon the development work</p>	11.600	38.300	63.200	0.000	63.200
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>already accomplished in the KOV-20 Cryptographic Modernization Program and integrates that development into a single OFP for fleet release. In addition, U6 Interoperability will correct other software deficiencies previously identified during operations.</p> <p>FY 2015 Accomplishments: Completed Crypto Modernization Critical Design Review.</p> <p>FY 2016 Plans: Preparing for contract award of remaining OFP content development. Update 6 Interoperability will begin design, code, and test for IFDL/Link 16 interoperability and TSV modernization. Continue integration and test of Crypto Modernization.</p> <p>FY 2017 Base Plans: Update 6 Interoperability will continue code/system test, and begin formal Development Test for IFDL/Link 16 interoperability and TSV modernization. Continue integration and test of Crypto Modernization.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Software Support</p> <p>Description: Software support develops, tests and fields new capabilities and capability enhancements for training devices and Integrated Maintenance Information System (IMIS) software in order to maintain concurrency with aircraft configuration and capability. Software Support includes Pilot Training Systems (PTS) and IMIS software development to include Integrated Maintenance Data System (IMDS) and Reliability and Maintainability Information System (REMIS) interface development.</p> <p>FY 2015 Accomplishments: Continued the Ada to C++ conversion of IMIS.</p> <p>FY 2016 Plans: Integrated Advanced Diagnostic Interface Tool (ADIT) and Multiplex Bus Fault Isolation (MBFI) capability within IMIS.</p> <p>FY 2017 Base Plans: Not Applicable.</p> <p>FY 2017 OCO Plans:</p>	0.150	1.600	0.000	0.000	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Advanced Technology Development</p> <p>Description: Technology maturation, risk reduction, studies, and demonstrations of classified F-22 development efforts.</p> <p>FY 2015 Accomplishments: Continued technology maturation and risk reduction.</p> <p>FY 2016 Plans: Continued technology maturation and risk reduction.</p> <p>FY 2017 Base Plans: Continue technology maturation and risk reduction and begin acquisition planning for Sensor Enhancements.</p> <p>FY 2017 OCO Plans: N/A</p>	23.750	18.147	62.466	0.000	62.466
<p>Title: System Engineering/Program Management Support</p> <p>Description: Provides F-22 program-wide planning and execution including the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management.</p> <p>FY 2015 Accomplishments: Provided F-22 program-wide planning and execution including the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management.</p> <p>FY 2016 Plans: Provided F-22 program-wide planning and execution including the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management.</p> <p>FY 2017 Base Plans: Provides F-22 program-wide planning and execution including the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management.</p> <p>FY 2017 OCO Plans: N/A</p>	3.200	6.200	6.600	0.000	6.600
<p>Title: Reliability and Maintainability Maturation Program (RAMMP)</p>	0.810	0.700	0.700	0.000	0.700

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Description: The Reliability, Availability, and Maintainability Maturation Program (RAMMP) develops and integrates upgrades to improve reliability, availability and maintainability (RAM). The associated RAMMP RDT&E effort develops candidate RAMMP initiatives which are down-selected for implementation based on their development maturity and impact on F-22 life cycle costs. RAMMP also provides for the development of urgent response requirements for the aircraft, e.g., Automatic Back-Up Oxygen System (ABOS).</p> <p>FY 2015 Accomplishments: Developed multiple efforts to improve reliability, maintainability, and reduce F-22 Weapon System Life Cycle Costs. FY2015 active RAMMP development projects included Mighty Tough Boot seals and improved airframe-mounted nozzle system liner durability.</p> <p>FY 2016 Plans: Limited development to improve system / component reliability & maintainability and reduce F-22 Weapon System Life Cycle Costs.</p> <p>FY 2017 Base Plans: Continue limited development to improve system / component reliability & maintainability and reduce F-22 Weapon System Life Cycle Costs.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: F-22 Small Projects</p> <p>Description: Provides F-22 technology studies and demonstrations for Low Observable (LO) Signature Management, Threat Modeling Support, Developmental Test (DT) Weapon Assets, Pilot Training (PT), Dynamic Synthetic Aperture Radar (SAR), Flight Test Engine Refurbishment, Support Equipment Development, Windows XP Migration, Government Furnished Equipment (GFE), and Helmet Mounted Display and Cueing System (HMDCS), and Electronic Warfare (EW) system enhancements to counter evolving threats.</p> <p>FY 2015 Accomplishments: Started F-22 technology studies and demonstrations for DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, Scorpion Helmet Mounted Display Demo, initial HMDCS requirements definition and acquisition planning, and GFE.</p> <p>FY 2016 Plans:</p>	3.800	18.400	22.100	0.000	22.100
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue F-22 technology studies and demonstrations for DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, complete HMDCS requirements definition and acquisition planning, PT Dynamic SAR, Flutter Excitation System, GFE, XP Migration, and continue acquisition planning for EW enhancements.</p> <p>FY 2017 Base Plans: Continue F-22 technology studies and demonstrations for DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, CRIIS Network development, PT Dynamic SAR, Flutter Excitation System, GFE, XP Migration, and continue acquisition planning for EW enhancements.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Combined Test Force</p> <p>Description: The F-22 Combined Test Force (CTF), located at Edwards Air Force Base, 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.</p> <p>FY 2015 Accomplishments: AFFTC completed Increment 3.2A testing and released a test report recommending its fielding. It also began flight tests on early iterations of Inc. 3.2B, provided AIM 9X Seek Eagle support, as well as test management support to U5, and the Pylon Wing Covers efforts. Also, early planning will be accomplished for KC-46 Refueling Certification, Tactical Mandates, and U6.</p> <p>FY 2016 Plans: The significant programs undergoing flight test at AFFTC include: Increment 3.2B, KC-46 Refueling Certification, F-22 Tactical Mandates, Update 6, and Low Drag Pylons.</p> <p>FY 2017 Base Plans: Significant programs scheduled for flight test at AFFTC include: Increment 3.2B, KC-46 Refueling Certification, F-22 Tactical Link, F-22 Tactical Mandates, Update 6, CRIIS, and Flutter Excitation System (FES).</p> <p>FY 2017 OCO Plans: N/A</p>	44.800	46.100	48.100	0.000	48.100
<p>Title: Laboratory Test & Operations (LTO)</p>	35.000	48.400	55.000	0.000	55.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Lab Test & Operations is a continuous activity that plans and conducts development, integration, test, & verification (IT&V) of F-22 OFPs with F-22 hardware. LTO provides maintenance, staffing, and operation of 18 development labs including 5 unique major System Integration Laboratories (SILs): the Agile Integration Lab (AIL); the Raptor Integration Lab (RAIL); the Air Combat Simulation (ACS) Lab; Vehicle Integration Facility (VIF); and the Vehicle System Simulator (VSS). Through the ACS, LTO provides the combat air forces with advanced mission-level test and training capability through a fully representative virtual simulation.</p> <p>FY 2015 Accomplishments: Maintained lab availability in support of F-22 programs. Updated critical systems as required to support new aircraft configurations and capabilities. Accomplished an OFP verification and risk reduction. Supported pilot training for Air Combat Command exercises and war gaming; Air Force Operation Test & Evaluation Center test planning; and test event rehearsals. Supported periodic Air Force Warfare Center (AFWC) operational mission data updates. The significant programs executed for lab test were Increment 3.2A, 3.2B, Update 5 and AFWC Mission Data Loads.</p> <p>FY 2016 Plans: Maintain lab availability in support of F-22 programs. Update critical systems as required to support new aircraft configurations and capabilities. Accomplish OFP verification and risk reduction. Support pilot training for Air Combat Command exercises and war gaming; Air Force Operation Test & Evaluation Center test planning; and test event rehearsals. Support periodic AFWC operational mission data updates. The significant programs planned for lab test are Increment 3.2B, F-22 Tactical Link and Mandates, Update 6 and AFWC Mission Data Loads.</p> <p>FY 2017 Base Plans: Maintain lab availability in support of F-22 programs. Update critical systems as required to support new aircraft configurations and capabilities. Accomplish OFP verification and risk reduction. Support pilot training for Air Combat Command exercises and war gaming; Air Force Operation Test & Evaluation Center test planning; and test event rehearsals. Support periodic AFWC operational mission data updates. The significant programs planned for lab test are Increment 3.2B, F-22 TacLink 16, F-22 Tactical Mandates, Update 6, Advanced Technologies and AFWC Mission Data Loads.</p> <p>FY 2017 OCO Plans: N/A</p>					
Title: Helmet Mounted Display and Cueing System (HMDCS)	0.000	0.000	3.500	0.000	3.500

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: This is an FY17 NEW START. The HMDCS program will select, integrate, test and field a mature HMDCS to take full advantage of advanced weapons such as the AIM-9X, and improved battlespace situational awareness during day/night within-visual-range engagements. The HMDCS will be integrated on all Block 30/35 Raptors.</p> <p>FY 2015 Accomplishments: This is a FY17 NEW START.</p> <p>FY 2016 Plans: This is a FY17 NEW START.</p> <p>FY 2017 Base Plans: Conduct prototype demonstration; develop, integrate and test HMDCS hardware and software.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: F-22 Global Positioning System (GPS) Military Code (M-Code)</p> <p>Description: This is an FY17 NEW START. The F-22 Global Positioning System (GPS) Military Code (M-Code) program consists of the software and hardware development, test and fielding necessary to ensure the F-22's ability to maintain Precision, Navigation and Timing (PNT) capabilities in GPS degraded environments. This effort will include the integration of Embedded GPS/Inertial Navigation System (INS) Modernization (EGI-M) onto the F-22 for M-Code, associated GPS enhancements, as well as other capabilities, to prevent exploitation of the weapon system by adversaries and provide assured PNT.</p> <p>FY 2015 Accomplishments: Not applicable.</p> <p>FY 2016 Plans: Not applicable.</p> <p>FY 2017 Base Plans: F-22 GPS M-Code will support hardware design and development of the Embedded GPS/Inertial Navigation System (INS) Modernization (EGI-M) program and begin design, code and software integration testing for the F-22 platform interface.</p> <p>FY 2017 OCO Plans:</p>	0.000	0.000	24.500	0.000	24.500

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	N/A	N/A	N/A	N/A	N/A
Accomplishments/Planned Programs Subtotals	143.328	178.274	286.270	0.000	286.270

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # F02200: <i>F-22A Squadrons, PE 0207138F*</i>	286.426	119.171	271.593	0.000	271.593	218.441	227.011	368.986	524.575	Continuing	Continuing
• RDT&E: BA07: PE 0605213F: <i>Increment 3.2B, RDT&E**</i>	163.877	140.640	70.290	0.000	70.290	0.000	0.000	0.000	0.000	0.000	598.333
• APAF: BA05: Line Item # F2232B: <i>F-22 Increment 3.2B, PE 0207138F***</i>	28.500	67.147	82.841	0.000	82.841	151.399	13.081	20.373	20.749	0.000	384.090
• MILCON: PE 0207138F: <i>MILCON</i>	11.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.900
• RDT&E: BA07: PE 0207163F: <i>AIM-120D, AMRAAM, RDT&E****</i>	23.800	5.820	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.450
• RDT&E: BA07: PE 0207138F: <i>F-22 Tactical Mandates</i>	2.963	53.325	101.294	0.000	101.294	132.497	134.248	22.959	139.628	0.000	586.914

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, RDT&E/PE 0605213F, includes funding for FY13 and beyond identified in the Increment 3.2B documentation. PEs 0605213F and 0207318F share lab and infrastructure support costs across the F-22 enterprise.

***F-22 Increment 3.2B, APAF/PE 0207138F includes funding for associated Increment 3.2B BPs 11 (Aircraft Modifications) and 16 (Initial Spares) only.

****AIM-120D, AMRAAM RDT&E/PE 0207163F, funding provides for the AIM-120 development as a part of the F-22 Increment 3.2B effort.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>	Project (Number/Name) 674785 / <i>F-22</i>
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D. Acquisition Strategy

The Raptor Enhancement Development & Integration (REDI) contract is an Indefinite Delivery/Indefinite Quantity (ID/IQ) Ordering contract that maximizes flexibility to start, stop, accelerate and decelerate projects as required. The REDI contract was established to be more responsive to evolving war fighter requirements. The REDI contract allows the issuance of orders for the highest priority war fighter capabilities in operationally meaningful capability increments: requirements analysis, contractor cost estimates and studies, development and demonstration of capability enhancements, and unanticipated future war fighter requirements. Each increment is broken into phases to initiate requirements analysis, the design phase and the development, integration and verification phase of a specific incremental development effort. The REDI II contract is a follow-on Indefinite Delivery/Indefinite Quantity (ID/IQ) contract to the initial REDI contract. The REDI II contract is used to issue delivery and task orders for 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.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Increment 3.2A	SS/CPIF	Lockheed Martin : Fort Worth, TX	396.277	2.218	Mar 2015	0.427	Mar 2016	0.104	Mar 2017	0.000		0.104	0.000	399.026	-
Update 5	SS/ Various	Lockheed Martin : Fort Worth, TX	92.561	18.000	Feb 2015	0.000		0.000		0.000		0.000	0.000	110.561	-
Update 6 Interoperability	SS/ Various	Lockheed Martin : Fort Worth, TX	34.426	11.600	Jan 2015	38.300	Nov 2015	63.200	Nov 2016	0.000		63.200	44.500	192.026	-
Software Support	SS/ Various	Lockheed Martin : Fort Worth, TX	290.504	0.000		1.600	Nov 2015	0.000		0.000		0.000	0.000	292.104	-
Advanced Technology Development	Various	Various : Various	73.282	23.900	Dec 2014	18.147	Feb 2016	62.466	Dec 2016	0.000		62.466	Continuing	Continuing	-
VAX Migration	SS/CPIF	Lockheed Martin : Fort Worth, TX	178.724	0.000		0.000		0.000		0.000		0.000	0.000	178.724	-
System Engineering / Program Management	SS/CPFF	Lockheed Martin : Fort Worth, TX	207.122	3.200	Apr 2015	6.200	Jan 2016	6.600	Jan 2017	0.000		6.600	Continuing	Continuing	-
RAMMP	SS/CPFF	Lockheed Martin : Fort Worth, TX	167.701	0.810	May 2015	0.700	Dec 2015	0.700	Dec 2016	0.000		0.700	Continuing	Continuing	-
F-22 Small Projects	Various	Various : Various	550.910	3.800	Jan 2015	18.400	Nov 2015	22.100	Nov 2016	0.000		22.100	Continuing	Continuing	-
HMDCS	Various	Various : Various	0.000	0.000		0.000		3.500	Jan 2017	0.000		3.500	16.700	20.200	-
Global Positioning System (GPS) M-Code	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	0.000		0.000		24.500	Jan 2017	0.000		24.500	0.000	24.500	-
Subtotal			1,991.507	63.528		83.774		183.170		0.000		183.170	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increment 3.2A Development, Integration, & Test	█																											
Increment 3.2A Final Operational Test & Evaluation (FOT&E)	█	█	█																									
Increment 3.2A Fleet Release				█																								
Update 5 Fleet Release Block 20					█	█																						
Update 5 Fleet Release Block 30/35					█	█																						
Update 6 Interoperability Requirements Analysis/Design		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Update 6 Interoperability Development, Integration, & Test		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Update 6 Interoperability Preliminary Design Review (PDR)										█	█																	
Update 6 Interoperability Milestone B										█	█																	
Update 6 Interoperability Critical Design Review (CDR)														█	█													
Update 6 Interoperability Flight Test														█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Update 6 Interoperability Milestone C																												
Update 6 Interoperability Full Deployment Decision (Fleet Release)																												
Advanced Technology Development Demonstrations	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Advanced Technology Development Studies & Analysis	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
HMDCS Development, Integration and Test																												
HMDCS Installation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Increment 3.2A Development, Integration, & Test	1	2015	1	2015
Increment 3.2A Final Operational Test & Evaluation (FOT&E)	1	2015	3	2015
Increment 3.2A Fleet Release	4	2015	4	2015
Update 5 Fleet Release Block 20	1	2016	1	2016
Update 5 Fleet Release Block 30/35	1	2016	1	2016
Update 6 Interoperability Requirements Analysis/Design	2	2015	2	2017
Update 6 Interoperability Development, Integration, & Test	2	2015	4	2018
Update 6 Interoperability Preliminary Design Review (PDR)	2	2017	2	2017
Update 6 Interoperability Milestone B	2	2017	2	2017
Update 6 Interoperability Critical Design Review (CDR)	2	2018	2	2018
Update 6 Interoperability Flight Test	1	2018	4	2019
Update 6 Interoperability Milestone C	4	2019	4	2019
Update 6 Interoperability Full Deployment Decision (Fleet Release)	4	2019	4	2019
Advanced Technology Development Demonstrations	1	2015	4	2021
Advanced Technology Development Studies & Analysis	1	2015	4	2021
HMDCS Development, Integration and Test	2	2017	3	2020
HMDCS Installation	4	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674788: F-22 Tactical Mandates	0.000	2.963	53.325	101.294	0.000	101.294	132.497	134.248	22.959	139.628	0.000	586.914
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207138F, project 674788, TACLink 16, is a new start.

Totals include funding for PRCP Program Number, 265 F-22 Tactical Mandates

In FY15, a separate Budget Program Activity Code (BPAC 674788) within PE 0207138F was created for F-22 Tactical Mandates, formerly known as F-22 Mandates. F-22 Tactical Mandates proposal activities were initiated in BPAC 674785 in FY14.

A. Mission Description and Budget Item Justification

The TACLink 16 and F-22 Tactical Mandates programs are follow-on modernization efforts to Increment 3.2B. The programs will provide Open Systems Architecture, Link 16 Transmit and Mode 5 Identification Friend or Foe (IFF) Transpond/Interrogate on the F-22. Thru the FY16 budget, these capabilities were all part of the F-22 Tactical Mandates program. Via the TACLink 16 program, the FY17 budget request recognizes an important opportunity to accelerate fielding of Open Systems Architecture and Link 16 Transmit onto the F-22 one year earlier than possible as part of F-22 Tactical Mandates.

Capability integration for the TACLink 16 program will be accomplished using Open Systems Architecture to enable future life cycle savings opportunities for the F-22 and as a risk reduction effort for the F-22 Tactical Mandates program. Both programs will require hardware and software modifications to the Block 30/35 combat coded F-22 fleet.

Link 16 Transmit enables the 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). Enabling the F-22 to transmit tactical data to other aircraft types via datalink is a top Air Force priority. With Link 16 Transmit, the Raptor's superior 5th Generation sensor suite will be able to aid the situational awareness of all participants in the operating environment. The TACLink 16 program is an opportunity to accelerate the install of this key data link capability onto the F-22 Raptor.

Mode 5 IFF is a Joint Requirements Oversight Council-mandated Blue Force identification capability that improves Raptor survivability and reduces fratricide risk DoD-wide.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: TACLink 16	0.000	0.000	41.698	0.000	41.698

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674788 / F-22 Tactical Mandates
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: The TACLink 16 program will accelerate fielding of key technologies previously aligned with the F-22 Tactical Mandates program. The program consists of software and hardware development necessary to field basic Link 16 Transmit capability on the F-22. Link 16 Transmit will be accomplished via an Open Mission Systems (OMS) architecture integrated with F-22 legacy avionics. The OMS implementation will provide a pathway to more competitive and open future F-22 modernization. Includes Mission Support of the F-22 Program Office: travel, computer costs, and other miscellaneous contract support.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: TACLink 16 will begin design, software modeling, and test.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: F-22 Tactical Mandates</p> <p>Description: The F-22 Tactical Mandates program consists of software development and hardware necessary to provide tactical Mode 5 IFF on the F-22. The program also provides an opportunity to incorporate other updates to Link 16 capabilities into the Raptor. Includes Mission Support of the F-22 Program Office: travel, computer costs, and other miscellaneous contract support.</p> <p>FY 2015 Accomplishments: F-22 Tactical Mandates began requirements analysis, capabilities analysis and selection, design maturation and early software modeling and test. Initiated design efforts.</p> <p>FY 2016 Plans: The contract for the Pre-Engineering & Manufacturing Development effort will be awarded, and F-22 Tactical Mandates will continue capabilities analysis, design, and software modeling and test.</p> <p>FY 2017 Base Plans: F-22 Tactical Mandates will continue design, software modeling, and test.</p> <p>FY 2017 OCO Plans:</p>	2.963	53.325	59.596	0.000	59.596

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>	Project (Number/Name) 674788 / <i>F-22 Tactical Mandates</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	2.963	53.325	101.294	0.000	101.294

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E: BA07: PE 0207138F: <i>F-22A Squadrons*</i>	143.328	178.274	286.270	0.000	286.270	290.508	284.452	370.704	290.605	Continuing	Continuing
• APAF: BA05: Line Item #F02200: <i>F-22A Squadrons, PE 0207138F**</i>	286.426	119.171	271.593	0.000	271.593	218.441	227.011	368.986	524.575	Continuing	Continuing
• RDT&E, BA05, PE 0605213F: <i>F-22A Increment 3.2B***</i>	163.877	140.640	70.290	0.000	70.290	0.000	0.000	0.000	1.478	0.000	598.333
• APAF: BA05: Line Item #F2232B: <i>F-22A Increment 3.2B, PE 0207138F****</i>	28.500	61.147	82.841	0.000	82.841	151.399	13.081	20.373	20.749	0.000	384.090

Remarks

*F-22 Squadrons, RDT&E/PE 0207138F, includes funding for F-22A Squadrons modernization and development BPAC 674785.

**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, RDT&E/PE 0605213F, includes funding for the development of F-22A, Increment 3.2B and share lab and infrastructure costs across the F-22 enterprise.

****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

The (REDI) II contract is a follow-on Indefinite Delivery/Indefinite Quantity contract to the initial REDI contract. REDI II provides maximum flexibility to manage various modernization projects. The REDI II contract allows 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 (OFF) upgrades, and associated efforts essential to accomplishing the F-22 mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>	Project (Number/Name) 674788 / <i>F-22 Tactical Mandates</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674788 / F-22 Tactical Mandates
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-22 Tactical Mandates	SS/CPIF	Lockheed Martin : Ft Worth, TX	0.000	2.963	Mar 2015	53.325	Jan 2016	101.294	Jan 2017	0.000		101.294	429.332	586.914	-
Subtotal			0.000	2.963		53.325		101.294		0.000		101.294	429.332	586.914	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Execution	Various	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		0.000	2.963	53.325	101.294	0.000	101.294	429.332	586.914	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674788 / F-22 Tactical Mandates
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021															
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
TACLink 16 Development , Integration & Test																																								
TACLink 16 Milestone B																																								
TACLink 16 Milestone C																																								
TACLink 16 Installs																																								
F-22 Tactical Mandates Requirements Analysis																																								
F-22 Tactical Mandates System Requirements Review/System Design Review (SRR/SDR)																																								
F-22 Tactical Mandates Design																																								
F-22 Tactical Mandates Development , Integration & Test																																								
F-22 Tactical Mandates Preliminary Design Review (PDR)																																								
F-22 Tactical Mandates Milestone B																																								
F-22 Tactical Mandates Milestone C																																								
F-22 Tactical Mandates Installs																																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674788 / F-22 Tactical Mandates
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TACLink 16 Development , Integration & Test	2	2017	1	2020
TACLink 16 Milestone B	1	2018	1	2018
TACLink 16 Milestone C	1	2019	1	2019
TACLink 16 Installs	2	2020	4	2021
F-22 Tactical Mandates Requirements Analysis	4	2015	3	2016
F-22 Tactical Mandates System Requirements Review/System Design Review (SRR/SDR)	3	2016	3	2016
F-22 Tactical Mandates Design	3	2016	1	2018
F-22 Tactical Mandates Development , Integration & Test	2	2017	1	2021
F-22 Tactical Mandates Preliminary Design Review (PDR)	4	2017	4	2017
F-22 Tactical Mandates Milestone B	1	2018	1	2018
F-22 Tactical Mandates Milestone C	4	2019	4	2019
F-22 Tactical Mandates Installs	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	12.682	39.275	53.921	153.045	0.000	153.045	349.389	378.587	388.763	395.656	Continuing	Continuing
675346: <i>F-35</i>	3.000	23.660	48.954	127.302	0.000	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
676011: <i>JSF DUAL CAPABLE AIRCRAFT</i>	9.682	15.615	4.967	25.743	0.000	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing

Program MDAP/MAIS Code: 198

Note

Schedule changed to reflect impacts from previous budget changes and direction from the Milestone Decision Authority.

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, Air Force, Marine Corps and allies. The three variants are the F-35A Conventional Takeoff and Landing; 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 life cycle costs. As Initial Operational Capability (IOC) delivers for each variant during System Development and Demonstration (SDD), planning and initial systems engineering for the Follow-on Development(FoD) continues.

FoD 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 Program Block 4 Mission Decomposition analysis completed in FY2014. These analyses serve as basis for the F-35 FoD Capabilities Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. JROC approval of the CDD is expected in FY2016. Pre-modernization activities in FY2016 and FY2017 include systems engineering, risk reduction, and FoD facility upgrades to support an initial Block 4 fleet availability in 2020. The FoD program includes a robust weapons integration portfolio, and expands new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements. Additionally, the F-35 JSF Operational Requirements Document (ORD) calls for the F-35A to have the capabilities and provisions for Dual-Capable Aircraft (DCA) operations in the first post-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 up to two B-61s. Due to extensive certification requirements, the DCA capability planning and design, testing and certification will continue throughout Block 4.

The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects USN, USMC, USAF, and International Partner funding. Funding at the accomplishment/planned program level is reported as the total of all service and partners as these activities support all aircraft variants. Foreign Military Sales are ongoing separately.

The FY2017 funding request was reduced by \$19.745 million to account for the availability of prior year execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>
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BA7 - 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	40.092	115.395	269.315	0.000	269.315
Current President's Budget	39.275	53.921	153.045	0.000	153.045
Total Adjustments	-0.817	-61.474	-116.270	0.000	-116.270
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-61.474			
• 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	-0.817	0.000			
• Other Adjustments	0.000	0.000	-116.270	0.000	-116.270

Change Summary Explanation

FY2016 decrease: Congressional reduction of -\$61.474M

FY2017 decrease: -\$19.745M accounts for the availability of prior year execution balances. -\$96.525M was for funding for higher AF priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675346: F-35	3.000	23.660	48.954	127.302	0.000	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Total cost including International Partner contributions, USN, USMC, and USAF funding: FY2015 \$59.045M; FY2016 \$125.211M; FY2017 \$382.151M.

R-2A table shown above reflects service funding only.

R-2A (section B)/R-3 displays combined program for JSF Follow-on Development (FoD).

JSF FoD Includes:

USAF PE 0207142F BPAC 675346

USN PE 0604810N Project Unit 2936

USMC PE 0604810M Project Unit 2935

USN PE 0604800N Project Unit 9999 (FY14): \$1.500M

USMC PE 0604800M Project Unit 9999 (FY14): \$1.500M

International Partner Contributions

A. Mission Description and Budget Item Justification

F-35 FoD provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential mission improvements 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 Block 4 acquisition strategy is based upon incremental deliveries of capabilities in 4 sub-blocks. The strategy includes deliveries on a two year cycle with a focus on hardware and tech refresh change every four years. FoD capability planning includes an efficient transition from F-35 SDD to Follow-on Development. As SDD development activities ramp down, the FoD will assume responsibility for improvements and modernization efforts. Block 4 capability planning includes Block 4.1 through 4.4 modernization efforts with initial increment of capability available in 2020 and subsequent releases every two years.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Air Vehicle Follow-on Development (Capability Planning) (F-35 JSF)	59.010	114.684	283.246	0.000	283.246

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Capability planning effort will focus on requirements analysis, systems engineering, risk reduction and preparations leading to formal acquisition approval of Block 4 Modernization contract. Program planning will consist of engineering and development support for defining and acquiring capability enhancements required to address threats indicated in the Electronic Warfare (ICD), the Fifth Generation Fighter Modernization ICD and the Follow-on Development Capability Development Document (CDD).</p> <p>FY 2015 Accomplishments: Requirements analysis and technical requirements development, systems engineering, and technical planning.</p> <p>FY 2016 Plans: Requirements analysis and technical requirements development, systems engineering, and technical planning. Completion of Block 4 System Requirements Review (SRR).</p> <p>FY 2017 Base Plans: Continue requirements analysis and technical requirements development, systems engineering, and technical planning. A System Functional Review (SFR) is planned, followed by initiation of the Block 4 preliminary design. Acquisition planning includes completion of a Modernization Request for Proposal (RFP) Decision Review for approval to release the Block 4 Modernization contract RFP. Pre-Modernization Phase 1 activities include systems engineering through SFR. Phase 2 activities will include completion of Preliminary Design Review in 2018.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Development Support</p> <p>Description: Technical and Analytical Support</p> <p>FY 2015 Accomplishments: Initiated development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p>FY 2016 Plans: Initiate development support for defining, managing, and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p>FY 2017 Base Plans:</p>	0.035	10.527	44.849	0.000	44.849

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue development support for defining, managing, and acquiring the F-35 capability enhancements identified in approved requirements documents. FY 2017 OCO Plans: N/A					
Title: Test and Evaluation Description: Initiate Laboratory and Test Aircraft Upgrade and other test planning activities required for Block 4 and later development, integration, test and evaluation. Changes are needed to support development and evaluation of improvements driven by changes in threat and as identified in the Electronic Warfare ICD and the Fifth Generation Fighter Modernization ICD. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: This is not a New Start. Funding has been broken out for transparency. Funding will support infrastructure investment planning and prioritization required to maintain future development capability. This includes planning for long-lead procurement for replacement of engines and other life limited components on Developmental Test aircraft that will be at end of life upon completion of SDD, as well as laboratory upgrades required to support development and verification of capabilities in a relevant environment. FY 2017 OCO Plans: N/A	0.000	0.000	54.056	0.000	54.056
Accomplishments/Planned Programs Subtotals	59.045	125.211	382.151	0.000	382.151
Other Service Program Funding Adjustment	35.385	76.257	254.849	-	254.849
Air Force Subtotals	23.660	48.954	127.302	0.000	127.302

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• RDTE: BA05: PE 0604800F 3831: JSF SDD, BPAC 653831	534.344	515.492	403.505	0.000	403.505	113.567	5.327	5.392	5.497	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE: BA05: PE 0604800F 3832: <i>JSF Deployability and Suitability Enhancements, BPAC 653832</i>	32.593	71.461	46.962	0.000	46.962	23.795	0.000	0.000	0.000	-	-
• RDTE: BA07: PE 0207142F 6011: <i>Dual Capable Aircraft (DCA), BPAC 676011</i>	15.615	4.967	25.743	0.000	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
• APAF: BA01: Line Item # ATA000 AP: <i>JSF CTOL Advance Procurement, PE 0207142F, BP10 AP</i>	418.880	460.260	404.500	0.000	404.500	671.263	406.750	424.230	424.230	17,450.241	23,150.407
• APAF: BA01: Line Item # ATA000: <i>JSF CTOL, PE 0207142F, BP10</i>	3,625.841	5,259.812	4,401.894	0.000	4,401.894	4,708.701	4,712.526	4,838.591	5,801.997	139,530.995	190,282.125
• APAF: BA06: Line Item # F03500 BP16: <i>JSF Initial Spares, PE 0207142F, BP16</i>	231.847	229.582	267.792	0.000	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• APAF: BA05: Line Item # F03500 BP11: <i>JSF Modifications, PE 0207142F, BP11</i>	187.646	70.167	175.811	0.000	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• USAF OM: <i>Operations and Maintenance</i>	217.556	302.952	360.107	0.000	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• OPAF: BA01: Line Item # 821800: <i>Joint Strike Fighter, PE 0207142F</i>	4.463	3.858	2.333	0.000	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• MILCON: BA01: PE 0207142F: <i>USAF JSF Military Construction Operations</i>	66.700	132.850	305.700	0.000	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• MILCON: BA01: PE 0207597F: <i>USAF JSF Military Construction Training</i>	0.000	65.400	20.000	0.000	20.000	21.000	34.000	15.900	0.000	-	-
• MILCON: BA01: PE 0502635F: <i>USAF JSF Military Construction Air National Guard</i>	0.000	0.000	15.100	0.000	15.100	0.000	0.000	0.000	0.000	-	-
• RDTEN: BA05: PE 0604800N 2261: <i>JSF SDD (CV)</i>	470.545	467.759	504.296	0.000	504.296	43.816	0.000	0.000	0.000	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RD TEN: BA05: PE 0604800N 3352: F-35C Sustainment/ Capability Enhancements (CV)	16.433	36.977	24.420	0.000	24.420	11.802	0.000	0.000	0.000	-	-
• RD TEN: BA05: PE 0604810N 2936: F-35C Follow-on Development (CV), BPAC 2936	10.302	21.200	63.387	0.000	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• APN: BA01: Line Item # 0147C: JSF Advance Procurement (CV), PE 0204146N	29.400	48.630	80.908	0.000	80.908	258.898	144.003	242.002	262.004	3,189.815	5,643.037
• APN: BA01: Line Item # 0147: JSF (CV), PE 0204146N	848.552	1,033.142	890.650	0.000	890.650	951.052	1,598.247	2,150.860	2,680.120	27,872.824	49,136.792
• APN: BA06: Line Item # 0605 USN: Initial Spares (CV), PE 0204146N	28.768	59.914	26.076	0.000	26.076	76.886	41.847	52.858	303.608	1,706.626	2,815.461
• APN: BA05: Line Item # 0593: Modifications (CV), PE 0204146N	18.371	48.527	26.004	0.000	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing
• OPN: BA03: Line Item # 4268: JSF Aviation Support Equipment ALIS Ship Alts	1.539	1.969	1.811	0.000	1.811	1.866	1.868	1.910	1.947	Continuing	Continuing
• OPN BA03: ALIS Ship ALTS Installs	3.977	1.924	0.329	0.000	0.329	2.024	1.890	1.933	1.972	Continuing	Continuing
• OPN BA03 USN: Optical Landing System Investment	0.000	0.000	1.800	0.000	1.800	1.800	1.800	3.300	0.000	Continuing	Continuing
• OPN: BA03: Spares for Aviation Support Equipment	0.730	2.946	0.881	0.000	0.881	2.297	2.321	1.939	1.977	Continuing	Continuing
• USN OM: Operations and Maintenance	35.468	75.651	138.933	0.000	138.933	96.354	135.712	115.743	216.600	Continuing	Continuing
• USN MILCON: USN JSF Military Construction	60.200	72.460	11.800	0.000	11.800	0.000	0.000	0.000	0.000	-	-
• RD TEN: BA05: PE 0604800M 2262: JSF SDD (STOVL)	476.350	505.949	507.078	0.000	507.078	88.414	9.649	5.842	3.858	-	-
• RD TEN: BA05: PE 0604800M 3350: F-35B Sustainment/	11.589	31.952	24.348	0.000	24.348	11.427	0.000	0.000	0.000	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
<i>Capability Enhancements (STOVL), BPAC 3350</i>											
• RDTEN: BA05: PE 0604810M 2935: F-35B Follow-on	10.086	20.798	74.227	0.000	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing
<i>Development (STOVL), BPAC 2935</i>											
• APN: BA01: Line Item # 0152C: JSF Advance Procurement (STOVL), PE 0204146M	143.885	203.060	233.648	0.000	233.648	370.472	227.562	231.003	220.000	2,638.098	4,870.881
• APN: BA01: Line Item # 0152: JSF (STOVL), PE 0204146M	1,178.488	2,147.714	2,037.768	0.000	2,037.768	2,620.324	2,481.778	2,514.127	2,558.802	20,571.510	40,035.833
• APN: BA06: Line Item # 0605 USMC: Initial Spares (STOVL), PE 0204146M	64.285	111.569	123.252	0.000	123.252	26.159	88.434	160.150	140.989	1,466.285	2,508.244
• APN: BA05: Line Item # 0592: Modifications (STOVL), PE 0204146M	157.905	204.464	34.928	0.000	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• USMC OM: Operations and Maintenance	133.550	188.391	174.580	0.000	174.580	162.927	165.068	168.212	167.636	Continuing	Continuing
• USMC MILCON: USMC JSF Military Construction	71.704	21.960	219.100	0.000	219.100	64.660	121.990	119.800	0.000	642.400	1,966.114
• International 1: International SDD	15.000	17.000	22.000	0.000	22.000	27.450	0.000	0.000	0.000	-	-
• International 2: International Production	3,350.860	4,211.698	5,377.274	0.000	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• International 3: International FoD	21.086	79.318	128.965	0.000	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• International 4: International Unique (SDD/PSFD)	81.681	39.852	39.608	0.000	39.608	11.474	22.812	29.409	5.357	-	-

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. Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

Note: The USAF/USN/USMC procurement lines include Aircraft Procurement and Advanced Procurement only. Initial Spares and Repair Parts for all Services are reflected in separate lines. International Partner Funding also includes funds provided under the Italy and Netherlands Bilateral agreements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,056; and International Partner contributions of \$253,921 for a total of \$4,229,946.											

D. Acquisition Strategy

To enable the ability to adjust to potential discrepancies discovered during SDD Block 3 Test and Evaluation, the engineering and development planning support for FoD will be procured under a cost type contract. A fee provision will be used to target and motivate contractor performance. 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. Both Development Support and Management Services will use CPFF and CPIF Delivery Orders.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prime LM TBD	SS/CPFF	Lockheed Martin : Ft Worth, TX	0.000	0.000		107.548	Jul 2016	258.583	Jul 2017	0.000		258.583	2,387.126	2,753.257	2,753.257
Prime LM 02-C-3002	SS/CPFF	Lockheed Martin : Ft Worth, TX	1.655	17.830	Jun 2015	1.080	Dec 2015	0.000		0.000		0.000	0.000	20.565	20.565
Prime LM 16-C-0008	SS/CPFF	Lockheed Martin : Ft Worth, TX	0.000	39.280	Jun 2015	14.246	Jan 2016	23.520	Jan 2017	0.000		23.520	0.000	77.046	77.046
Prime LM IDIQ 13-D-0005	SS/CPFF	Lockheed Martin : Ft Worth, TX	0.158	0.000		0.000		0.000		0.000		0.000	0.000	0.158	0.158
Subtotal			1.813	57.110		122.874		282.103		0.000		282.103	2,387.126	2,851.026	2,851.026

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	Various	Various : TBD	3.787	0.000		0.000		8.714	Dec 2016	0.000		8.714	55.071	67.572	-
AFFTC / Eglin AFB	Various	Eglin : Various	0.000	0.035	Jun 2015	0.982	Dec 2015	1.940	Dec 2016	0.000		1.940	13.659	16.616	-
NAWC Paxutent River	WR	NAWCAD : Paxutent River, MD	0.400	0.000		1.355	Dec 2015	20.970	Dec 2016	0.000		20.970	96.015	118.740	-
NAWC China Lake	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		7.389	Dec 2016	0.000		7.389	29.941	37.330	-
AFLCMC/AFRL	MIPR	AFLCMC : Wright Patterson AFB, OH	0.000	0.000		0.000		0.232	Dec 2016	0.000		0.232	2.125	2.357	-
Subtotal			4.187	0.035		2.337		39.245		0.000		39.245	196.811	242.615	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NAWC Paxutent River	Various	Various : Paxutent River, MD	0.000	0.000		0.000		35.824	Dec 2016	0.000		35.824	154.870	190.694	-
NAWC China Lake	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		1.637	Dec 2016	0.000		1.637	19.415	21.052	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation Edwards/AFB	Various	Edwards AFB : Edwards AFB, CA	0.000	0.000		0.000		9.592	Dec 2016	0.000		9.592	Continuing	Continuing	-
Developmental Test & Evaluation	Various	Various : TBD	0.000	0.000		0.000		0.250	Dec 2016	0.000		0.250	43.999	44.249	-
Subtotal			0.000	0.000		0.000		47.303		0.000		47.303	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Functional Wyle	C/CPFF	Wyle : Arlington, VA	0.000	1.900	Sep 2016	0.000		0.000		0.000		0.000	0.000	1.900	1.900
AFLCMC Civilian Pay	Various	AFLCMC CIV PAY : Wright Patterson AFB, OH	0.000	0.000		0.000		13.500	Dec 2016	0.000		13.500	137.060	150.560	150.560
Subtotal			0.000	1.900		0.000		13.500		0.000		13.500	137.060	152.460	152.460

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	6.000	59.045	125.211	382.151	0.000	382.151	-	-	-
Other Service Program Funding Adjustment	3.000	35.385	76.257	254.849	-	254.849	1,876.282	2,245.773	-
Project Cost Totals	3.000	23.660	48.954	127.302	0.000	127.302	-	-	-

Remarks
 The Project information shown here reflects USN, USMC, USAF and International Partner funding total for each contract. By agreement, USN and USMC funding shares are approximately equal and when combined are equal to the USAF share. Partner funding share is based upon future aircraft procurement numbers updated annually in accordance with the Production, Sustainment, Follow-on Development Memorandum of Agreement.

Prior Years reflects \$3.000M USAF/\$1.500 USN/\$1.500M USMC/\$0.000M International/Total \$6.000M

FY 2015 reflects \$23.660M USAF/\$10.302M USN/\$10.086M USMC/\$14.997M International/Total \$59.045M

FY 2016 reflects \$48.954M USAF/\$21.200M USN/\$20.798M USMC/\$34.259M International/Total \$125.211M

FY 2017 reflects \$127.302M USAF/\$63.387M USN/\$74.227M USMC/\$117.235M International/Total \$382.151M

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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F-35 FoD Includes:
 USAF PE 0207142F BPAC 675346
 FY13: USN PE 0604800N Project Unit 2261
 FY14: USN PE 0604800N Project Unit 3353
 FY15: USN PE 0604810N Project Unit 2936
 FY13: USMC PE 0604800M Project Unit 2262
 FY14: USMC PE 0604800M Project Unit 3351
 FY15: USMC PE 0604810M Project Unit 2935

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Requirements: Final CDD (JROC)							■																					
Acquisition: Modernization RFP Decision											■																	
Acquisition: Modernization Contract Decision															■													
Acquisition: Interim Program Review (IPR) FY18											■																	
Acquisition: Interim Program Review (IPR) FY19															■													
Acquisition: Interim Program Review (IPR) FY20																			■									
Acquisition: Interim Program Review (IPR) FY21																											■	
Contracting: Block 4 Pre-Modernization																												
Contracting: Block 4 Modernization																												
Systems Engineering: Initial System Requirements Review (SRR)											■																	
Systems Engineering: Initial Preliminary Design Review (PDR)															■													
Test & Evaluation: 4.1 Test																												
Test & Evaluation: 4.2 Test																												
Fielding: Block 4.1 Fleet Availability																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Requirements: Final CDD (JROC)	3	2016	3	2016
Acquisition: Modernization RFP Decision	3	2017	3	2017
Acquisition: Modernization Contract Decision	3	2018	3	2018
Acquisition: Interim Program Review (IPR) FY18	1	2018	1	2018
Acquisition: Interim Program Review (IPR) FY19	1	2019	1	2019
Acquisition: Interim Program Review (IPR) FY20	1	2020	1	2020
Acquisition: Interim Program Review (IPR) FY21	1	2021	1	2021
Contracting: Block 4 Pre-Modernization	4	2015	3	2018
Contracting: Block 4 Modernization	3	2018	4	2021
Systems Engineering: Initial System Requirements Review (SRR)	4	2016	4	2016
Systems Engineering: Initial Preliminary Design Review (PDR)	3	2018	3	2018
Test & Evaluation: 4.1 Test	3	2019	3	2020
Test & Evaluation: 4.2 Test	1	2021	4	2021
Fielding: Block 4.1 Fleet Availability	4	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676011: JSF DUAL CAPABLE AIRCRAFT	9.682	15.615	4.967	25.743	0.000	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

F-35 FoD Includes:

- USAF: PE 0207142F BPAC 675346
- USN: FY13 PE 0604800N Project Unit 2261
- USN: FY14 PE 0604800N Project Unit 3353
- USN: FY15 PE 0604810N Project Unit 2936
- USMC: FY13 PE 0604800M Project Unit 2262
- USMC: FY14 PE 0604800M Project Unit 3351
- USMC: FY15 PE 0604810M Project Unit 2935

F-35 DCA Includes:

- USAF PE 0207142F BPAC 676011
- USN N/A
- USMC N/A

A. Mission Description and Budget Item Justification

F-35 Follow-on Development(FoD) provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential mission improvements 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 Block 4 acquisition strategy is based upon incremental deliveries of capabilities in 4 sub-blocks. The strategy includes deliveries on a two year cycle with a focus on hardware and tech refresh change every four years. FoM capability planning includes an efficient transition from F-35 SDD to Follow-on Development. As SDD development activities ramp down, FoD will assume responsibility for improvements and modernization efforts. Block 4 capability planning includes Block 4.1 through 4.4 modernization efforts with initial increment of capability available in 2020 and subsequent releases every two years.

Additionally, 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 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 two B-61s. Due to extensive certification requirements, the Follow-on Modernization Capability Development Document (CDD).

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

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Dual Capable Aircraft (DCA)(F-35 JSF)</p> <p>Description: This effort provides for the assessment of Dual-Capable Aircraft (DCA) weapon integration and certification impacts on the Joint Strike Fighter (JSF) 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.</p> <p>FY 2015 Accomplishments: Initiated Nuclear Certification and environmental flight test efforts to integrate dual-capability on F-35A. Based on initial nuclear certification timelines of legacy platforms, the process to achieve Nuclear Certification on F-35A must begin now in order to field capability in time to meet national/alliance nuclear posture commitments. Additionally, the environmental flight tests will help ensure F-35A environments are compatible with the B61-12 prior to the weapon completing its design phase.</p> <p>FY 2016 Plans: Continue pre-modernization integration efforts to mature DCA unique requirements on the F-35A Air System. Evaluate and identify impacts to the design to enable all aspects of carriage and employment of the B61-12 weapon, to include a survivability analysis to understand impacts of weapon to F-35 materiel components. Other efforts include initiation of Nuclear Certification activities focused on generating preliminary design reports, nuclear safety evaluation plans, and nuclear safety analysis reports.</p> <p>FY 2017 Base Plans: Continue Nuclear Certification activities focused on generating preliminary design reports, nuclear safety evaluation plans, and nuclear safety analysis reports. Complete Static Ejection and Wind Tunnel Tests for Initial Separation Analysis. Perform additional data analysis to support Block 4 Preliminary Design Review. Complete planning for development and integration of DCA on F-35A.</p> <p>FY 2017 OCO Plans: N/A</p>	15.615	4.967	25.743	0.000	25.743
Accomplishments/Planned Programs Subtotals	15.615	4.967	25.743	0.000	25.743

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604800F 3831: JSF SDD, BPAC 653831	534.344	515.492	403.505	0.000	403.505	113.567	5.327	5.392	5.497	0.000	22,087.243
• RDTE: BA05: PE 0604800F 3832: JSF Deployability and Suitability Enhancements, BPAC 653832	32.593	71.461	46.962	0.000	46.962	23.795	0.000	0.000	0.000	-	-
• RDTE: BA07: PE 0207142F 5346: JSF Follow-on Development (FoD), BPAC 675346	23.660	48.954	127.302	0.000	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• APAF: BA01: Line Item # ATA000 AP: JSF CTOL Advance Procurement, PE 0207142F, BP10 AP	418.880	460.260	404.500	0.000	404.500	671.263	406.750	424.230	424.230	17,450.241	23,150.407
• APAF: BA01: Line Item # ATA000: JSF CTOL, PE 0207142F, BP10	3,625.841	5,259.812	4,401.894	0.000	4,401.894	4,708.701	4,712.526	4,838.591	5,801.997	139,530.995	190,282.125
• APAF: BA06: Line Item # F03500 BP16: JSF Initial Spares, PE 0207142F, BP16	231.847	229.582	267.792	0.000	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• APAF: BA05: Line Item # F03500 BP11: JSF Modifications, PE 0207142F, BP11	187.646	70.167	175.811	0.000	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• USAF OM: Operations and Maintenance	217.556	302.952	360.107	0.000	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• OPAF: BA01: Line Item # 821800: Joint Strike Fighter, PE 0207142F	4.463	3.858	2.333	0.000	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• MILCON: BA01: PE 0207142F: USAF JSF Military Construction Operations	66.700	132.850	305.700	0.000	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• MILCON: BA01: PE 0207597F: USAF JSF Military Construction Training	0.000	65.400	20.000	0.000	20.000	21.000	34.000	15.900	0.000	-	-
• MILCON: BA01: PE 0502635F: USAF JSF Military Construction Air National Guard	0.000	0.000	15.100	0.000	15.100	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTEN: BA05: PE 0604800N 2261: JSF SDD (CV)	470.545	467.759	504.296	0.000	504.296	43.816	0.000	0.000	0.000	-	-
• RDTEN: BA05: PE 0604800N 3352: F-35C Sustainment/ Capability Enhancements (CV)	16.433	36.977	24.420	0.000	24.420	11.802	0.000	0.000	0.000	-	-
• RDTEN: BA05: PE 0604810N 2936: F-35C Follow-on Development (CV), BPAC 2936	10.302	21.200	63.387	0.000	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• APN: BA01: Line Item # 0147C: JSF Advance Procurement (CV), PE 0204146N	29.400	48.630	80.908	0.000	80.908	258.898	144.003	242.002	262.004	3,189.815	5,643.037
• APN: BA01: Line Item # 0147: JSF (CV), PE 0204146N	848.552	1,033.142	890.650	0.000	890.650	951.052	1,598.247	2,150.860	2,680.120	27,872.824	49,136.792
• APN: BA06: Line Item # 0605 USN: Initial Spares (CV), PE 0204146N	28.768	59.914	26.076	0.000	26.076	76.886	41.847	52.858	303.608	1,706.626	2,815.461
• APN: BA05: Line Item # 0593: Modifications (CV), PE 0204146N	18.371	48.527	26.004	0.000	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing
• OPN: BA03: Line Item # 4268: JSF Aviation Support Equipment ALIS Ship Alts	1.539	1.969	1.811	0.000	1.811	1.866	1.868	1.910	1.947	Continuing	Continuing
• OPN:BA03: ALIS Ship ALTS Installs	3.977	1.924	0.329	0.000	0.329	2.024	1.890	1.933	1.972	Continuing	Continuing
• OPN:BA03 USN: Optical Landing System Investment	0.000	0.000	1.800	0.000	1.800	1.800	1.800	3.300	0.000	Continuing	Continuing
• OPN:BA03:: Spares for Aviation Support Equipment	0.730	2.946	0.881	0.000	0.881	2.297	2.321	1.939	1.977	Continuing	Continuing
• USN OM: Operations and Maintenance	35.468	75.651	138.933	0.000	138.933	96.354	135.712	115.743	216.600	Continuing	Continuing
• USN MILCON: USN JSF Military Construction	60.200	72.460	11.800	0.000	11.800	0.000	0.000	0.000	0.000	-	-
• RDTEN: BA05: PE 0604800M 2262: JSF SDD (STOVL)	476.350	505.949	507.078	0.000	507.078	88.414	9.649	5.842	3.858	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTEN: BA05: PE 0604800M 3350: F-35B Sustainment/ Capability Enhancements (STOVL), BPAC 3350	11.589	31.952	24.348	0.000	24.348	11.427	0.000	0.000	0.000	-	-
• RDTEN: BA05: PE 0604810M 2935: F-35B Follow-on Development (STOVL), BPAC 2935	10.086	20.798	74.227	0.000	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing
• APN: BA01: Line Item # 0152C: JSF Advance Procurement (STOVL), PE 0204146M	143.885	203.060	233.648	0.000	233.648	370.472	227.562	231.003	220.000	2,638.098	4,870.881
• APN: BA01: Line Item # 0152: JSF (STOVL), PE 0204146M	1,178.488	2,147.714	2,037.768	0.000	2,037.768	2,620.324	2,481.778	2,514.127	2,558.802	20,571.510	40,035.833
• APN: BA06: Line Item # 0605 USMC: Initial Spares (STOVL), PE 0204146M	64.285	111.569	123.252	0.000	123.252	26.159	88.434	160.150	140.989	1,466.285	2,508.244
• APN: BA05: Line Item # 0592: Modifications (STOVL), PE 0204146M	157.905	204.464	34.928	0.000	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• USMC OM: Operations and Maintenance	133.550	188.391	174.580	0.000	174.580	162.927	165.068	168.212	167.636	Continuing	Continuing
• USMC MILCON: USMC JSF Military Construction	71.704	21.960	219.100	0.000	219.100	64.660	121.990	119.800	0.000	642.400	1,966.114
• International 1: International SDD	15.000	17.000	22.000	0.000	22.000	27.450	0.000	0.000	0.000	-	-
• International 2: International Production	3,350.860	4,211.698	5,377.274	0.000	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• International 3: International FoD	21.086	79.318	128.965	0.000	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• International 4: International Unique (SDD/PSFD)	81.681	39.852	39.608	0.000	39.608	11.474	22.812	29.409	5.357	-	-

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. Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 676011 / <i>JSF DUAL CAPABLE AIRCRAFT</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Note: The USAF/USN/USMC procurement lines include Aircraft Procurement and Advanced Procurement only. Initial Spares and Repair Parts for all Services are reflected in separate lines. International Partner Funding also includes funds provided under the Italy and Netherlands Bilateral agreements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,056; and International Partner contributions of \$253,921 for a total of \$4,229,946.

D. Acquisition Strategy

The DCA effort will leverage contracting vehicles for the overall Block 4 F-35 Follow-on Development effort. Fee provisions will be used to target and motivate contractor performance.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Lockheed Martin - DCA Integration	SS/CPFF	Lockheed Martin : Ft. Worth, TX	9.682	13.843	Sep 2015	4.967	Mar 2016	25.743	Mar 2017	0.000		25.743	Continuing	Continuing	-
DCA Requirements Decomposition	SS/CPAF	Lockheed Martin : Ft. Worth, TX	0.000	0.948	Jun 2015	0.000		0.000		0.000		0.000	0.000	0.948	-
Subtotal			9.682	14.791		4.967		25.743		0.000		25.743	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prime LM IDIQ 13-D-0005 B61-12 Test Support	SS/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	0.820	May 2015	0.000		0.000		0.000		0.000	0.000	0.820	-
B61-12 Risk Reduction Test Support	PO	Air Force Seek Eagle Office : Eglin AFB, FL	0.000	0.004	May 2015	0.000		0.000		0.000		0.000	0.000	0.004	-
Subtotal			0.000	0.824		0.000		0.000		0.000		0.000	0.000	0.824	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.682	15.615	4.967	25.743	0.000	25.743	-	-	-

Remarks
 F-35 FoD Includes:
 USAF: PE 0207142F BPAC 675346
 USN: FY13 PE 0604800N Project Unit 2261
 USN: FY14 PE 0604800N Project Unit 3353
 USN: FY15 PE 0604810N Project Unit 2936
 USMC: FY13 PE 0604800M Project Unit 2262
 USMC: FY14 PE 0604800M Project Unit 3351
 USMC: FY15 PE 0604810M Project Unit 2935

F-35 DCA Includes:
 USAF PE 0207142F BPAC 676011
 USN N/A
 USMC N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCA Risk Reduction																												
Nuclear Certification																												
Requirements Decomposition Contract (Nuclear Certification Tasks)																												
Pre-Modernization Contract (Nuclear Certification Tasks) and Preliminary Engineering & Design																												
Modernization Contract (Nuclear Certification Tasks) and Design, Build & Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 676011 / <i>JSF DUAL CAPABLE AIRCRAFT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DCA Risk Reduction	1	2015	3	2016
Nuclear Certification	4	2015	4	2021
Requirements Decomposition Contract (Nuclear Certification Tasks)	3	2015	4	2016
Pre-Modernization Contract (Nuclear Certification Tasks) and Preliminary Engineering & Design	2	2016	3	2018
Modernization Contract (Nuclear Certification Tasks) and Design, Build & Test	3	2018	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	67.290	28.820	43.360	52.898	0.000	52.898	44.751	14.801	13.361	13.597	0.000	278.878
674132: <i>AIM-9 Product Improvement</i>	67.290	28.820	43.360	52.898	0.000	52.898	44.751	14.801	13.361	13.597	0.000	278.878
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 442

Note
Funding in FY11 and out is for the Block II program only. The AIM-9X Block I program costs for FY11 and prior are \$233.583M. The AIM-9X Block II program costs for FY14 and prior are \$67.290M.

A. Mission Description and Budget Item Justification
AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X short range Air-to-Air missile modification program provides a launch and leave, air combat munition that uses passive Infra-Red (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range Air-to-Air Missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M (fuze, rocket motor and warhead). The AIM-9X Block II missile is critical to project power and win decisively in accordance with the Fiscal Year 2015 Defense Planning Guidance. The missile is essential to Pacific Command plans to counter threats employing advanced Digital Radio Frequency Memory (DRFM) jamming, cruise missiles, and Unmanned Aerial Vehicles.

The Block II program has completed Independent Operational Testing and found to be Operationally Effective and Suitable. The program obtained a Full Rate Production decision in August 2015, with the first Full Rate Production Lot contract 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, increase capabilities through software enhancements, and conduct testing to ensure platform integration onto threshold US Air Force aircraft.

The program strategy is to first redesign the control actuation system (CAS) battery and incorporate it into the Lot 17 (FY 2017) production missile. Next, the program will complete AIM-9X Block II software improvements (software version 9.4) and release it into Lot 18 (FY 2018) and prior missiles. The software will provide improved infrared counter-countermeasures, improved lock on after launch capability, added partial and degraded cue capability, improve small target acquisition, and provide surface attack capability. Finally, the program will redesign the inertial measurement unit, the dome, and the guidance unit processor and incorporate these hardware changes into the Lot 19 (FY 2019) production missile. This last item will include a software re-host (software version 10.4) to make software compatible with the new processor. The guidance unit processor is the critical component to ensure continued production of the missile system and avoid production line gaps after Lot 18.

AIM-9X Block I concluded in FY2011 and all funding/quantity data in the documents are associated with Block II activities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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BA7- 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	29.739	43.360	52.836	0.000	52.836
Current President's Budget	28.820	43.360	52.898	0.000	52.898
Total Adjustments	-0.919	0.000	0.062	0.000	0.062
• 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	-0.919	0.000			
• Other Adjustments	0.000	0.000	0.062	0.000	0.062

Change Summary Explanation

No Significant Program Changes

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Air Intercept Missile - 9X, Product Development	27.620	42.160	48.958
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 (SEPM), as well as associated governmental and contractor support required to ensure AIM-9X missile integration with threshold aircraft platforms. Also, includes efforts to redesign missile components in order to resolve Block II component obsolescence, implement cost reduction initiatives, and to comply with the Insensitive Munitions (IM) requirements as established by Joint Requirements Oversight Council memo dated 11 February 2009.			
FY 2015 Accomplishments: Continued development of v9.4 Block II software and integration efforts with threshold aircraft platforms including improvements associated with the F-15 to utilize full capability of the Block II missile. Continued Engineering Manufacturing Development (EMD) required to redesign, integrate, test and qualify components due to obsolescence and implement cost reduction initiatives. Continued study on IM alternatives and risk reduction methods. Specific component improvements include the dome, the Inertial Measurement Unit, the processor, the control actuation system and battery, and associated operational flight software updates			
FY 2016 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Continue EMD required to redesign, integrate, test and qualify components due to obsolescence and implement cost reduction initiatives. Continue development of v9.4 Block II software and integration efforts with threshold aircraft platforms including improvements associated with the F-15 to utilize full capability of the Block II missile. Continue study on IM alternatives and risk reduction methods to enhance IM performance. FY 2017 Plans: Continue EMD required to redesign, integrate, test and qualify components due to obsolescence and implement cost reduction initiatives. Continue to develop v9.4 Block II software improvements to utilize full capability of the missile. Continue to develop missile hardware design improvements necessary to enhance IM performance.			
Title: Air Intercept Missile - 9X, Test and Evaluation Description: Test and Evaluation (T&E) and associated governmental support required to demonstrate missile performance and ensure the AIM-9X missile integration with threshold platforms. FY 2015 Accomplishments: Completed Independent Operational Testing and found to be Operationally Effective and Suitable. Continued to finalize Test and Evaluation requirements for SIP III development of v9.4 Block II software and integration efforts with threshold aircraft platforms including improvements associated with the F-15 to utilize full capability of the Block II missile. FY 2016 Plans: Continue DT-D1 (Developmental Test) of v9.4 Block II software including improvements associated with the F-15 to utilize full capability of the Block II missile. FY 2017 Plans: Continue Developmental and Integrated Testing (DT/IT-D1) of Operational Flight Software version 9.4.	1.200	1.200	3.940
Accomplishments/Planned Programs Subtotals	28.820	43.360	52.898

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF: BA02: Line Item # M09HA1: <i>Sidewinder (AIM-9X)</i>	129.121	198.247	127.438	0.000	127.438	114.200	122.340	125.299	118.454	537.349	1,812.506
• MPAF: BA04: Line Item # 000999: <i>Replen Spares, USAF</i>	10.720	10.755	11.015	0.000	11.015	11.199	11.350	11.543	11.748	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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D. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MPAF: BA04: Line Item # 000999: <i>Initial Spares, USAF</i>	1.717	0.604	7.684	0.000	7.684	5.708	4.294	4.324	1.881	9.115	41.367
• RDTE: BA07: PE 0207161N: <i>Tactical AIM Missile</i>	36.361	71.016	56.285	0.000	56.285	36.569	33.277	0.305	0.322	0.000	312.491
• WPN: BA02: Line Item # 2209: <i>Sidewinder</i>	69.399	93.914	71.050	0.000	71.050	80.722	80.314	83.362	90.930	814.907	1,660.031

Remarks
 Congressional language directed the program to report as a missile procurement (3020, BP20), starting in FY2002, and not as a missile modification (3020, BP21).

E. Acquisition Strategy
 The program received USN Initial Operational Capability (IOC) in March 2015 and Full Rate Production (FRP) Approval in August 2015 followed by contract award for FRP-1 in September 2015. The Air Force anticipates receiving Initial Operational Capability in April 2016. The program will modify the production contract in June 2016 to award option year 1 for FRP-2 and add option year 2 for FRP-3. Option year 2 will be awarded in February 2017.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RMS Software/OFP Upgrade	SS/CPFF	RMS : Tucson, AZ	36.250	23.248	Aug 2015	32.372	Mar 2016	37.003	Jan 2017	0.000		37.003	66.619	195.492	246.471
Munitions Improvement Study (RG)	SS/CPFF	RMS : Tucson, AZ	1.174	2.161	Jun 2015	3.148	Mar 2016	3.175	Jan 2017	0.000		3.175	9.781	19.439	19.439
Munitions Improvement Study (USG)	MIPR	NAWC WD : China Lake, CA	1.903	1.803	Mar 2015	0.390	Mar 2016	0.330	Dec 2016	0.000		0.330	0.000	4.426	4.426
Aircraft Integration	SS/CPFF	Boeing : St. Louis, MO	0.000	0.000		6.000	Jun 2016	8.200	Jun 2017	0.000		8.200	3.200	17.400	17.400
RMS P3I Contract	Various	Various : TBD	9.381	0.000		0.000		0.000		0.000		0.000	0.000	9.381	9.381
Subtotal			48.708	27.212		41.910		48.708		0.000		48.708	79.600	246.138	297.117

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E/OT&E for P3I	MIPR	Various : Various	14.967	1.200	Mar 2015	1.200	Mar 2016	1.280	Nov 2016	0.000		1.280	2.097	20.744	20.744
DT&E/OT&E for F-15	MIPR	Various : Various	0.000	0.000		0.000		2.660	Apr 2017	0.000		2.660	3.813	6.473	6.473
Subtotal			14.967	1.200		1.200		3.940		0.000		3.940	5.910	27.217	27.217

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	MIPR	PMA-259 : Patuxent River, MD	3.615	0.408	Mar 2015	0.250	Mar 2016	0.250	Mar 2017	0.000		0.250	1.000	5.523	5.523

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			3.615	0.408		0.250		0.250		0.000		0.250	1.000	5.523	5.523

Remarks
FY16 Decrease in CS support.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	67.290	28.820	43.360	52.898	0.000	52.898	86.510	278.878	329.857

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Production Milestones - Block II: Contract Awards: Lot 15 (FRP 1)				■																								
Production Milestones - Block II: Contract Awards: Lot 16 (FRP 2)							■																					
Production Milestones - Block II: Contract Awards: Lot 17 (FRP 3)											■																	
Production Milestones - Block II: Contract Awards: Lot 18 (FRP 4)														■														
Production Milestones - Block II: Contract Awards: Lot 19 (FRP 5)																												
Production Milestones - Block II: Contract Awards: Lot 20 (FRP 6)																												
Production Milestones - Block II: Contract Awards: Lot 21 (FRP 7)																												
Production Deliveries: Low Rate Initial Production 3 (Lot 13)	■	■	■	■																								
Production Deliveries: Low Rate Initial Production 4 (Lot 14)				■	■	■	■																					
Production Deliveries: Lot 15 (FRP 1)																												
Production Deliveries: Lot 16 (FRP 2)																												
Production Deliveries: Lot 17 (FRP 3)																												
Production Deliveries: Lot 18 (FRP 4)																												
Production Deliveries: Lot 19 (FRP 5)																												
AIM-9X Block II: System Improvement Program Contract Award: System Improvement Program II Engineering Manufacturing Development Contract	■	■	■	■																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v10.x) Rehost: Software v10.4 Release	<div style="background-color: black; width: 100px; height: 15px; margin: 0 auto;"></div>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones - Block II: Contract Awards: Lot 15 (FRP 1)	4	2015	4	2015
Production Milestones - Block II: Contract Awards: Lot 16 (FRP 2)	3	2016	3	2016
Production Milestones - Block II: Contract Awards: Lot 17 (FRP 3)	2	2017	2	2017
Production Milestones - Block II: Contract Awards: Lot 18 (FRP 4)	2	2018	2	2018
Production Milestones - Block II: Contract Awards: Lot 19 (FRP 5)	2	2019	2	2019
Production Milestones - Block II: Contract Awards: Lot 20 (FRP 6)	2	2020	2	2020
Production Milestones - Block II: Contract Awards: Lot 21 (FRP 7)	2	2021	2	2021
Production Deliveries: Low Rate Initial Production 3 (Lot 13)	1	2015	4	2015
Production Deliveries: Low Rate Initial Production 4 (Lot 14)	4	2015	4	2016
Production Deliveries: Lot 15 (FRP 1)	4	2016	4	2017
Production Deliveries: Lot 16 (FRP 2)	4	2017	4	2018
Production Deliveries: Lot 17 (FRP 3)	4	2018	4	2019
Production Deliveries: Lot 18 (FRP 4)	4	2019	4	2020
Production Deliveries: Lot 19 (FRP 5)	4	2020	4	2021
AIM-9X Block II: System Improvement Program Contract Award: System Improvement Program II Engineering Manufacturing Development Contract	1	2015	2	2016
AIM-9X Block II: Hardware & Software (v9.3) Improvements: Operational Test (OT-C1)	1	2015	2	2015
AIM-9X Block II: Hardware & Software (v9.3) Improvements: Operational Test Report	2	2015	3	2015
AIM-9X Block II: Hardware & Software (v9.3) Improvements: Navy Initial Operational Capability	2	2015	2	2015
AIM-9X Block II: Hardware & Software (v9.3) Improvements: Full Rate Production Milestone Decision	4	2015	4	2015
AIM-9X Block II: Hardware & Software (v9.3) Improvements: Air Force Initial Operational Capability	3	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
AIM-9X Block II Tech Refresh: Tech Refresh Development Contracts: System Improvement Program III Prototype Development Contract	1	2015	4	2015
AIM-9X Block II Tech Refresh: Tech Refresh Development Contracts: System Improvement Program III Engineering Manufacturing Development Contract	4	2015	4	2020
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 17 Cut In: Lot 17 Hardware (CAS Battery & Block 2+)	1	2015	1	2017
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 17 Cut In: Lot 17 Hardware Cut-In Preliminary Design Review	4	2015	4	2015
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 17 Cut In: Lot 17 Hardware Cut-In Critical Design Review	2	2016	2	2016
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 17 Cut In: Lot 17 Hardware Cut-In Engineering Change Proposal	1	2017	1	2017
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 19 Cut In: Hardware (CAS, IMU, Dome & Processor)	1	2015	1	2019
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 19 Cut In: Lot 19 Hardware Cut-In Preliminary Design Review	3	2016	3	2016
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 19 Cut In: Lot 19 Hardware Cut-In Critical Design Review	2	2017	2	2017
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 19 Cut In: Lot 19 Hardware Cut-In Engineering Change Proposal	1	2019	1	2019
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v9.4) Improvements: Development Testing (DT-D1)	1	2015	4	2017
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v9.4) Improvements: Development Test / Integrated Testing (DT-D1 / IT-D1)	4	2017	3	2018
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v9.4) Improvements: Operational Testing (OT-D1)	3	2018	3	2019
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v9.4) Improvements: Software v9.4 Release	2	2020	2	2020
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v10.x) Rehost: Software v10.4 Development Testing	3	2018	3	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v10.x) Rehost: Software v10.4 Release	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	379.889	79.767	46.160	62.470	0.000	62.470	61.145	65.228	66.430	67.613	65.000	893.702
673777: AMRAAM	379.889	79.767	46.160	62.470	0.000	62.470	61.145	65.228	66.430	67.613	65.000	893.702
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 185

A. Mission Description and Budget Item Justification

The Air Force and Navy continue to develop improvements to the Advanced Medium Range Air-to-Air Missile (AMRAAM) to counter existing and emerging air vehicle threats operating at high or low altitude, and having advanced Electronic Attack (EA) capabilities. The development program also enables AMRAAM compatibility with advanced fighters, 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 which may use AMRAAM attributes. The latest 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 which improves kinematic performance and weapon effectiveness. Operational Testing (OT) was completed in Jul 14 and the Air Force and Navy authorized operational fielding in Jan 15. The Navy declared Initial Operational Capability (IOC) in Jan 15 and the Air Force declared IOC in Jul 15. The program continues to address aircraft integration efforts to maintain compatibility/ performance of the missile with changes occurring on threshold AMRAAM platforms per Capability Production Document (CPD). To keep the existing inventory as effective as possible, the Air Force and Navy also develop, test, and field improvements that are implemented via software upgrades reprogrammed into fielded AMRAAMs, and/or hardware upgrades inserted into production units. AMRAAM is a joint Air Force/Navy, Acquisition Category IC (ACAT IC) program with Air Force as lead service.

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	82.195	46.160	55.444	0.000	55.444
Current President's Budget	79.767	46.160	62.470	0.000	62.470
Total Adjustments	-2.428	0.000	7.026	0.000	7.026
• 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	-2.428	0.000			
• Other Adjustments	0.000	0.000	7.026	0.000	7.026

Change Summary Explanation

FY17 - Funding added for AIM-120 Advanced Electronic Protection Improvement Program (EPIP)

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: System Improvement Program (SIP) / Electronic Protection Improvement Program (EPIP)	39.970	26.173	46.369	0.000	46.369
Description: Provide system improvements/electronic protection improvements					
FY 2015 Accomplishments:					
1. EPIP Basic: Fielded EPIP Basic capability improvements in AIM-120C-7 missiles (Tape 9 Rev 4). Completed Operational Test (OT) activities required to field capability in AIM-120C-3 through C-6 missiles (Tape 7 Rev 29), awaiting final fielding recommendations from AFOTEC.					
2. EPIP Advanced: Continued Advanced EPIP development effort to address advanced threats in AIM-120C-7 missiles. Completed Tape 1 development captive flight testing and Tape 1 Technical Review Board (TRB) milestone required to begin live fire activities. Completed required activities and conducted Tape 2 Critical Design Review (CDR) in Nov 15. Continued Tape 2 captive flight tests.					
3. AIM-120D SIP: Continued SIP-1 design implementation and successfully executed two Integrated Test shots to demonstrate AIM-120D software improvements prior to Functional Configuration Audit (FCA) and dedicated Operational Test (OT). Completed the SIP-2 risk reduction phase with a successful Preliminary Design Review (PDR) and awarded the SIP-2 Engineering and Manufacturing Development (EMD) contract, transitioning					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>to integrated software design implementation. Solicited and awarded the SIP-3 Technology Maturation and Risk Reduction (TMRR) effort as well as the Solution Analysis/Candidate Selection Process which will analyze software implementation candidates to keep pace with evolving threats.</p> <p>FY 2016 Plans:</p> <ol style="list-style-type: none"> 1. EPIP Basic: Field EPIP Basic capability improvements in AIM-120C-3 through C-6 missiles (Tape 7 Rev 29). 2. EPIP Advanced: Complete Tape 1 development effort to address advanced threats in AIM-120C-7 missiles. Begin Tape 1 dedicated OT program. Conducted Tape 2 CDR and continue development captive flight testing. 3. AIM-120D SIP: Complete SIP-1 OT and deploy the first AIM-120D improvement software increment to the Air Force and Navy AMRAAM inventory. Continue SIP-2 EMD and conduct a Critical Design Review (CDR). Continue SIP-3 TMRR, as well as the AIM-120D Candidate Selection and Mission Requirements Analysis processes. Solicit the SIP-3 EMD contract proposal. <p>FY 2017 Base Plans:</p> <ol style="list-style-type: none"> 1. EPIP Advanced: Complete Tape 1 dedicated OT program and field Tape 1 EPIP Advanced capability improvements in AIM-120C-7 missiles (Tape 9 Rev 5). Complete Tape 2 live fire program and development effort. Begin Tape 2 dedicated OT program. 2. AIM-120D SIP: Continue SIP-2 EMD, complete Integrated Test missions to show improved AMRAAM capabilities against electronic attack techniques, and conduct FCA prior to dedicated OT. Continue SIP-3 TMRR to PDR and award the follow-on SIP-3 EMD contract. Continue the AIM-120D Candidate Selection and Mission Requirements Analysis processes. <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Test and Evaluation</p> <p>Description: Test and evaluation; Provides support to DT/OT</p> <p>FY 2015 Accomplishments: Supplied necessary test equipment and field team support for completion of AIM-120D SIP 1 OT and AIM-120C-3 through 6 EPIP Basic OT. Accomplished SIP-1 OT Readiness Review (OTRR), certified the missile ready for dedicated OT, and conducted captive carry and free flight on F/A-18E/F and F-15C/D. Continued</p>	11.498	11.049	12.001	0.000	12.001
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>infrastructure investments to support AIM-120D OT, SIP, and EPIP activities. Continued support and Test Resources for Advanced EPIP Tape 1 DT captive flight test and IT live fire shots; Advanced EPIP Tape 2 development and DT captive flight test programs; and SIP 1 and 2 captive, DT, and IT shots.</p> <p>FY 2016 Plans: Continue infrastructure investments to support AIM-120D OT, SIP, and EPIP activities. Develop new equipment necessary to meet SIP 2 and future requirements. Provide support personnel and test resources to complete Advanced EPIP Tape 1 final IT live-fire shots and dedicated OT live-fire shots. Continue to provide support personnel and resources to complete Advanced EPIP Tape 2 development efforts and captive flight test, AIM-120D SIP 1 OT, and begin SIP 2 DT/captive flight testing during EMD.</p> <p>FY 2017 Base Plans: Continue infrastructure investments to support AIM-120D OT, SIP, and EPIP activities. Develop new equipment necessary to meet SIP 3 and future requirements. Provide support personnel and test resources to complete Advanced EPIP Tape 1 OT reporting and field software. Provide support personnel and test resources to complete Advanced EPIP Tape 2 IT live-fire and dedicated OT live-fire shots. Continue to provide support personnel and test resources to complete AIM-120D SIP 2 DT/captive program and prepare for a SIP 2 OTRR at the end of FY17.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Aircraft Integration</p> <p>Description: Aircraft Integration - Integrate AIM-120D on multiple aircraft platforms</p> <p>FY 2015 Accomplishments: Continued integration and testing of AIM-120D on multiple threshold aircraft platforms.</p> <p>FY 2016 Plans: Continue integration and testing of AIM-120D on multiple threshold aircraft platforms.</p> <p>FY 2017 Base Plans: Continue integration and testing of AIM-120D on multiple threshold aircraft platforms.</p> <p>FY 2017 OCO Plans:</p>	28.299	8.938	4.100	0.000	4.100
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	79.767	46.160	62.470	0.000	62.470

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF: BA02: Line Item # MAMRA0: <i>Missile Procurement, Air Force</i>	329.600	380.028	350.144	0.000	350.144	445.548	470.016	472.962	468.452	1,709.435	13,008.830
• MPAF: BA04: Line Item # 00099K: <i>Initial Spares/Repair Parts</i>	2.062	1.996	2.072	0.000	2.072	2.063	2.041	2.076	2.113	6.596	101.719
• WPN: BA02: Line Item # 2206: <i>Weapons Procurement, Navy</i>	2.165	204.189	205.790	0.000	205.790	263.064	274.694	270.482	275.703	953.767	4,582.229
• RDTE: BA07: Line Item # 0981: <i>RDTE, Navy</i>	9.820	32.172	40.350	0.000	40.350	46.349	32.347	32.729	33.394	106.089	455.844

Remarks

E. Acquisition Strategy
 The EPIP program is underway to keep AIM-120C missiles capable against the growing electronic attack threat environment. EPIP Basic development completed in Jun 14. Capability improvement continues with the EPIP Advanced effort. This effort was awarded in Jun 12 as a CPFF with performance awards. This development effort is planned for completion in Apr 17.

Post OT System Improvements Program (SIP) is underway as part of the AIM-120D missile upgrade program. SIP Increment 1 (SIP-1) awarded in 2009 as a CPFF effort aims to improve baseline AIM-120D capabilities. SIP-2 EMD, which incorporates basic EPIP in the AIM-120D, was awarded in Jul 15. This CPIF effort was awarded for 19 months. SIP-3 TMRR was awarded in Sep 15 as a 19-month CPFF effort with SIP-3 EMD award planned for FY 17. SIP-3 primarily incorporates AEPIP capabilities in the AIM-120D.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Improvement Program (SIP)/Electronic Protection (EP)	SS/CPFF	Raytheon : Tucson, AZ	156.615	38.698	Mar 2015	24.828	Mar 2016	44.944	Mar 2017	0.000		44.944	201.455	466.540	467.068
F-22 Aircraft Integration	MIPR	Wright-Patterson AFB : Dayton, OH	85.464	23.800	Jan 2015	5.820	Jan 2016	0.000		0.000		0.000	0.000	115.084	115.084
RMS Aircraft Integration	SS/CPFF	Raytheon : Tucson, AZ	2.163	4.499	Jan 2015	3.118	Jan 2016	4.100	Jan 2017	0.000		4.100	35.504	49.384	49.384
Subtotal			244.242	66.997		33.766		49.044		0.000		49.044	236.959	631.008	631.536

Remarks
SIP/EP Cost Plus Fixed Fee (CPFF) software development design implementation contracts include incentive events which must be achieved in order to earn full fixed fee amount.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	Various	Various : Various	59.410	3.586	Jan 2015	4.746	Jan 2016	4.479	Jan 2017	0.000		4.479	33.679	105.900	105.900
RMS Test	SS/CPFF	Raytheon : Various, AZ	64.868	7.912	Jan 2015	6.303	Jan 2016	7.522	Jan 2017	0.000		7.522	44.414	131.019	131.019
Subtotal			124.278	11.498		11.049		12.001		0.000		12.001	78.093	236.919	236.919

Remarks
Various = T&E activities take place at numerous locations across the US. Too many activities and locations to list.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Lot 28 (FY14 funds) contract award	■																											
Lot 29 (FY15 funds) contract award		■																										
AIM-120D SIP-1 OT					■	■	■																					
AIM-120D SIP-1 IOC								■																				
AIM-120D SIP-2 CDR							■																					
AIM-120D SIP-2 EMD				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
AIM-120D SIP-2 IOC																		■										
AIM-120D SIP-3 TMRR				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
AIM-120D SIP-3 CDR																												
AIM-120D SIP-3 IOC																											■	
AIM-120D SIP-4 CDR																											■	
AIM-120D F-22 IOC																											■	
EPIP Adv Tape 1 FCA								■																				
EPIP Adv Tape 2 CDR							■																					
EPIP Adv Tape 2 FCA																											■	
Form, Fit, Function (F3R) FCA																											■	
F3R IOC																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Lot 28 (FY14 funds) contract award	1	2015	1	2015
Lot 29 (FY15 funds) contract award	2	2015	2	2015
AIM-120D SIP-1 OT	1	2016	2	2016
AIM-120D SIP-1 IOC	4	2016	4	2016
AIM-120D SIP-2 CDR	3	2016	3	2016
AIM-120D SIP-2 EMD	4	2015	4	2018
AIM-120D SIP-2 IOC	2	2019	2	2019
AIM-120D SIP-3 TMRR	4	2015	3	2017
AIM-120D SIP-3 CDR	3	2018	3	2018
AIM-120D SIP-3 IOC	2	2021	2	2021
AIM-120D SIP-4 CDR	3	2020	3	2020
AIM-120D F-22 IOC	2	2018	2	2018
EPIP Adv Tape 1 FCA	2	2016	2	2016
EPIP Adv Tape 2 CDR	1	2016	1	2016
EPIP Adv Tape 2 FCA	3	2017	3	2017
Form, Fit, Function (F3R) FCA	1	2020	1	2020
F3R IOC	2	2021	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	37.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.726
676038: <i>EPAWSS</i>	0.000	37.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.726
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 485

Note

In FY 2015, PE 0207134F, F-15E Squadrons, Project 6760131, Initial Operational Test and Evaluation, F-15 EPAWSS development efforts were transferred to PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS in order to provide budget transparency.

In FY 2016, PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS, Budget Activity 07, Operational Systems Development was transferred to PE 0207171F, F-15 EPAWSS, Project 657108, EPAWSS Development, Budget Activity 05, System Development and Demonstration to align the program in the correct budget activity.

Prior Years funding \$14.677M was executed in PE 0207134F.

A. Mission Description and Budget Item Justification

The F-15 is the most versatile fighter in the world today. The F-15C 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. A mainstay in operations both domestic and abroad, upgrades to the F-15 (avionics, armament, airframe and engines) are critical to maintaining combat viability (lethality, survivability and supportability). 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). The proliferation of fourth generation enemy aircraft, sophisticated "double-digit" anti-aircraft missile systems and other enemy systems pose a significant threat to F-15 survivability. The F-15 Eagle Passive Active Warning and Survivability System (EPAWSS) will replace the F-15's functionally obsolete self-defense Tactical Electronic Warfare System (TEWS) to enhance weapon system situational awareness and survivability against enemy threats. F-15 EPAWSS will also improve reliability and sustainability. F-15 EPAWSS is linked to an aircraft operational flight program update schedule that works to integrate new capabilities with the airframe. 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.

The F-15 EPAWSS upgrade will significantly improve the F-15's capability to autonomously and automatically detect, identify and locate radio frequency (RF) threats as well as provide the ability to deny, degrade, deceive, disrupt and defeat RF and electro-optical / infrared (EO / IR) threat systems in contested and unplanned operations within highly contested environments through 2040. The F-15 EPAWSS will provide indication, type and position of ground-based RF threats as well as the indication, type and bearing of airborne threats with the situational awareness needed to avoid, engage or negate the threat. The F-15 EPAWSS will prevent RF and IR threat systems from detecting or acquiring accurate targeting information prior to threat engagement to complicate and / or negate an enemy threat targeting solution--and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>
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effectively counter enemy missiles / weapons if adversary threat systems engage and employ weapons against friendly forces--through components such as chaff, flares, decoys / angle countermeasures and jamming.

BA7- 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	38.944	0.000	0.000	0.000	0.000
Current President's Budget	37.726	0.000	0.000	0.000	0.000
Total Adjustments	-1.218	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	-1.218	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

No Significant Program Changes

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Eagle Passive/Active Warning Survivability System (EPAWSS)	37.726	0.000	0.000	0.000	0.000
Description: Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition related studies.					
FY 2015 Accomplishments: Awarded and executed TMRR design contract. Developed and released Request for Proposal for EMD contract. Continued acquisition planning for EMD and Milestone B. Continued acquisition and technical related studies.					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans:					
N/A					
Accomplishments/Planned Programs Subtotals	37.726	0.000	0.000	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # F15EWS: <i>Aircraft Modification</i>	0.000	0.000	0.000	0.000	0.000	0.000	203.406	257.340	396.968	4,045.100	4,902.810
• APAF: BA06: Line Item # 000999: <i>Aircraft Spare and Repair Parts</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.960	8.130	125.100	141.190
• RDT&E: BA05: PE0207171F: <i>F-15 EPAWSS BA05</i>	0.000	186.481	286.300	0.000	286.300	202.500	155.200	63.610	2.090	0.146	896.327

Remarks

E. Acquisition Strategy
 Acquisition Strategy is under development.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 676038 / EPAWSS
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-15 EPAWSS TMRR	Various	Various : Various	0.000	29.378	Sep 2015	0.000		0.000		0.000		0.000	0.000	29.378	31.131
F-15 EPAWSS	Various	Various : Various	0.000	7.256	Aug 2015	0.000		0.000		0.000		0.000	0.000	7.256	7.256
Subtotal			0.000	36.634		0.000		0.000		0.000		0.000	0.000	36.634	38.387

Remarks
 The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, etc. that are required to meet F-15 EPAWSS program objectives. The execution vehicles between these DoD entities vary by effort.

FY15PB - PE 27171F, project 676038 includes EPAWSS only.

FY16PB - EPAWSS efforts were transferred from Budget Activity 7, Operational Systems Development, PE 0207171F, Project Number 676038 to Budget Activity 5, Engineering and Manufacturing Development, PE 0207171F, Project Number 657108 per OSD direction.

FY17PB - EPAWSS efforts were transferred from Budget Activity 7, Operational Systems Development, PE 0207171F, Project Number 676038 to Budget Activity 5, Engineering and Manufacturing Development, PE 0207171F, Project Number 657108 per OSD direction.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 676038 / EPAWSS
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support Costs	Various	Various : Various	0.000	1.092	Sep 2015	0.000		0.000		0.000		0.000	0.000	1.092	-
Subtotal			0.000	1.092		0.000		0.000		0.000		0.000	0.000	1.092	-

Remarks
 The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, etc. that are required to meet F-15 EPAWSS programming objectives. The execution vehicles between these DoD entities vary by effort.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	37.726	0.000	0.000	0.000	0.000	0.000	37.726	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 676038 / EPAWSS
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

EPAWSS MS A																												
EPAWSS TMRR Contract Award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 676038 / EPAWSS
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EPAWSS MS A	4	2015	4	2015
EPAWSS TMRR Contract Award	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207224F / <i>Combat Rescue and Recovery</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	5.095	0.412	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.507
676016: <i>Avionics Development and Integration</i>	-	5.095	0.412	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.507
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Rotary Wing Avionics Development and Integration effort is a program to develop a fully integrated avionics upgrade that includes predictive terrain awareness. This program focuses on developing and integrating technologies that will increase the situational awareness of helicopter crews in a degraded visibility environment. A severable portion of this program is Brown Out Symbology Software & Landing Guidance (BOSS-LG), which provides precision approach cues to command navigation to a landing point in adverse weather and/or reduced visibility conditions. This total effort was initiated by the Defense Safety Oversight Council.

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 and subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	5.095	0.412	0.000	0.000	0.000
Current President's Budget	5.095	0.412	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

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

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>
Title: Avionics Development and Integration	5.095	0.412	-
Description: Program focuses on developing and integrating technologies that will increase the situational awareness of helicopter crews in a degraded visibility environment.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207224F / <i>Combat Rescue and Recovery</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i> Provided program management, engineering, software support to build and qualify integrated Forward Looking InfraRed/Laser Radar Turrets for HH-60G.</p> <p><i>FY 2016 Plans:</i> Provides program management to advance Laser Radar development and landing guidance symbology integration.</p> <p>N/A</p>			
Accomplishments/Planned Programs Subtotals	5.095	0.412	-

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

N/A

Remarks

E. Acquisition Strategy

The Air Force is in the process of integrating the Three Dimensional Landing Zone (3D-LZ) technology into an airworthy payload. This payload will be integrated with existing forward looking infrared turrets to minimize additional equipment and weight on the aircraft. Once the payload is tested, the Air Force will finalize its strategy for fleet implementation.

F. Performance Metrics

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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0207224F / Combat Rescue and Recovery				676016 / Avionics Development and Integration								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3DLZ System Engineering	C/CPFF	Raytheon Space and Airborne Systems : El Segundo, CA	-	4.100	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-	
Subtotal			-	4.100		0.000		0.000		0.000		0.000	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3DLZ Flight Test	MIPR	Aero Flight Dynamics Directorate : Moffett Field, CA	-	0.885	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-	
Subtotal			-	0.885		0.000		0.000		0.000		0.000	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3DLZ Program Management	MIPR	AFRL : Eglin AFB, FL	-	0.110	Jan 2015	0.412	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-	
Subtotal			-	0.110		0.412		0.000		0.000		0.000	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207224F / <i>Combat Rescue and Recovery</i>			Project (Number/Name) 676016 / <i>Avionics Development and Integration</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	5.095	0.412	0.000	0.000	0.000	-	-	-	

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207224F / <i>Combat Rescue and Recovery</i>	Project (Number/Name) 676016 / <i>Avionics Development and Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Military Utility Assessment	1	2015	1	2015
Integrated Payload Ladar Development and Flight Test	1	2015	1	2016
Integrated FLIR/Ladar Payload Assembly	1	2016	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F I <i>Combat Rescue - Pararescue</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.856	0.657	0.362	0.000	0.362	0.691	0.652	0.663	0.675	Continuing	Continuing
675352: <i>Guardian Angel RDT&E</i>	-	0.856	0.657	0.362	0.000	0.362	0.691	0.652	0.663	0.675	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 Battlefield Airmen Modernization program. GA is a Family of Systems (FoS) based in both human and equipment capabilities formulated to execute Air Force Personnel Recovery (PR) across the full spectrum of military operations. Established by the Air Force Chief of Staff in 2003 and officially captured in AFPD 10-9, the GA FoS is employed by three distinct Air Force specialties: Pararescuemen (PJ), Combat Rescue Officer (CRO), and Survival, Evasion, Resistance, Escape (SERE). The GA FoS is comprised of nine critical mission areas: Precision Aerial Insertion, Information Management, Force Application, Visual Augmentation, Maritime Recovery, Ground Mobility, Technical Rescue, Medical, and SERE. GA focus is on maintaining legacy weapon system capability while modernizing/improving subsystems for better mission effectiveness.

Funds will be used to obtain significant improvements in operational capability and develop items within the GA FoS to include but not limited to: SONAR, Maritime Recovery, Technical Recovery, Oxygen Systems, Medical Monitoring, and 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 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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.883	0.657	0.708	0.000	0.708
Current President's Budget	0.856	0.657	0.362	0.000	0.362
Total Adjustments	-0.027	0.000	-0.346	0.000	-0.346
• 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	-0.027	0.000	-0.346	0.000	-0.346

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Guardian Angel Family of Systems (FoS)	0.856	0.657	0.362
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. Due to rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current slated and emerging requirements.			
FY 2015 Accomplishments: Continued execution and development of acquisition activities. Specifically the program initiated the development for an incremental software update for the BAO kit (G) information management system. Also supported the development of a remote patient monitoring effort that resulted in test assets to be evaluated prior to a fielding recommendation.			
FY 2016 Plans: Will complete test, study, strategic planning, and development activities for increased capability and address Engineering Change Proposals as needed. Program will support development of flexible body armor. Program will support but not be limited to Joint Precision Airdrop System (JPADS) Ultra-Light weight integration and test of the RA-1 parachute system. Continue software upgrades for BAO kit (G) information management system. 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.			
FY 2017 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Will continue to complete studies, strategic planning, and development activities for increased capability. Also will continue supporting development of JPADS. Continue software upgrades for BAO kit (G) information management system. 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.			
Accomplishments/Planned Programs Subtotals	0.856	0.657	0.362

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA04: Line Item # 842990: <i>Items Less than \$5M (Safety)</i>	24.174	11.924	28.317	0.000	28.317	25.635	21.856	22.242	22.642	Continuing	Continuing
• OPAF: BA02: Line Item# 823230: <i>Security and Tactical Vehicles</i>	3.719	3.885	3.920	0.000	3.920	3.989	4.060	4.131	4.205	Continuing	Continuing
• OPAF: BA04: Line Item# 842140: <i>Night Vision Goggles</i>	2.409	4.381	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

E. Acquisition Strategy
 The Guardian Angel (GA) program will address warfighter immediate needs to standardize, modernize, and develop additional capability for the weapon system used by Combat Rescue Officers and Pararescuemen (Phase 1). The program will also address future requirements for the weapon system that will encompass the needs of all three GA career fields (Phase 2).

Phase 2 of 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 Operations by HQ Air Combat Command. The program has been divided into two phases to more rapidly meet the user's immediate need to standardize and modernize the weapon system.

F. Performance Metrics
 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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0207227F / Combat Rescue - Pararescue				675352 / Guardian Angel RDT&E								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
GA Family Of Systems	Various	Various : Various	-	0.856	Sep 2015	0.657	Mar 2016	0.362	Mar 2017	0.000		0.362	Continuing	Continuing	TBD	
Subtotal			-	0.856		0.657		0.362		0.000		0.362	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
BAO Kit (G) Software	C/Various	413 TS : Eglin AFB, FL	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD	
Test Agency Support	RO	46TS : Eglin AFB, FL	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD	
Subtotal			-	0.000		0.000		0.000		0.000		0.000	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	0.856		0.657		0.362		0.000		0.362	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>	Project (Number/Name) 675352 / <i>Guardian Angel RDT&E</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

BAO Kit (G) Software	[REDACTED]																											
Test Support	[REDACTED]																											
GA Equipment Upgrades	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>	Project (Number/Name) 675352 / <i>Guardian Angel RDT&E</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BAO Kit (G) Software	1	2015	4	2020
Test Support	1	2016	2	2020
GA Equipment Upgrades	2	2016	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	6.974	31.428	28.413	0.000	28.413	22.821	21.178	21.516	21.844	Continuing	Continuing
670001: <i>Air Force TENCAP</i>	-	6.974	31.428	28.413	0.000	28.413	22.821	21.178	21.516	21.844	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, Project 670001, Air Force Tactical Exploitation of National Capabilities (TENCAP), Talon HATE effort will be completed.

A. Mission Description and Budget Item Justification

Air Force TENCAP increases warfighter effectiveness through the exploitation of national capabilities and promotes cross-domain integration of these capabilities into military operations/training, 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 and/or national intelligence agencies for operational use, sustainment and appropriate acquisition Programs of Record for further development. AF TENCAP projects can influence the design and operation of current and future air, space, cyber, national and global ISR and NTISR while providing situational awareness to warfighters, national intelligence agency organizations and units.

Program consists of multiple small projects supporting one of the Air Force Core Function Mission Areas (CFMAs). Projects are executed to provide continued support to the National Warfighter, operational and Tactical Warfighter, and to Special Operations Forces.

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.812	31.428	24.197	0.000	24.197
Current President's Budget	6.974	31.428	28.413	0.000	28.413
Total Adjustments	1.162	0.000	4.216	0.000	4.216
• 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	1.162	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	4.216	0.000	4.216

Change Summary Explanation

- FY15: \$1.162 reprogrammed into AF TENCAP PE to cover Talon HATE cost increases

- FY17: \$4.5M add for "Classified Effort" and will be executed in "Exploitation Applications".

- FY17: \$284K "Inflation rate reduction for Non-pay/non-fuel".

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Exploitation Applications</p> <p>Description: Exploiting existing air, space, cyber, national and global ISR, and Non-Traditional ISR (NTISR) for operational and tactical applications by rapidly prototyping, demonstrating capability, and influencing the design and operation of future space, cyber, national and global ISR, and NTISR systems for tactical users.</p> <p>FY 2015 Accomplishments: - Continued rapid prototype development of the AF TENCAP Portfolio comprised of 30+ efforts (Talons) across the Air Force's twelve core function mission areas</p> <p>FY 2016 Plans: - Continuing to rapidly prototype projects and focus warfighter support and resource allocation based on AF TENCAP mission/ investment areas as a reflection of Air Force Core Function Mission Areas (CFMAs)</p>	3.602	21.428	28.413

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continuing to execute projects which provide continued support to the National Warfighter, Operational and Tactical Warfighter, and Special Operations Forces FY 2017 Plans: - Will continue to rapidly prototype projects and focus warfighter support and resource allocation based on AF TENCAP mission/investment areas as a reflection of Air Force Core Function Mission Areas (CFMAs) - Will continue to execute projects which provide continued support to the National Warfighter, Operational and Tactical Warfighter, and Special Operations Forces - Will initiate "Classified Effort"			
Title: Talon HATE Description: Talon HATE is a technology prototype to evaluate the military utility of a next-generation capability for the F-15C providing multi-domain information to tactical users. Talon HATE will provide a multi-domain environment for enhanced capability to the warfighter. FY 2015 Accomplishments: - Continued development and testing of four multi-domain fused information pods on F-15s FY 2016 Plans: - Completing development, testing, and fielding of four multi-domain fused information pods on F-15s FY 2017 Plans: N/A	3.372	10.000	0.000
Accomplishments/Planned Programs Subtotals	6.974	31.428	28.413

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A Remarks	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	
E. Acquisition Strategy Projects are selected based upon needs identified by the program's customers - DOD Departments, Combatant Commands, Components, MAJCOMs, and/or National Intelligence Agencies. Many projects are executed via existing contracts maintained by other agencies; others are executed via Air Force 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 Air Force TENCAP. AF TENCAP projects typically use an incremental acquisition strategy. AF TENCAP utilizes a disciplined systems engineering approach that allows program team 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.		
F. Performance Metrics 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Exploitation Applications	Various	Various : Various	-	3.252	Dec 2014	20.178	Dec 2015	26.963	Dec 2016	0.000		26.963	Continuing	Continuing	TBD
Talon HATE	C/CPFF	Boeing/Various : Huntington Beach/ Various, CA	-	3.372	Mar 2015	9.500	Jan 2016	0.000	Feb 2016	0.000		0.000	Continuing	Continuing	-
Subtotal			-	6.624		29.678		26.963		0.000		26.963	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Oversight (PMA)	Various	Various : Various	-	0.350	Dec 2014	1.250	Dec 2015	1.450	Dec 2016	0.000		1.450	Continuing	Continuing	TBD
Program Support - Talon Hate	Various	Various : Various	-	0.000		0.500	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.350		1.750		1.450		0.000		1.450	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	6.974	31.428	28.413	0.000	28.413	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>									
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FY 2015 Exploitation Applications Developed	██████████																											
FY 2015 Exploitation Applications Tested, Evaluated, and Released					██████████																							
FY 2016 Exploitation Applications Developed					██████████																							
FY 2016 Exploitation Applications Tested, Evaluated, and Released									██████████																			
FY 2017 Exploitation Applications Developed									██████████																			
FY 2017 Exploitation Applications Tested, Evaluated, and Released													██████████															
FY 2018 Exploitation Applications Developed													██████████															
FY 2018 Exploitation Applications Tested, Evaluated, and Released																	██████████											
FY 2019 Exploitation Applications Developed																	██████████											
FY 2019 Exploitation Applications Tested, Evaluated, and Released																					██████████							
FY 2020 Exploitation Applications Developed																					██████████							
FY 2020 Exploitation Applications Tested, Evaluated, and Released																									██████████			
FY 2021 Exploitation Applications Developed																									██████████			
Talon HATE Developed	██████████																											
Talon HATE Integrated/Tested					██████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FY 2015 Exploitation Applications Developed	1	2015	2	2016
FY 2015 Exploitation Applications Tested, Evaluated, and Released	2	2016	3	2016
FY 2016 Exploitation Applications Developed	1	2016	2	2017
FY 2016 Exploitation Applications Tested, Evaluated, and Released	2	2017	3	2017
FY 2017 Exploitation Applications Developed	1	2017	2	2018
FY 2017 Exploitation Applications Tested, Evaluated, and Released	2	2018	3	2018
FY 2018 Exploitation Applications Developed	1	2018	2	2019
FY 2018 Exploitation Applications Tested, Evaluated, and Released	2	2019	3	2019
FY 2019 Exploitation Applications Developed	1	2019	2	2020
FY 2019 Exploitation Applications Tested, Evaluated, and Released	2	2020	3	2020
FY 2020 Exploitation Applications Developed	1	2020	2	2021
FY 2020 Exploitation Applications Tested, Evaluated, and Released	2	2021	3	2021
FY 2021 Exploitation Applications Developed	1	2021	4	2021
Talon HATE Developed	1	2015	1	2016
Talon HATE Integrated/Tested	3	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.835	1.105	0.649	0.000	0.649	1.124	1.146	1.167	1.189	Continuing	Continuing
675347: <i>Advanced Targeting Pod</i>	-	0.835	1.105	0.649	0.000	0.649	1.124	1.146	1.167	1.189	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Targeting Pods (ATPs) provide long-range target acquisition and expanded weapon delivery envelopes for greater aircraft survivability. ATPs feature an infrared (IR) sensor, charged coupled device television (CCD-TV), laser designator, eye-safe laser, laser spot tracker, infrared marker, and real-time video data link for connectivity with ground forces. As non-developmental items, the majority of improvements to ATPs are the result of investments made by industry Internal Research and Development (IRAD). In addition to operational flight program (OFP) development, this funding provides for the development and integration of capabilities which are either above the capabilities of the industrial base or that require accelerated development timelines in order to meet operational requirements. It also includes program management support, technical analysis, studies and assessments necessary to support the development and integration of future capabilities. Data-linking is one such area where there is an identified gap between industrial capabilities and operational requirements. Additional development efforts will be structured to support the documented ATP requirements as well as urgent operational needs (UONs) as they become known.

The FY 2017 funding request was reduced by \$0.459 million to account for the availability of prior year execution balances.

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

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.081	1.105	1.114	0.000	1.114
Current President's Budget	0.835	1.105	0.649	0.000	0.649
Total Adjustments	-0.246	0.000	-0.465	0.000	-0.465
• 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	-0.209	0.000			
• SBIR/STTR Transfer	-0.037	0.000			
• Other Adjustments	0.000	0.000	-0.465	0.000	-0.465

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>
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Change Summary Explanation

FY15: -\$209K for higher Air Force priorities

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Advanced Targeting Pod - Sensor Enhancement (ATP-SE) Requirements Description: ATP-SE technology improvements, requirements definition (studies, analysis and assessments). FY 2015 Accomplishments: Accomplished ATP-SE technology improvements, requirements definition, studies, analysis and assessments. FY 2016 Plans: Accomplish further ATP-SE technology improvements, requirements definition, studies, analysis and assessments. FY 2017 Base Plans: Accomplish further ATP-SE technology improvements, requirements definition, studies, analysis and assessments. FY 2017 OCO Plans: N/A	0.835	1.105	0.649	0.000	0.649
Accomplishments/Planned Programs Subtotals	0.835	1.105	0.649	0.000	0.649

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA07: LINE ITEM# OTHACF: PE 0207249F, Precision Attack Systems	21.036	16.543	17.653	0.000	17.653	17.897	18.100	18.425	0.000	Continuing	Continuing

Remarks

E. Acquisition Strategy

Funds will primarily be executed for studies, analysis and definition for the purpose of identifying improved capability and maintenance mods requirements. Contracting strategy is dependent on market research results. Prior efforts have been accomplished by the prime contractors as well as industry partners.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>	

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / Precision Attack Systems Procurement	Project (Number/Name) 675347 / Advanced Targeting Pod
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technology Improvement, Tech Analysis, Studies & Assessments	C/FFP	Multiple : Various	-	0.835	Feb 2015	1.105	Feb 2016	0.649	Feb 2017	0.000		0.649	Continuing	Continuing	-
Subtotal			-	0.835		1.105		0.649		0.000		0.649	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.835	1.105	0.649	0.000	0.649	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>	Project (Number/Name) 675347 / <i>Advanced Targeting Pod</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Sniper ATP-SE Digital Video	[REDACTED]																											
Future ATP-SE Enhancements	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>	Project (Number/Name) 675347 / <i>Advanced Targeting Pod</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Sniper ATP-SE Digital Video	1	2015	3	2015
Future ATP-SE Enhancements	2	2015	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	16.480	14.187	13.723	0.000	13.723	13.996	7.824	3.823	14.785	Continuing	Continuing
674804: <i>Compass Call</i>	-	16.480	14.187	13.723	0.000	13.723	13.996	7.824	3.823	14.785	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The EC-130H COMPASS CALL is the USAF's wide-area, airborne Command and Control Warfare/Information Operations (C2W /IO) weapon system. The employment of this system interdicts adversary's use of the electronic battlespace and is a key active component in the information battlespace and prosecution of Overseas Contingency Operations (OCO). EC-130H COMPASS CALL's sophisticated electronic combat system is capable of surgical denial or disruption of adversary radio frequency (RF) communications systems and sensors. The system was fielded in 1983 and to date has evolved through the fielding of the Baseline 2 (BL2) configuration and the mid-Baseline 2 (MBL2) enhancements. BL2 configuration and MBL2 enhancements currently being fielded have advanced the COMPASS CALL's electronic attack capabilities significantly over the two previously fielded baselines (BL0 and BL1). Due to the rapid advances in electronic attack technology, the EC-130H COMPASS CALL was designed to be easily modified and must continue to modernize and evolve to keep pace with adversary tactics and emerging technologies. Continuous system development is required to maintain battlespace superiority. The two COMPASS CALL Mission Crew Simulators (CCMCS #1 and CCMCS #2) are upgraded per the Baseline schedule to ensure training capacity keeps pace and matches the operational and technological upgrades delivered in the fielded aircraft. The Weapons System Trainer (WST) mirrors the capabilities of the fielded aircraft's cockpit avionics and communications equipment as well to ensure training requirements provide the worldwide operational proficiency needed to comply with continually evolving CNS/ATM and RNP enhancements, parameters, and guidance.

The EC-130H COMPASS CALL program 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. To sustain that process requires a steady stream of system development funds. Development funds are required to accomplish subsystem additions and improvements such as the digital signal analysis and exciter subsystem (AXE), the third generation of Special Purpose Emitter Array (SPEAR), new modern communications receiver technologies, new IR and counter radar technologies, the Human-to-Machine Interface (HMI), digital cockpit avionics with multi-function displays (a.k.a. glass cockpits), network centric operations, phased array transmit and receive apertures and other classified hardware, firmware and software developments necessary to counter military and commercial communications evolutions, command and control operations enhancements, and new/emerging sensor developments.

FY 2017 RDT&E efforts will concentrate support for Baseline 3(BL3)/platform upgrades to the COMPASS CALL fleet and ground systems/simulators. The programmed BL3 upgrades will advance the primary mission equipment (PME) even further as the 2017 development efforts address the evolving electronic attack requirement for the foreseeable future. Obsolescence and diminishing manufacturing sources (DMS)/Vanishing Vendor Items (VVI) are addressed with each baseline upgrade/enhancement as well as annually as part of the sustainment responsibilities.

Activities in the FY 2017 RDT&E efforts also include studies and analysis to support both current and future program planning and execution.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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Due to the rapidly changing threat environment encountered during our prolonged commitment to OCO, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	14.315	14.249	13.860	0.000	13.860
Current President's Budget	16.480	14.187	13.723	0.000	13.723
Total Adjustments	2.165	-0.062	-0.137	0.000	-0.137
• Congressional General Reductions	0.000	-0.062			
• 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	2.165	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.137	0.000	-0.137

Change Summary Explanation

FY 2015 Below Threshold Reprogramming of +\$2.165M for Baseline 3 development efforts.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Baseline Upgrade Development	16.480	14.187	13.723	0.000	13.723
Description: Supports Baseline development, integration and test, plus Special Purpose Emitter Array (SPEAR) Generation 3 for Mid-Baseline 2, and Baseline 3 non-recurring engineering (NRE).					
FY 2015 Accomplishments:					
Continued Mid-Baseline 2 development efforts and initiated Baseline 3 development efforts for:					
<ul style="list-style-type: none"> • New Counter Radar and Receiver Technologies • Human Machine Interface • New Array and Target Development • Advanced Commercial and Military Communications 					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Counter Satellite Navigation Techniques • Digital Avionics (glass cockpit) Enhancements <p>FY 2016 Plans: Completing Mid-Baseline 2 development efforts and channelling efforts towards Baseline 3 development of:</p> <ul style="list-style-type: none"> • New Counter Radar and Receiver Technologies • Human Machine Interface • New Array and Target Development • Advanced Commercial and Military Communications • Counter Satellite Navigation Technique • Digital Avionics (glass cockpit) Enhancements • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future planning and execution <p>FY 2017 Base Plans: Will complete the efforts on Baseline 3 development and initiate Mid-Baseline 3 development efforts for:</p> <ul style="list-style-type: none"> • New Counter Radar and Receiver Technologies • New Array and Target Development • Advanced Commercial and Military Communications • Counter Satellite Navigation Techniques • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future planning and execution <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	16.480	14.187	13.723	0.000	13.723

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line item# CALL00: <i>Compass Call Mods</i>	82.628	96.990	130.257	0.000	130.257	101.982	45.511	37.259	37.946	Continuing	Continuing
• APAF: BA06: Line item# CALL00: <i>Compass Call Mod Spares</i>	12.458	10.128	24.572	0.000	24.572	25.212	10.705	10.891	11.092	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks
FY 2015 Compass Call Mods (BA05)funding totals include \$24.8M of OCO to provide two shipsets of SPEAR Generation 3 pod sets.

E. Acquisition Strategy

EC-130H COMPASS CALL capability is maintained with incremental upgrades per the baseline acquisition strategy plus Quick Reaction Capability (QRC) developments acquired through the 645th Aeronautical Systems Group (BIG SAFARI Systems Program Office) in accordance with the BIG SAFARI Program Management Directive (PMD) and the BIG SAFARI Class Justification and Approval (J&A) document for acquisition of supplies and services using other than full and open competition criteria. The procured supplies and services are 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 concept). 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 Commander (CCDR) requirements.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Mission Equipment	SS/CPFF	BAE Sysms : Nashua, NH	-	16.480	Dec 2014	14.187	Dec 2015	13.723	Dec 2016	0.000		13.723	Continuing	Continuing	TBD
Subtotal			-	16.480		14.187		13.723		0.000		13.723	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	16.480	14.187	13.723	0.000	13.723	-	-	-

Remarks
EC-130H Program Manager has determined that PMA will be funded with Compass Call's APAF appropriation and included in the P-3A, Mod 1001 & 1003.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mid Baseline 2 Integration and Test																												
Mid Baseline 2 Fielding																												
Baseline 3 Development																												
Baseline 3 Integration and Test																												
Baseline 3 Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Mid Baseline 2 Integration and Test	1	2015	3	2016
Mid Baseline 2 Fielding	3	2016	2	2018
Baseline 3 Development	1	2015	2	2017
Baseline 3 Integration and Test	2	2017	2	2019
Baseline 3 Fielding	2	2019	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	93.160	103.942	109.859	0.000	109.859	108.928	111.072	113.299	115.468	Continuing	Continuing
671012: <i>Aircraft Engine Component Improvement Program</i>	-	78.674	72.603	78.293	0.000	78.293	76.747	78.283	79.902	81.479	Continuing	Continuing
675365: <i>F-35</i>	-	14.486	31.339	31.566	0.000	31.566	32.181	32.789	33.397	33.989	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical developmental engineering support for in-service Air Force engines to maintain flight safety (highest priority), correct service revealed deficiencies, improve system operational readiness (OR) and reliability & maintainability (R&M), reduce engine Life Cycle Cost (LCC), and sustain engines throughout their service life.

Historically, aircraft systems change missions, tactics, and environments (including new fuels) to meet changing threats throughout their life cycle. New technical problems can develop in the engines through actual use and Engine CIP provides the means to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts 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 inventory engines operational. Engine CIP, through "Lead the Fleet" operational use and accelerated mission testing, identifies and fixes engine-related problems ahead of operational impacts. Engine CIP addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Engine CIP ensures continued improvements in engine R&M, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares 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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	94.177	103.942	110.954	0.000	110.954
Current President's Budget	93.160	103.942	109.859	0.000	109.859
Total Adjustments	-1.017	0.000	-1.095	0.000	-1.095
• 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	2.091	0.000			
• SBIR/STTR Transfer	-3.108	0.000			
• Other Adjustments	0.000	0.000	-1.095	0.000	-1.095

Change Summary Explanation

FY15 reprogramming to fund two newly identified safety of flight items associated with the F118 U-2 engine and the J85 T-38 engine component design.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
671012: Aircraft Engine Component Improvement Program	-	78.674	72.603	78.293	0.000	78.293	76.747	78.283	79.902	81.479	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 developmental engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments (including new fuels) to meet changing threats throughout their lives. New technical problems can develop in the engines through actual use and Engine CIP provides the means to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts 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 inventory engines operational. Engine CIP, through "Lead the Fleet" operational use and accelerated mission testing, identifies and fixes engine-related problems ahead of operational impacts. Engine CIP addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Engine CIP ensures continued improvements in engine R&M, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: F100 Aircraft Engine Component Improvement Program	8.814	7.469	8.058	0.000	8.058
Description: The F100-220 and F100-229 Engine CIP provides critical sustainment engineering support for approximately 4085 engines (including foreign military sales [FMS]) to maintain flight safety (highest priority), to address parts obsolescence, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life.					
FY 2015 Accomplishments: F100-220 and F100-229: - Executed 30+ tasks. Majority of the budget addressed engine issues associated with the F-15 and F-16 aircraft. - Addressed engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis. - Validated redesigned parts and new repair procedures.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016				
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Maintained engine flight safety, addressed obsolescence deficiencies, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustained engines throughout their service life.</p> <p>FY 2016 Plans: F100-220 and F100-229: - Will execute 30+ tasks. Majority of the 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.</p> <p>FY 2017 Base Plans: F100-220 and F100-229: - Will execute 30+ tasks. Majority of the 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.</p> <p>FY 2017 OCO Plans: N/A</p>							
<p>Title: F110 Aircraft Engine Component Improvement Program</p> <p>Description: The F101, F110-100, F110-129, F118-100, and F118-101 Engine CIP provides critical sustainment engineering support for approximately 2732 engines (including foreign military sales [FMS]) to maintain flight safety (highest priority), to address parts obsolescence, to improve system operational readiness (OR) and</p>			15.968	16.146	17.422	0.000	17.422

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life.</p> <p>FY 2015 Accomplishments: F101, F110-100, F110-129, F118-100, and F118-101: - Executed 35+ tasks. The budget addressed engine issues associated with the B1, B-2, F-15, F-16, and U-2 aircraft. - Addressed safety of flight, engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis. - Validated redesigned parts and new repair procedures. - Maintained engine flight safety, addressed obsolescence deficiencies, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustained engines throughout their service life.</p> <p>FY 2016 Plans: F101, F110-100, F110-129, F118-100, and F118-101: - Will execute 35+ tasks. The budget will 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 operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustain engines throughout their service life.</p> <p>FY 2017 Base Plans: F101, F110-100, F110-129, F118-100, and F118-101: - Will execute 35+ tasks. The budget will 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.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- 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.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: F119 Aircraft Engine Component Improvement Program</p> <p>Description: The F119 Engine CIP provides critical sustainment engineering support for approximately 475 engines to maintain flight safety (highest priority), to address parts obsolescence, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life.</p> <p>FY 2015 Accomplishments: F119: - Executed 25+ tasks. The budget addressed engine issues associated with the F-22 aircraft. - Addressed engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis. - Validated redesigned parts and new repair procedures. - Maintained engine flight safety, addressed obsolescence deficiencies, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustained engines throughout their service life.</p> <p>FY 2016 Plans: F119: - Will execute 25+ 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.</p> <p>FY 2017 Base Plans: F119:</p>	43.926	23.506	25.372	0.000	25.372

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016							
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)										
<ul style="list-style-type: none"> - Will execute 25+ 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. <p>FY 2017 OCO Plans: N/A</p>						FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: All Other Aircraft Engine Component Improvement Program</p> <p>Description: The All Other Engines (e.g., T56, T700, T400, J85, APUs) CIP provides critical sustainment engineering support for approximately 13000 engines (including foreign military sales [FMS]) to maintain flight safety (highest priority), to address parts obsolescence, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life.</p> <p>FY 2015 Accomplishments: All Other Engines (e.g., T56, T700, T400, J85, APUs):</p> <ul style="list-style-type: none"> - Executed 15+ tasks. The budget addressed engine issues associated with the C-130, T38, UH-1N, UH/MH-60/60G aircraft, and aircraft APUs. - Addressed engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis. - Validated redesigned parts and new repair procedures. - Maintained engine flight safety, addressed obsolescence deficiencies, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustained engines throughout their service life <p>FY 2016 Plans: All Other Engines (e.g., T56, T700, T400, J85, APUs):</p> <ul style="list-style-type: none"> - Will execute 15+ tasks. The budget will address engine issues associated with the C-130, T38, UH-1N, UH/MH-60/60G aircraft, and aircraft APUs. 						9.966	25.482	27.441	0.000	27.441

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis.</p> <p>- Validate redesigned parts and new repair procedures.</p> <p>- 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.</p> <p>FY 2017 Base Plans: All Other Engines (e.g., T56, T700, T400, J85, APUs: - Will execute 15+ tasks. The budget will address engine issues associated with the C-130, T38, UH-1N, UH/MH-60/60G aircraft, and aircraft APUs. - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis.</p> <p>- Validate redesigned parts and new repair procedures.</p> <p>- 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.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	78.674	72.603	78.293	0.000	78.293

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

Remarks
Other APPN RELATED ACTIVITIES

(U) - PEs 0203752A and 0205633N, Army/Navy Aircraft Engine CIPs

D. Acquisition Strategy
Sole Source Indefinite Delivery/Indefinite Quantity (IDIQ) contracts to 3 Original Equipment Manufacturers (OEMs) with a 5-year ordering period and 7-year delivery period. Supports multiple tasks to accomplish CIP for more than 23 engine models.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>	Project (Number/Name) 671012 / <i>Aircraft Engine Component Improvement Program</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Develop aircraft engine improvements - F110/F101/F118	SS/CPFF	GE : Evendale, OH	-	13.864	Feb 2015	15.110	Dec 2015	16.294	Dec 2016	0.000		16.294	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-F100/F119/TF33	SS/CPFF	Pratt & Whitney : Hartford, CT	-	53.554	Feb 2015	37.034	Dec 2015	39.936	Dec 2016	0.000		39.936	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-TF34/J85/T700	SS/CPFF	GE : Lynn, MA	-	4.498	Mar 2015	5.844	Dec 2015	6.302	Dec 2016	0.000		6.302	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-T56	SS/CPFF	Rolls Royce : Indianapolis, IN	-	0.827	Feb 2015	3.784	Dec 2015	4.081	Dec 2016	0.000		4.081	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft auxiliary power unit improvements	SS/CPFF	Honeywell : Phoenix, AZ	-	1.132	May 2015	4.526	Dec 2015	4.881	Dec 2016	0.000		4.881	Continuing	Continuing	-
Subtotal			-	73.875		66.298		71.494		0.000		71.494	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Non-OEM CIP Tasks	Various	Various : Various	-	0.797	Oct 2014	1.167	Oct 2015	1.258	Oct 2016	0.000		1.258	Continuing	Continuing	-
Subtotal			-	0.797		1.167		1.258		0.000		1.258	-	-	-

Remarks
Non-OEM CIP Tasks refer to work in support of Engine CIP.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	1.550	Oct 2014	2.600	Oct 2015	2.804	Oct 2016	0.000		2.804	Continuing	Continuing	-
Subtotal			-	1.550		2.600		2.804		0.000		2.804	-	-	-

Remarks
Fuel costs for contractor-performed T&E are included in the applicable contract.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: PMA	Various	Various : Various	-	1.017	Oct 2014	1.442	Oct 2015	1.555	Oct 2016	0.000		1.555	Continuing	Continuing	-
Aircraft Engine CIP: In House Support/Misc	Various	Various : Various	-	1.435	Oct 2014	1.096	Oct 2015	1.182	Oct 2016	0.000		1.182	Continuing	Continuing	-
Subtotal			-	2.452		2.538		2.737		0.000		2.737	-	-	-

Remarks
PMA Description: Program Management support, travel, and A&AS.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	78.674	72.603	78.293	0.000	78.293	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
F-100 Engine CIP activities	[REDACTED]																											
F-110 Engine CIP Activities	[REDACTED]																											
F-119 Engine CIP Activities	[REDACTED]																											
All Other Legacy Engine CIP Activities	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-100 Engine CIP activities	1	2015	1	2021
F-110 Engine CIP Activities	1	2015	1	2021
F-119 Engine CIP Activities	1	2015	1	2021
All Other Legacy Engine CIP Activities	1	2015	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program				Project (Number/Name) 675365 / F-35			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675365: F-35	-	14.486	31.339	31.566	0.000	31.566	32.181	32.789	33.397	33.989	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F135 Aircraft Engine Component Improvement Program (CIP) supports 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), to correct service revealed deficiencies, to improve system Operational Readiness (OR) and Reliability & Maintainability (R&M), to reduce propulsion system Life Cycle Cost (LCC), and sustain 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 field problems. F135 CIP funding is driven by field events and type/maturity of the propulsion system, not by the total quantity. 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 inventory 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 addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when the manufacturer incorporate F135 CIP improvements into production. F135 CIP ensures continued improvements in R&M, which reduce out year support costs. Historically, R&M related F135 CIP efforts significantly reduce out year O&M and spares costs.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Aircraft Engine Component Improvement Program (F135)	14.486	31.339	31.566	0.000	31.566
Description: The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustainment engineering support for F-35 propulsion systems to maintain flight safety for this single-engine fighter (highest priority), to correct service revealed deficiencies, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life.					
FY 2015 Accomplishments:					
- Executed approximately 11 AF-funded F135 engine tasks supporting initial flying operations.					
- Conducted accelerated mission test and analytical condition inspection.					
- Completed first full hot section interval.					
- Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Maintained/improved engine flight safety, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engine throughout service life.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Execute approximately 25 AF-funded F135 engine tasks supporting initial flying operations. - Conduct accelerated mission test and analytical condition inspection. - Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engine throughout service life. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Execute approximately 25 AF-funded F135 engine tasks supporting initial flying operations. - Conduct accelerated mission test and analytical condition inspection. - Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engine throughout service life. <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	14.486	31.339	31.566	0.000	31.566

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks Program Element 0205633N provides US Navy funding support for F135 propulsion system</p> <p>D. Acquisition Strategy Contracts within this program are projected to be awarded sole source to engine manufacturer. F-135 Engine CIP tasks are generally assigned to the original engine manufacturer based on available funding and prioritization of candidates.</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>	Project (Number/Name) 675365 / <i>F-35</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F-35
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Develop F135 engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	11.331	Mar 2015	23.543	Jan 2016	15.868	Jan 2017	0.000		15.868	Continuing	Continuing	-
Subtotal			-	11.331		23.543		15.868		0.000		15.868	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	2.925	Oct 2014	7.500	Oct 2015	15.400	Oct 2016	0.000		15.400	Continuing	Continuing	-
Subtotal			-	2.925		7.500		15.400		0.000		15.400	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: PMA	Various	Various : Various	-	0.230	Oct 2014	0.296	Oct 2015	0.298	Oct 2016	0.000		0.298	Continuing	Continuing	-
Aircraft Engine CIP: In House Support/Misc	Various	Various : Various	-	0.000		0.000	Oct 2015	0.000	Oct 2016	0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.230		0.296		0.298		0.000		0.298	-	-	-

Remarks
PMA Description: Program Management support, travel, and A&AS.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F-35

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

F-135 Engine CIP Tasks

[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>	Project (Number/Name) 675365 / <i>F-35</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-135 Engine CIP Tasks	1	2015	1	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F I <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,133.364	12.414	9.793	30.002	0.000	30.002	20.297	25.971	4.499	4.579	30.375	1,271.294
674515: <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>	929.148	7.418	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	936.566
675356: <i>JASSM Extended Range (JASSM-ER)</i>	204.216	4.996	9.793	30.002	0.000	30.002	20.297	25.971	4.499	4.579	30.375	334.728

Program MDAP/MAIS Code: 555

A. Mission Description and Budget Item Justification

The Joint Air-to-Surface Standoff Missile (JASSM) program provides a long range, conventional air-to-surface, autonomous, precision-guided, low-observable, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. There are two variants of the JASSM missile; JASSM baseline and JASSM Extended Range (JASSM-ER). The requirement for JASSM baseline is given in the JASSM Operational Requirements Document (ORD) dated 20 Jan 2004, and the JASSM-ER requirement is given in JASSM-ER Capability Development Document (CDD) dated 16 Apr 2010. Both JASSM missiles have improved reliability, separate milestone decision points and separate projects within a single Program Element. Aircraft integration of JASSM baseline is complete on the B-52H, F-16 (Block 50), B-1, B-2, and F-15E. Objective aircraft include the F-16 (Block 40) and F-35. Aircraft integration of JASSM-ER is complete on the B-1B. Objective aircraft are the B-52H, F16C/D (Block 50/52), B-2, F-16C/D (Blocks 25-42), F-15E, and F-35.

The FY2017 funding request was reduced by $-\$658$ million to account for the availability of prior year execution balances.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	12.897	12.793	0.000	0.000	0.000
Current President's Budget	12.414	9.793	30.002	0.000	30.002
Total Adjustments	-0.483	-3.000	30.002	0.000	30.002
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-3.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.483	0.000			
• Other Adjustments	0.000	0.000	30.002	0.000	30.002

Change Summary Explanation

FY16 Congressional reduction of -\$3M for forward financing
 FY17 cost data updated to include M-Code funding.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)				Project (Number/Name) 674515 / Joint Air-to-Surface Standoff Missile (JASSM)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674515: Joint Air-to-Surface Standoff Missile (JASSM)	929.148	7.418	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	936.566
Quantity of RDT&E Articles	81	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Air-to-Surface Standoff Missile (JASSM) program provides a long range, conventional air-to-surface, autonomous, precision-guided, low-observable, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. This project develops the baseline JASSM missile. The requirement for JASSM baseline is given in the JASSM Operational Requirements Document (ORD), dated 20 Jan 2004. Aircraft integration of the baseline JASSM is complete on the B-52H, F-16 (Block 50), B-1, B-2, and F-15E. Objective aircraft include the F-16 (Block 40) and F-35. The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS), this SPS is on contract. The contractor assumes total system performance responsibility (TSPR) for Lots 1-6 as defined in the SPS; for Lot 7 and beyond, the government has approval authority of Class I configuration changes. This project also develops improvements to the JASSM and JASSM-ER fuze, including the development of the Electronic Safe and Arm Fuze (ESAF). Since the cancelation of the Common Telemetry Instrumentation Kit (C-TIK) the program has transitioned to the Intelligent Telemetry Instrumentation Kit (ITIK). The ITIK is partially executed under this project and will be used for JASSM baseline and JASSM-ER. The program is also evaluating vulnerability enhancements, Diminishing Manufacturing Sources Material Shortages (DMSMS), and several obsolescence issues. FY15 is the last year the JASSM program will execute under the baseline RDT&E (674515) project. The RDT&E program transitions to JASSM-ER only in FY16.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: JASSM Electronic Safe and Armed Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects)	0.343	0.000	0.000	0.000	0.000
Description: ESAF will resolve obsolescence issues and replace the current fuze. ESAF will be implemented in both JASSM and JASSM-ER.					
FY 2015 Accomplishments: Supports development of prototype efforts.					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 674515 / Joint Air-to-Surface Standoff Missile (JASSM)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: JASSM Intelligent Telemetry Instrumentation Kit (I-TIK)</p> <p>Description: ITIK replaces the current TIK used during flight testing. Since the ITIK is common to both JASSM and JASSM-ER, it will be partially executed under this project.</p> <p>FY 2015 Accomplishments: Awarded ITIK contract for development, design, and qualification testing.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	5.142	0.000	0.000	0.000	0.000
<p>Title: Other Development</p> <p>Description: Development efforts, evaluations (study analysis), Diminishing Manufacturing Sources Material Shortages (DMSMS), and obsolescence issues.</p> <p>FY 2015 Accomplishments: Developed/evaluated obsolescence plan addressing JASSM's directing activities (Inertial Measurement Unit, Missile control Unit, anti-jam/anti-spoofing system). Awarded contracts for the M-code mandated investigation study, Aviation and Missile Research Development and Engineering Center (AMRDEC)/Manual Programming Adapter (MPA), and the Flight Termination System (FTS) battery Qualification.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	1.933	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	7.418	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 674515 / Joint Air-to-Surface Standoff Missile (JASSM)

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>			<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• MPAF: BA02 Line Item # 654515: JASSM	139.481	73.582	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,857.906

Remarks

FY16 is the last year of JASSM baseline procurement. Only JASSM-ER will be procured beginning in FY17.

D. Acquisition Strategy

EMD was awarded through full and open competition. Subsequent contracts have been awarded through sole source. Currently, ESAF is a Cost Plus Fixed Fee (CPFF) contract and ITIK is a Cost Plus Fixed Fee (CPFF) contract.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 674515 / Joint Air-to-Surface Standoff Missile (JASSM)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other development, reliability, Component upgrades, CTIK, and DMS/Obsolescence issues.	Various	Lockheed Martin : Orlando, FL	716.050	1.933	Sep 2015	0.000		0.000		0.000		0.000	0.000	717.983	717.983
Intelligent Telemetry Instrumentation Kit (ITIK)	SS/CPFF	Lockheed Martin : Orlando, FL	0.000	5.142	Apr 2015	0.000		0.000		0.000		0.000	0.000	5.142	5.142
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	1.316	0.343	Dec 2015	0.000		0.000		0.000		0.000	0.000	1.659	1.659
Subtotal			717.366	7.418		0.000		0.000		0.000		0.000	0.000	724.784	724.784

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
96 TW test support, flight test	Various	Test Wing : Eglin, FL	149.552	0.000		0.000		0.000		0.000		0.000	0.000	149.552	149.552
Subtotal			149.552	0.000		0.000		0.000		0.000		0.000	0.000	149.552	149.552

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA).	C/Various	PMA : Eglin AFB, FL	62.230	0.000		0.000		0.000		0.000		0.000	0.000	62.230	62.230

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>	Project (Number/Name) 674515 / <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ITIK Battery Development and Qualification (Phase 1&2)	1	2016	3	2017
ITIK Integration with JASSM and Test Equipment Development	2	2015	1	2018
ITIK Critical Design Review (CDR)	2	2016	2	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675356: JASSM Extended Range (JASSM-ER)	204.216	4.996	9.793	30.002	0.000	30.002	20.297	25.971	4.499	4.579	30.375	334.728
Quantity of RDT&E Articles	31	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides a long range (over twice the range of baseline JASSM), conventional air-to-surface, autonomous, precision-guided, low observable, standoff cruise missile compatible with fighter and bomber aircraft. The requirement for JASSM-ER is given in JASSM-ER Capability Development Document (CDD), dated 16 Apr 2010. This project developed the extended range version of the JASSM missile (JASSM-ER). Aircraft integration of JASSM-ER is complete on the B-1B. Objective aircraft are B-52H, F16C/D (Block 50/52), B-2, F-16C/D (Blocks 25-42), F-15E, and F-35. 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 Baseline while minimizing the threat to launch aircraft. The Air Force developed JASSM-ER based on a contractor-developed, government-approved System Performance Specification (SPS). Since the cancellation of the Common Telemetry Instrumentation Kit (C-TIK) the program has transitioned to the Intelligent Telemetry Instrumentation Kit (ITIK). The ITIK will be used for both JASSM baseline and JASSM-ER. The Electronic Safe and Arm Fuze (ESAF) is partially executed under this project since it's common to JASSM baseline and JASSM-ER. The program is also evaluating vulnerability enhancements, Diminishing Manufacturing Sources Material Shortages (DMSMS), several obsolescence issues, as well as developing and integrating a Military Code (M-Code) receiver.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: JASSM ER Intelligent Telemetry Instrumentation Kit (ITIK) (cost shared by both projects)	0.398	5.021	2.300	0.000	2.300
Description: ITIK replaces the current TIK used during flight testing. Since the ITIK is common to both JASSM and JASSM-ER, it will be partially executed under this project.					
FY 2015 Accomplishments: Conducted ITIK development design work, destruct charge development and battery qualification testing.					
FY 2016 Plans: Continue ITIK development. Award contract to support Critical Design Review (CDR), safety certification, and qualification testing.					
FY 2017 Base Plans: Continue ITIK development. Award contract to support Production Readiness Review (PRR) and testing.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: JASSM ER Electronic Safe and Armed Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects)</p> <p>Description: ESAF will resolve obsolescence issues and replace the current fuze.</p> <p>FY 2015 Accomplishments: ESAF development: Conducted technical demonstration phase leading to critical design review.</p> <p>FY 2016 Plans: Award ESAF Engineering and Manufacturing Development (EMD) contract. Complete sled instrumentation kit (SLIK) development. Continue design work, pre-production material, and qualification work.</p> <p>FY 2017 Base Plans: Continue ESAF Engineering and Manufacturing Development (EMD) requirements. Award contract to support Production Readiness Review (PRR). Continue design work, pre-production material, and qualification work.</p> <p>FY 2017 OCO Plans: N/A</p>	3.247	2.760	1.760	0.000	1.760
<p>Title: Military Code (M-Code) receiver</p> <p>Description: The development and integration of a GPS receiver capable of receiving a Military Code (M-Code).</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Prototype development/component level testing.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	24.042	0.000	24.042
<p>Title: JASSM ER Other Development</p>	1.301	1.290	1.200	0.000	1.200

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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)

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Development efforts, evaluations (study analysis), survivability enhancements, safety certification, flight testing, Diminishing Manufacturing Sources and Material Shortages (DMSMS), and obsolescence issues.</p> <p>FY 2015 Accomplishments: Continued development/evaluations activities addressing JASSM's obsolescence plan directed activities, to include Inertial Measurement Unit (IMU), Missile Control Unit (MCU), anti-jam/anti-spoofing system, warhead, and RCS proof of concept. Conducted study and planning for M-code incorporation in the JASSM missile.</p> <p>FY 2016 Plans: Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Inertial Measurement Unit (IMU), Missile Control Unit (MCU), anti-jam/anti-spoofing system, Flight Termination System (FTS) battery qualification, warhead, survivability enhancements, and safety certification. Additionally, the program will develop and implement an acquisition strategy to integrate M-Code for improved anti-jam and secure access to military GPS signals.</p> <p>FY 2017 Base Plans: Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Inertial Measurement Unit (IMU), Missile Control Unit (MCU), anti-jam/anti-spoofing system, and survivability enhancements. Support ground and flight test activity required to verify changed hardware before cutting into production. Additionally, the program will develop and implement an acquisition strategy to integrate M-code for improved anti-jam and secure access to military GPS signals.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: JASSM ER Test Support</p> <p>Description: Government Test Support for ESAF, ITIK, and M-Code. Includes flight test equipment, targets, test wing and range support, and other ground/flight test support.</p> <p>FY 2015 Accomplishments: Conducted ESAF and ITIK test planning activities, to include test equipment, targets, range support, and other ground test support.</p> <p>FY 2016 Plans:</p>	0.050	0.722	0.700	0.000	0.700

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue ESAF Sled tests (4-8) and cannon tests. Continue ITIK development flight test support to include test equipment, targets, range support, and other ground test support. FY 2017 Base Plans: Continue ESAF and ITIK development tests. Begin Qual and flight test support to include test equipment, targets, range support, and other ground test support. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.996	9.793	30.002	0.000	30.002

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF: BA02 Line Item # JASSM0: JASSM	189.677	351.996	431.645	0.000	431.645	440.489	447.991	455.388	463.462	1,018.172	4,076.212

Remarks

D. Acquisition Strategy
JASSM-ER is the extended range version of the JASSM baseline missile (currently in full rate production). The initial JASSM-ER development contract, awarded in 2004, was Cost-Plus-Award-Fee. In 2008, the program office awarded a Cost-Plus-Incentive-Fee (CPIF) contract with performance incentives to complete the development effort. Current contract for ESAF is a Cost Plus Fixed Fee (CPFF) contract. The ITIK contract is a Cost Plus Fixed Fee (CPFF) contract.

E. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JASSM-ER Phase I/II development, Test Missile Procurement (for DT/IT), parts upgrade, software updates, product improvements, CTIK, and obsolescence.	Various	Lockheed Martin : Orlando, FL	136.778	0.000		0.990	Mar 2016	0.900	Mar 2017	0.000		0.900	38.503	177.171	177.171
ITIK	SS/CPFF	Lockheed Martin : Orlando, FL	0.000	0.398	Apr 2015	5.021	Jun 2016	2.300	Jun 2017	0.000		2.300	0.000	7.719	7.719
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	2.748	3.247	Nov 2015	2.760	Jun 2016	1.760	Jun 2017	0.000		1.760	7.258	17.773	17.823
Military Code (M code) receiver	SS/CPFF	Lockheed Martin : Orlando, FL	0.000	0.900	Sep 2015	0.000		24.042	Jun 2017	0.000		24.042	36.710	61.652	61.652
Subtotal			139.526	4.545		8.771		29.002		0.000		29.002	82.471	264.315	264.365

Remarks
 -Intelligent Telemetry Instrumentation Kit (ITIK)
 -Common Telemetry Instrumentation Kits (C-TIK)
 -Electronic Safe and Arm Fuze (ESAF)

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test Support. Includes flight test equipment, targets, 96th	Various	96 TW : Eglin AFB, FL	25.962	0.050		0.722	Jun 2016	0.700	Jun 2017	0.000		0.700	2.800	30.234	30.184

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Wing and Range support, and other ground/flight test support as necessary.															
6 IT/6 OT assets	SS/CPAF	Lockheed Martin : Orlando, FL	12.733	0.000		0.000		0.000		0.000		0.000	0.000	12.733	12.733
12 Operational Test (OT) assets	SS/FFP	Lockheed Martin : Orlando, FL	24.643	0.000		0.000		0.000		0.000		0.000	0.000	24.643	24.643
Subtotal			63.338	0.050		0.722		0.700		0.000		0.700	2.800	67.610	67.560

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA). Provides program office oversight of development and upgrade activities.	Various	PMA : Eglin AFB, FL	1.352	0.401	Dec 2015	0.300	Jul 2016	0.300	Jul 2017	0.000		0.300	0.450	2.803	2.803
Subtotal			1.352	0.401		0.300		0.300		0.000		0.300	0.450	2.803	2.803

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	204.216	4.996	9.793	30.002	0.000	30.002	85.721	334.728	334.728

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
ITIK Battery Development and Qualification (Phase 1&2)	1	2016	3	2017
ITIK Integration with JASSM and Test Equipment Development	2	2015	1	2018
ITIK Critical Design Review (CDR)	2	2016	2	2016
ITIK HERO/EMI and Lot 8 certification	4	2016	3	2017
ITIK Flight Testing	2	2017	2	2017
ESAF Prototyping	1	2016	1	2017
ESAF Engineering and Manufacturing Development (EMD)	2	2017	2	2019
ESAF Cannon Testing	3	2016	3	2016
ESAF Critical Design Review (CDR)	4	2016	4	2016
ESAF Sled Testing	3	2016	3	2016
ESAF Qualification Testing	2	2018	2	2019
ESAF Flight Testing	1	2019	2	2019
ESAF Production Readiness Review (PRR)	4	2018	4	2018
M-Code Study	1	2016	4	2016
M-Code brass board development and testing	3	2016	3	2017
M-Code Prototype development/component level testing	3	2017	3	2018
M-Code Engineering and Manufacturing Development (EMD)	3	2018	4	2020
Diminishing Manufacture Sources and Obsolescence Evaluation/Development	1	2016	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	25.661	21.102	37.621	0.000	37.621	17.761	18.097	10.505	18.760	Continuing	Continuing
674596: <i>AOC WS Modifications</i>	0.000	0.000	0.000	12.278	0.000	12.278	0.000	0.000	0.000	0.000	Continuing	Continuing
675218: <i>Applications Development</i>	0.000	14.580	11.462	15.285	0.000	15.285	7.507	7.650	3.828	7.931	Continuing	Continuing
675220: <i>Unit Level</i>	0.000	8.756	7.232	7.666	0.000	7.666	7.816	7.963	4.147	8.254	Continuing	Continuing
675221: <i>Personnel Recovery Command and Control (PRC2)</i>	0.000	2.325	2.408	2.392	0.000	2.392	2.438	2.484	2.530	2.575	Continuing	Continuing

Note

This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Development, is a new start.
 This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Test and Evaluation, is a new start.
 This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Training, is a new start.

This program, BA 07 PE 0207410F, project 675218, C2AOS-C2IS Modifications (rebaselined to include efforts formerly known as C2AOS-C2IS II), is a new start.

The Air Force is evaluating the continuing requirement for AOC WS Modifications program funding across appropriations through the FYDP for the FY18 PB.

A. Mission Description and Budget Item Justification

The Air and Space Operations Center Weapon System (AOC WS) program element provides development of Command and Control (C2) capabilities across the entire spectrum of air and space operations from the strategic to the tactical level. There are four funded projects within the AOC WS program element:

AOC WS Modifications allow for the consolidation to a single baseline across the AOC WS enterprise and provide required modifications for the AOC WS to remain interoperable, certified, supportable, and compliant through the development, integration, testing, fielding, and sustainment of new capabilities and upgrades. Modifications are required for the AOC WS 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 training solutions for the user.

Applications Development provides worldwide operational level C2 capabilities, which include: air battle planning, management, and execution; operational level C2 of Integrated Air and Missile Defense (C2 of IAMD); in support of DoD, Coalition Partners, and other government agencies.

Unit Command and Control (UC2) provides both scheduling and mission preparation activities at the wing and squadron level, and the capabilities to report and track the success of each mission and influence decisions of future Air Battle Planning.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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Personnel Recovery Command and Control (PRC2) provides an adaptive, networked, decentralized and situationally-appropriate personnel recovery command and control system which supports personnel accountability and recovery missions worldwide. PRC2 delivers a globally accessible, collaborative, interoperable and integrated system to prevent, prepare for and respond to isolating events across the Range of Military Operations in the joint/coalition operating environment. The system collects, stores and delivers personnel/identity biometric data, emergency locator beacon registrations, isolated personnel reports, evasion plans of action, incident reports and other information management capabilities for predictive, preventive and personnel vulnerability analysis/assessment in support of Personnel Recovery across DoD and other national and international entities.

This program is in Budget Activity 7, Operational System Development. These budget activities include 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	25.662	21.193	17.595	0.000	17.595
Current President's Budget	25.661	21.102	37.621	0.000	37.621
Total Adjustments	-0.001	-0.091	20.026	0.000	20.026
• Congressional General Reductions	-0.001	-0.091			
• 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	20.026	0.000	20.026

Change Summary Explanation

- FY 2017 funding increased \$7.848M in order to accelerate the completion of Air Execution Information System (AXIS) to enable retirement of Theater Battle Management Core Systems Force Level (TBMCS FL)

- FY 2017 funding increased \$12.278M in order to fund the Air Operations Center (AOC) Weapon System (WS) Modification Program. The Air Force is evaluating the continuing requirement for AOC WS Modifications program funding across appropriations through the FYDP for the FY18 PB.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674596: AOC WS Modifications	0.000	0.000	0.000	12.278	0.000	12.278	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Development, is a new start.
 This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Test and Evaluation, is a new start.
 This program, BA 07 PE 0207410F, project 674596, AOC WS Modifications Training, is a new start.

The Air Force is evaluating the continuing requirement for AOC WS Modifications program funding across appropriations through the FYDP for the FY18 PB.

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 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.

In FY17, AOC WS Modifications are required to enable the retirement of Theater Battle Management Core System Force Level (TBMCS FL) and the legacy AOC 10.1 system. Further, AOC WS Modifications are required for the AOC to keep pace with evolving COTS/GOTS components, DoD directives, changes in the underlying IT environment, and to remain interoperable, certified, supportable, and compliant through the development, integration, testing, fielding, training, and sustainment of new capabilities and upgrades to the AOC WS. Additionally, FY17 AOC WS Modification activities evolve the AOC through development, integration, and test of progressively improving capabilities in support of mission requirements at Geographic and Functional AOCs, as well as Support and Manpower Augmentation units, keeping the AOC current and interoperable with the Combatant Commands (CCMD), cyber requirements, and next generation weapon systems/weapons.

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

	FY 2015	FY 2016	FY 2017
Title: AOC WS Modifications Development	-	-	10.228
Description: Conduct AOC WS infrastructure development and mission capability integration. Develop, integrate, and test modification updates to the AOC WS leveraging a robust, open, Net-Centric infrastructure with a Service Oriented Architecture (SOA). Develop, test, and deliver effective training solutions. Conduct system maintenance and interoperability updates.			
FY 2017 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>	Project (Number/Name) 674596 / <i>AOC WS Modifications</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Initiate Air Reserve Component (ARC) training solution, Operations Support Center (OSC), and Functional (planned name change to Global) AOC site requirements Design/Development modifications.</p> <p>- Integrate 3rd party GOTS mission application updates (e.g., C2AOS-C2IS, Global Command and Control-Joint (GCCS-J), Master Air Attack Plan Tool Kit (MAAPTK), etc.).</p> <p>-- This includes infrastructure updates (e.g., Agile Core Services, etc.) and modifying automated business process (Mission Threads) implementations.</p>				
<p>Title: AOC WS Modifications Test and Evaluation</p> <p>Description: Plan and implement comprehensive contractor testing (integration and test, functional testing, security testing, etc.), Developmental Test and Evaluation (DT&E), and Operational Test and Evaluation (OT&E) on AOC WS modification baseline updates, to include test planning, test conduct, and documentation review.</p> <p>FY 2017 Plans:</p> <p>-Conduct frequent contractor and developmental testing, including Warfighter Assessment Workshops, Risk Reduction Events, Information Assurance Assessments, etc.</p> <p>-Facilitate Developmental Test & Evaluation (DT&E) and Operational Test and Evaluation (OT&E).</p>		-	-	1.800
<p>Title: AOC WS Modifications Training</p> <p>Description: Plan and conduct AOC WS modification training analysis, planning, and development, to include both contractor-developed capabilities and supplemental training for contractor modified 3rd party capabilities. This includes development of effective training solutions and baseline updates to provide more effective training capabilities. This also includes curriculum and courseware / material development, instructor training, class / Computer Based Training conduct, and training surveys / analysis / updates / enhanced simulation capabilities.</p> <p>FY 2017 Plans:</p> <p>-Plan and conduct training updates to reflect baseline changes (3rd party applications, infrastructure, automated business processes, etc.) and operational training needs.</p> <p>-Support training preparation and development for ARC sites.</p>		-	-	0.250
Accomplishments/Planned Programs Subtotals		-	-	12.278

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>	Project (Number/Name) 674596 / <i>AOC WS Modifications</i>

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	Total Cost
			Base	OCO	Total					Complete	
• OPAF: BA03: Line Item # 834530: <i>Air and Space Operations Ctr-WPN SYS</i>	0.000	0.000	0.000	0.000	0.000	41.335	37.608	38.340	39.003	-	-

Remarks

D. Acquisition Strategy

The acquisition strategy builds on existing capabilities using evolutionary acquisition 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. The last increment, AOC 10.2, evolved the AOC to a Net-Centric environment, compliant with DoD SOA standards. The AOC WS Modifications program builds upon these evolutionary weapon system updates to develop, integrate, test, train, deliver, and sustain new capabilities and baseline updates to the AOC WS. The AOC WS Modifications program will leverage an AOC WS Long-Term Modification and Sustainment (LTM&S) contract, projected to be awarded in 4QFY16, which will provide for government led integration of the AOC WS enterprise. The AOC WS Program Management Office (PMO) will provide technical oversight to the AOC WS Modification program, led by a Government AOC Weapon System (WS) Chief Engineer. Additionally, significant technical expertise will be provided by MITRE, MIT Lincoln Laboratory, and Engineering & Technology Acquisition Support Services contractors.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AOC WS Modification Development	C/TBD	TBD : TBD	0.000	0.000		0.000		7.978	Jan 2017	0.000		7.978	Continuing	Continuing	TBD
AOC WS Training	C/Various	TBD : TBD	0.000	0.000		0.000		0.250	May 2017	0.000		0.250	Continuing	Continuing	TBD
Subtotal			0.000	0.000		0.000		8.228		0.000		8.228	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AOC WS Modifications Test	Various	Various : Various	0.000	0.000		0.000		1.800	Jan 2017	0.000		1.800	Continuing	Continuing	TBD
Subtotal			0.000	0.000		0.000		1.800		0.000		1.800	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Services	Various	Various : Various	0.000	0.000		0.000		1.250	Oct 2016	0.000		1.250	Continuing	Continuing	TBD
Program Management Administration	C/Various	Various : Various	0.000	0.000		0.000		1.000	Dec 2016	0.000		1.000	Continuing	Continuing	TBD
Subtotal			0.000	0.000		0.000		2.250		0.000		2.250	-	-	-

Remarks
The Air Force is evaluating the continuing requirement for AOC WS Modifications program funding across appropriations through the FYDP for the FY18 PB.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016				
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				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	0.000	0.000	0.000		12.278	0.000	12.278	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARC/Operations Support Center (OSC)/ Functionals MODs Design/Development																												
ARC/OSC/Functionals MODs Test (DT/OT)																												
GOTS Integration MODs Design/Development																												
GOTS Integration MODs Test (DT/OT)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>	Project (Number/Name) 674596 / <i>AOC WS Modifications</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ARC/Operations Support Center (OSC)/Functionals MODs Design/Development	3	2017	3	2018
ARC/OSC/Functionals MODs Test (DT/OT)	3	2018	4	2018
GOTS Integration MODs Design/Development	3	2017	4	2018
GOTS Integration MODs Test (DT/OT)	4	2017	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)				Project (Number/Name) 675218 / Applications Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675218: <i>Applications Development</i>	0.000	14.580	11.462	15.285	0.000	15.285	7.507	7.650	3.828	7.931	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0207410F, project 675218, C2AOS-C2IS Modifications (rebaselined to include efforts formerly known as C2AOS-C2IS II), is a new start.

- FY 2017 funding increased \$7.848M in order to accelerate the completion of Air Execution Information System (AXIS) to enable the retirement of Theater Battle Management Core Systems Force Level (TBMCS FL)

A. Mission Description and Budget Item Justification

This project funds operational development necessary to acquire and modify segments of Air Force's Command and Control (C2) capabilities and services. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on, but are not limited to, support of the Joint Forces Air Component Commander (JFACC) that provides air, space and cyber support as presented to the AOC and to other Air Force and Joint Services C2 systems. Applications Development efforts deliver capabilities identified in the Joint Command and Control (JC2) Capability Development Document (CDD) (2013). Applications Development activities include but are not limited to the following: Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) needs identified in the Capability Definition Package (CDP) (2012). C2AOS-C2IS creates web-enabled information services to expose air operations data using standardized schemas, such as those developed by the Air Operations Community of Interest (AO COI). C2AOS-C2IS also develops, matures, fields, and maintains modular net-centric C2 applications for air battle planning, execution, and management functions to include: Network Enabled Weapons (NEW); C2AOS-C2IS will focus on but not be limited to, the remainder of CDP and Theater Battle Management Core Systems - Force Level (TBMCS FL) functionality along with the capabilities to include applications and services to support air mission and Friendly Order of Battle (FrOB) execution, Alerting, Publish and Subscribe, Content Management and Reporting; and integration with a Joint Command and Control (JC2) Reference Architecture (RA) host infrastructure environment.

In FY17, core development activities will be to complete development of Air Execution Information System (AXIS). Funding originally allocated to C2AOS-C2IS II was realigned internally within the program to C2AOS-C2IS Development (formerly C2AOS-C2IS I) to accelerate the AXIS program. The acceleration of development and completion of AXIS allows for planned retirement of the legacy TBMCS FL system. The revised fielding strategy to retire TBMCS FL all at once reduces the technical and operational complexities of incrementally deploying the applications. AXIS encompasses the remaining TBMCS FL capability and functionality missing from the suite of C2AOS-C2IS applications. Full retirement of TBMCS FL provides modernized and improved capability to the warfighter, resolves security issues, and reduces future sustainment costs. Additional FY17 activities include fixing deficiencies coming out of individual developmental tests (DT), maintaining information assurance (IA) posture and ensuring integration and testing of all Capability Packages (CP). Also, FY17 will include preparation for Request for Proposal (RFP) release and source selection of the C2AOS-C2IS Modification program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>	Project (Number/Name) 675218 / <i>Applications Development</i>
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Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

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 2015	FY 2016	FY 2017
<p>Title: NATO</p> <p>Description: NATO and International Cooperation Research and Development. Efforts to develop air, space, intelligence, surveillance, reconnaissance and cyber Information Exchange Requirements and capabilities between U.S. and NATO / Coalition systems to promote interoperability.</p> <p>FY 2015 Accomplishments: - Developed requirements and capabilities between U.S. and NATO / Coalition systems to promote interoperability.</p> <p>FY 2016 Plans: - In FY 2016, PE 0207410F, (Air & Space Operations Center (AOC)), Project 675218, (Application Development) efforts were transferred to PE 0604281, (Tactical Data Networks Enterprise), Project 655050, (TDL System Integration) as the requirements do not exist for Application Development.</p> <p>FY 2017 Plans: N/A</p>	0.382	0.000	0.000
<p>Title: C2AOS-C2IS Development (rebaselined to include efforts formerly known as C2AOS-C2IS I and II)</p> <p>Description: C2AOS-C2IS Development program develops modular net-centric C2 applications for air battle planning, execution and management functions and creates web-enabled information services to expose air operations data in TBMCS applications and systems using standardized schemas including Capability Packages (CP) 1, 2 & 3 - CP 1: Air Tasking Order Management System (ATOMS), Request Information Services for Command and Control (RISC2) & Network Enabled Weapons (NEW) - CP 2: C2 of IAMD Planner and Airspace Management Application - Airspace Information Service (ASMA-ASIS) - CP 3: Air Execution Information System (AXIS)</p> <p>FY 2015 Accomplishments: - Awarded Engineering Change Notices (ECN) to allow for deprecation of TBMCS FL to all four contracts (ASMA-ASIS, RISC2, C2 of IAMD, ATOMS) - Conducted Warfighter Assessments (WA) - Continued the development of ATOMS, RISC2, ASMA-ASIS and C2 of IAMD capabilities and began testing</p>	12.800	9.430	13.790

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675218 / Applications Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Fielded ASMA Fieldable Prototype to 603rd and 613th AOCs; Established product in AOC 10.1 RE13 and 10.2 baseline</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue development of ATOMS, RISC2, ASMA-ASIS and C2 of IAMD - Start contractor and development tests - Release RFP for AXIS - Conduct source selection for AXIS <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - FY17 funding increase due to the acceleration of the AXIS award and development - Accomplish bug fixes from testing and continue development of ASMA-ASIS, RISC2, C2 of IAMD and ATOMS - Prioritize Baseline Change Requests (BCR) - Conduct integration activities - Complete development of AXIS - Maintain IA posture 				
<p>Title: C2AOS-C2IS Modifications (rebaselined to include efforts formerly known as C2AOS-C2IS II)</p> <p>Description: The C2AOS-C2IS Modifications program updates the fielded C2AOS-C2IS baseline to remain interoperable, certified, supportable, and compliant through the development, integration, testing, fielding, and sustainment of new capabilities and upgrades. C2AOS-C2IS Modifications fine tunes capabilities for C2 of 4th and 5th Generation Fighter Platforms, maintains information assurance posture via cyber updates, and updates user interfaces as needed.</p> <p>This program, BA 07 PE 0207410F, project 675218, C2AOS-C2IS Modifications, is a new start.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Prioritize and work requirements for modification contract - Release RFP for C2AOS-C2IS Modifications contract - Conduct source selection to prepare for contract award 		0.000	0.000	0.300
Title: Test and Evaluation		1.398	2.032	1.195

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675218 / Applications Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: Test and Evaluation</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Test and Evaluation continued to focus on Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E), including test planning, conduct and documentation review - Participated in multiple test events <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Test and Evaluation will participate in multiple Warfighter Assessments (WA), Risk Reduction Testing (RRT) and DT events and regression testing - Prepare for DT and OT <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Conduct integration tests and RRTs - Conduct AXIS DT - Conduct combined DT of the five projects (ASMA-ASIS, RISC2, C2 of IAMD, ATOMS and AXIS) - Prepare for OT 			
Accomplishments/Planned Programs Subtotals	14.580	11.462	15.285

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

N/A

Remarks

D. Acquisition Strategy

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on incremental development leveraging the C2 Applications and Information Services Development (C2AD) Indefinite Delivery/Indefinite Quantity (ID/IQ) contract. The Air Force Life Cycle Management Center, Operations C2 Division (AFLCMC/HBB) manages the integration of C2AOS-C2IS efforts into the AOC WS.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675218 / Applications Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Tasking Order Management System (ATOMS)	C/Various	Lockheed Martin : Colorado Springs, CO	0.000	3.898	Jun 2015	1.093	Mar 2016	2.520	Dec 2016	0.000		2.520	0.000	7.511	-
Request Information Services for Command and Control (RISC2)	C/Various	Science Applications International Corporation : McLean, VA	0.000	0.349	Dec 2014	0.900	Mar 2016	1.290	Jan 2017	0.000		1.290	0.000	2.539	-
Air Space Management Application-Air Space Information Service (ASMA-ASIS)	C/Various	Leidos, Inc. : Reston, VA	0.000	1.177	Feb 2015	0.800	Mar 2016	1.240	Dec 2016	0.000		1.240	0.000	3.217	-
Command and Control of Integrated Air and Missile Defense (C2 of IAMD)	C/Various	Lockheed Martin : Colorado Springs, CO	0.000	2.018	Jun 2015	0.860	Jun 2016	1.670	Dec 2016	0.000		1.670	0.000	4.548	-
Air Execution Information System (AXIS)	C/TBD	TBD : TBD	0.000	0.000		0.650	Jul 2016	4.518	Dec 2016	0.000		4.518	0.000	5.168	-
Subtotal			0.000	7.442		4.303		11.238		0.000		11.238	0.000	22.983	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support (Joint)	MIPR	Joint Interoperability Test Command : Fort Huachuca, AZ	0.000	0.043	Jan 2015	0.050	Mar 2016	0.000		0.000		0.000	0.000	0.093	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675218 / Applications Development

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATOMS CP 1 Rel 3 Development	■																											
ATOMS CP 1 Rel 3 Testing		■	■	■																								
ATOMS CP 1 Rel 4 Development																												
ATOMS CP 1 Rel 4 Testing																												
RISC2 CP 1 Development	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RISC2 CP 1 Testing																												
C2 of IAMD Planner CP 2 Rel 2 Development	■	■	■	■																								
C2 of IAMD Planner CP 2 Rel 2 Testing			■	■																								
C2 of IAMD Planner CP 2 Rel 3 Development																												
C2 of IAMD Planner CP 2 Rel 3 Testing																												
ASMA-ASIS CP 2 Development	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ASMA-ASIS CP 2 Testing																												
AXIS CP 3 Rel 1 Development																												
AXIS CP 3 Rel 1 Testing																												
C2AOS-C2IS Modifications program																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675218 / Applications Development

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ATOMS CP 1 Rel 3 Development	1	2015	1	2015
ATOMS CP 1 Rel 3 Testing	2	2015	4	2015
ATOMS CP 1 Rel 4 Development	4	2015	1	2018
ATOMS CP 1 Rel 4 Testing	3	2016	2	2018
RISC2 CP 1 Development	1	2015	1	2018
RISC2 CP 1 Testing	4	2015	2	2018
C2 of IAMD Planner CP 2 Rel 2 Development	1	2015	3	2015
C2 of IAMD Planner CP 2 Rel 2 Testing	3	2015	3	2015
C2 of IAMD Planner CP 2 Rel 3 Development	4	2015	1	2018
C2 of IAMD Planner CP 2 Rel 3 Testing	2	2016	2	2018
ASMA-ASIS CP 2 Development	2	2015	1	2018
ASMA-ASIS CP 2 Testing	2	2016	2	2018
AXIS CP 3 Rel 1 Development	4	2016	4	2017
AXIS CP 3 Rel 1 Testing	3	2017	1	2018
C2AOS-C2IS Modifications program	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675220 / Unit Level
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675220: <i>Unit Level</i>	0.000	8.756	7.232	7.666	0.000	7.666	7.816	7.963	4.147	8.254	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project funds are used to develop, integrate, field, and maintain Unit Command and Control (UC2) as an evolving sequence of increasing software capabilities that support the execution of the air battle plan and the air tasking order message received from the AOC. UC2 operations software systems meet needs identified in the TBMCs Operational Requirements Document (ORD) (2001), the UC2 Baseline Systems Requirement Document (SRD) and the UC2 SRD 1067 Appendix, by providing both the scheduling and mission preparation activities at the wing, group and squadron level, and the capabilities to report and track the success of each mission and influence decisions on future air battle planning. UC2 is fielded to the Wing Operations Center (WOC), the Maintenance Operations Center (MOC), the Emergency Operations Center (EOC), Crisis Action Team (CAT), and many other work-centers. UC2 requirements will be identified using the system modification request process.

In FY17, core development activities will be to complete development of UC2 1.2 and begin development of UC2 1.3. UC2 1.2 will provide Wing Commanders with a modernized Common Operating Picture (COP) and allow better situational awareness throughout base command and control (C2) nodes. UC2 1.3 will allow UC2 to be accessed on mobile platforms. Additional FY17 activities will include fixing deficiencies coming out of the associated developmental tests (DT), maintaining information assurance (IA) posture and insuring integration and testing of UC2 interfaces with other applications.

Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

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 2015	FY 2016	FY 2017
Title: Software Development	7.959	6.634	7.057
Description: UL/UC2 and UC2 capabilities development/integration.			
FY 2015 Accomplishments:			
- Continued development of UC2 Rel 1.1 which provides the majority of resource management modernization			
- Prepared for testing of UC2 Rel 1.1 and fielding of UC2 Rel 1.1			
FY 2016 Plans:			
- Complete development of UC2 Rel 1.1			
- Test and field UC2 Rel 1.1			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675220 / Unit Level

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Start development of UC2 Rel 1.2 which completes the resource management modernization, provides modernization of base situational awareness map, and adds/modernizes the interfaces FY 2017 Plans: - Software Development: Complete development of UC2 Rel 1.2 - Test and field UC2 Rel 1.2 - Start development of UC2 Rel 1.3 which provides mobile device compatibility			
Title: Testing and Test Support Description: Testing and test support activities. FY 2015 Accomplishments: - UL/UC2 Inc 2 SP2 fielding completion - Completed testing and evaluation of UL/UC2 Inc 2 SP3 - Fielded UL/UC2 Inc 2 SP3 - Started early user testing on UC2 Rel 1.1 to support agile development FY 2016 Plans: - Support UC2 Warfighter Assessments - Complete testing of UC2 Rel 1.1 - Start testing UC2 Rel 1.2 FY 2017 Plans: - Support UC2 Warfighter Assessments - Complete testing of UC2 Rel 1.2 - Start testing of UC2 Rel 1.3	0.797	0.598	0.609
Accomplishments/Planned Programs Subtotals	8.756	7.232	7.666

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 834520: Theater Battle Management C2 System	3.825	3.079	3.293	0.000	3.293	3.352	3.410	3.472	3.535	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>	Project (Number/Name) 675220 / <i>Unit Level</i>

D. Acquisition Strategy

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on incremental development while incorporating agile development and testing principals. The contracting strategy is Cost Plus Fixed Fee. The acquisition and contracting strategies were approved by Program Executive Officer, Battle Management, on 20 March, 2014.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675220 / Unit Level
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Increment Development	C/CPFF	Lockheed Martin : Hampton, VA	0.000	0.220	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.220	13.861
Third Party Integration	Various	Various : Various	0.000	0.065	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.065	TBD
Unit Command & Control (UC2)	C/CPFF	Leidos Inc. : Reston, VA	0.000	6.196	Feb 2015	5.307	Jan 2016	5.700	Jan 2017	0.000		5.700	7.000	24.203	10.530
Subtotal			0.000	6.481		5.307		5.700		0.000		5.700	7.000	24.488	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	PO	46TS : Eglin AFB, FL	0.000	0.797	Dec 2014	0.598	Dec 2015	0.609	Dec 2016	0.000		0.609	Continuing	Continuing	TBD
Subtotal			0.000	0.797		0.598		0.609		0.000		0.609	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	C/CPAF	MITRE : Bedford, MA	0.000	0.898	Oct 2014	0.633	Oct 2015	0.646	Oct 2016	0.000		0.646	Continuing	Continuing	TBD
Program Management Administration	C/Various	Various : Hanscom AFB, MA	0.000	0.580	Oct 2014	0.694	Nov 2015	0.711	Nov 2016	0.000		0.711	Continuing	Continuing	TBD
Subtotal			0.000	1.478		1.327		1.357		0.000		1.357	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)			Project (Number/Name) 675220 / Unit Level			
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	0.000	8.756	7.232	7.666	0.000	7.666	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675220 / Unit Level

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Inc 2 SP2 Test + Fielding	█	█																										
UC2 Rel 1.1 Development	█	█	█	█																								
Inc 2 SP3 Test + Fielding				█	█	█	█																					
UC2 Rel 1.1 Testing					█	█																						
UC2 Rel 1.1 Fielding Decision (FEB 2016)						█																						
UC2 Rel 1.1 Fielding						█	█	█																				
UC2 Rel 1.2 Development						█	█	█	█																			
UC2 Rel 1.2 Testing									█	█																		
UC2 Rel 1.2 Fielding Decision (FEB 2017)										█																		
UC2 Rel 1.2 Fielding										█	█	█																
UC2 Rel 1.3 Development										█	█	█	█															
UC2 Rel 1.3 Testing													█	█														
UC2 Rel 1.3 Fielding Decision (FEB 2018)														█														
UC2 Rel 1.3 Fielding														█	█	█												
UC2 Rel 1.4 Development														█	█	█	█											
UC2 Rel 1.4 Testing																█	█											
UC2 Rel 1.4 Fielding Decision (FEB 2019)																	█											
UC2 Rel 1.4 Fielding																	█	█	█									
UC2 Follow-on Contract (SEP 2019)																	█											
UC2 2.1																	█	█	█									
UC2 2.2																				█	█	█	█					
UC2 2.3																										█	█	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675220 / Unit Level

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Inc 2 SP2 Test + Fielding	1	2015	2	2015
UC2 Rel 1.1 Development	1	2015	1	2016
Inc 2 SP3 Test + Fielding	4	2015	3	2016
UC2 Rel 1.1 Testing	1	2016	2	2016
UC2 Rel 1.1 Fielding Decision (FEB 2016)	2	2016	2	2016
UC2 Rel 1.1 Fielding	2	2016	4	2016
UC2 Rel 1.2 Development	2	2016	1	2017
UC2 Rel 1.2 Testing	1	2017	2	2017
UC2 Rel 1.2 Fielding Decision (FEB 2017)	2	2017	2	2017
UC2 Rel 1.2 Fielding	2	2017	4	2017
UC2 Rel 1.3 Development	2	2017	1	2018
UC2 Rel 1.3 Testing	1	2018	2	2018
UC2 Rel 1.3 Fielding Decision (FEB 2018)	2	2018	2	2018
UC2 Rel 1.3 Fielding	2	2018	4	2018
UC2 Rel 1.4 Development	2	2018	1	2019
UC2 Rel 1.4 Testing	1	2019	2	2019
UC2 Rel 1.4 Fielding Decision (FEB 2019)	2	2019	2	2019
UC2 Rel 1.4 Fielding	2	2019	4	2019
UC2 Follow-on Contract (SEP 2019)	1	2019	1	2019
UC2 2.1	2	2019	1	2020
UC2 2.2	2	2020	1	2021
UC2 2.3	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)				Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675221: <i>Personnel Recovery Command and Control (PRC2)</i>	0.000	2.325	2.408	2.392	0.000	2.392	2.438	2.484	2.530	2.575	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. 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 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, interoperable 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.

The system collects, stores and delivers personnel/identity biometric data, emergency locator beacon registrations, isolated personnel 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 Personnel Recovery across 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 FY17, PRMS modifications are required to develop and field PRMS 5.0 to enable the transition from the existing Web Forms implementation to a Model View Controller (MVC) implementation. This release will also address known Deficiency Reports (DR), incorporate user inputs, facilitate reducing maintenance costs to operate PRMS, updating the User Interface (UI) to a modern design, and increase overall efficiency. Additionally, FY17 PRMM modifications will Import/validate Isolated Personnel (IP) events/alerts, Import/validate Isolated Personnel (IP) events/alerts and enable case files for Defense Prisoner of War/Missing Personnel Office (DPMO) and Joint Personnel Recovery Agency (JPRA).

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 2015	FY 2016	FY 2017
Title: Personnel Recovery Command and Control (PRC2)	2.175	2.208	2.058
Description: PRC2 is developing and delivering tools and services for planning and managing search and rescue efforts, and disseminating related information.			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed development and test of Personal Recovery Mission Software (PRMS) Virtualization 4.0 Development (formerly PRC2 Inc 4 Build 4.0.0 Virtualization Development). - Continued development of Personal Recovery Mission Manager (PRMM) Version 2 (formerly PRC2 Inc 5 Build 5.0.0 Mission Manager Inc 2) to create an environment for the AOC Personnel Recovery Coordinator Cell to access situational awareness data to recover isolated personnel <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete development and field PRMS 4.0 (formerly PRC2 Inc 4 Build 4.0.0 Virtualization) and PRMM Version 2 (formerly PRC2 Inc 5 Build 5.0.0 Mission Manager Inc 2) capability - FY16 follow on activities focus on concept and risk reduction activities to support the development of Mission Manager in the Joint environment <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will start development of PRMS 5.0 (formerly PRC2 Inc 4 Build 4.0.1 Maintenance Release) - Complete and field PRMM Version 2.0.0 Release (formerly PRC2 Inc 5 Build 5.0.1 Maintenance Release) - Will start development of PRMM Version 3.0 (formerly PRC2 Inc 6 Build 6.0.0 Mission Manager Inc 3) 				
<p>Title: Test and Evaluation</p> <p>Description: Test and Evaluation</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Test and Evaluation focused on test activities to field PRMS Virtualization 4.0 (formerly PRC2 Inc 4 Build 4.0.0 Virtualization) - Follow on activities focused on finalizing test documentation to support the development of PRMM Version 2.0(formerly PRC2 Inc 5 Build 5.0.1 Maintenance Release) <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Test and Evaluation focuses on test activities to field PRMS Version 4.0 (formerly PRC2 Inc 4 Build 4.0.1 and 4.0.2 Maintenance Releases) and PRMM Version 2.0(formerly PRC2 Inc 5 Build 5.0.1 Maintenance Release) capability <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will test and evaluate PRMS 5.0 (formerly PRC2 Inc 4 Build 4.0.1 Maintenance Release) and start test and evaluate PRMM Version 3.0 Maintenance Release (formerly PRC2 Inc 5 Build 5.0.1 Maintenance Release) 		0.150	0.200	0.334
Accomplishments/Planned Programs Subtotals		2.325	2.408	2.392

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 834520: Theater Battle Management C2 System	0.995	1.255	1.252	0.000	1.252	1.274	1.297	1.320	1.344	Continuing	Continuing

Remarks

D. Acquisition Strategy

PRC2 product support is provided to the program office by the 517th Software Maintenance Squadron (517 SMXS), Hill AFB Utah, in accordance with a memorandum of agreement and on a fee for service basis. This strategy to utilize the 517 SMXS for agile product development and sustainment was reviewed and approved by the Air Force Program Executive Officer for Battle Management, and implemented in mid-FY2014. The work done by the 517 SMXS includes, but is not limited to, modernization development, sustainment support services, and software maintenance of the PRC2 system.

E. Performance Metrics

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 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0207410F / Air & Space Operations Center (AOC)				675221 / Personnel Recovery Command and Control (PRC2)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PRC2 Follow on Development	PO	Ogden ALC : Hill AFB, UT	0.000	1.449	Dec 2014	1.118	Dec 2015	1.658	Dec 2016	0.000		1.658	Continuing	Continuing	TBD
Subtotal			0.000	1.449		1.118		1.658		0.000		1.658	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	46th Test Squadron : Eglin AFB, FL	0.000	0.150	Oct 2014	0.200	Oct 2015	0.334	Oct 2016	0.000		0.334	Continuing	Continuing	TBD
Subtotal			0.000	0.150		0.200		0.334		0.000		0.334	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	SS/ Various	MITRE : Bedford, MA	0.000	0.318	Oct 2014	0.330	Oct 2015	0.000		0.000		0.000	0.000	0.648	-
Program Management Administration	C/Various	Various : Hill AFB, UT	0.000	0.408	Dec 2014	0.760	Dec 2015	0.400	Dec 2016	0.000		0.400	Continuing	Continuing	TBD
Subtotal			0.000	0.726		1.090		0.400		0.000		0.400	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PRMM Ver 2 Development (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)	██████████																											
PRMM Ver 2 Testing (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)																												
PRMM Ver 2 Fielding (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)																												
PRMM Ver 3.0 Development (Formerly PRMM 3.0 Maintenance Release)									██████████																			
PRMM Ver 3.0 Testing (Formerly PRMM 3.0 Maintenance Release Testing)																					██████████							
PRMM Ver 3.0 Fielding (Formerly PRMM 3.0 Maintenance Release Fielding)																					██████████							
PRMS 4.0 Development (formerly PRC2 Inc 4 Build 4.0.0)	██████████																											
PRMS 4.0 Testing (formerly PRC2 Inc 4 Build 4.0.0)																												
PRMS 4.0 Fielding (formerly PRC2 Inc 4 Build 4.0.0)																												
PRMS 5.0 Development													██████████															
PRMS 5.0 Testing																												
PRMS 5.0 Fielding																												
PRC 4.0 Enclave Development (Formerly embedded in PRMS 4.0)	██████████																											
PRC 4.0 Enclave Testing (Formerly embedded in PRMS 4.0)																												
PRC 4.0 Enclave Fielding (Formerly embedded in PRMS 4.0)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

PRC 5.0 Enclave Development																												
PRC 5.0 Enclave Testing																												
PRC 5.0 Enclave Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PRMM Ver 2 Development (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)	2	2015	3	2016
PRMM Ver 2 Testing (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)	4	2016	4	2016
PRMM Ver 2 Fielding (formerly PRC2 Inc 5 Build 5.0.0 MM Inc 2)	4	2016	4	2016
PRMM Ver 3.0 Development (Formerly PRMM 3.0 Maintenance Release)	1	2017	4	2019
PRMM Ver 3.0 Testing (Formerly PRMM 3.0 Maintenance Release Testing)	1	2020	1	2020
PRMM Ver 3.0 Fielding (Formerly PRMM 3.0 Maintenance Release Fielding)	1	2020	1	2020
PRMS 4.0 Development (formerly PRC2 Inc 4 Build 4.0.0)	1	2015	2	2016
PRMS 4.0 Testing (formerly PRC2 Inc 4 Build 4.0.0)	3	2016	3	2016
PRMS 4.0 Fielding (formerly PRC2 Inc 4 Build 4.0.0)	3	2016	3	2016
PRMS 5.0 Development	4	2016	1	2021
PRMS 5.0 Testing	2	2021	2	2021
PRMS 5.0 Fielding	2	2021	2	2021
PRC 4.0 Enclave Development (Formerly embedded in PRMS 4.0)	2	2015	2	2016
PRC 4.0 Enclave Testing (Formerly embedded in PRMS 4.0)	3	2016	3	2016
PRC 4.0 Enclave Fielding (Formerly embedded in PRMS 4.0)	3	2016	3	2016
PRC 5.0 Enclave Development	4	2016	4	2019
PRC 5.0 Enclave Testing	1	2020	1	2020
PRC 5.0 Enclave Fielding	1	2020	1	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F <i>I Control and Reporting Center (CRC)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.557	13.292	0.000	13.292	2.443	0.010	9.480	9.649	Continuing	Continuing
67485L: <i>Theater Air Control System Imp (TACSI)</i>	-	0.000	0.557	13.292	0.000	13.292	2.443	0.010	9.480	9.649	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 07 PE 0207412F, project 67485L, OM Mod Increment 1, is a new start.

A. Mission Description and Budget Item Justification

The Control and Reporting Center (CRC) program element provides for development and integration of new capabilities, upgrades, and modifications including those required to maintain capability due to replacement of diminishing manufacturing sources. The CRC is a mobile, ground-based theater air control system (TACS) surveillance and battle management command and control (BMC2) element. It consists of facilities, equipment, and people. It is a customizable, modular, transportable, and persistent weapon system employed at the tactical level to support air and surface operations. The CRC projects include development of Theater Air Control Systems Improvement (TACSI) capabilities. These efforts include, but are not limited to, the development and modification of the AN/TYQ-23A(V)1 Operations Module (OM), the AN/TRC-213/214 Remote Radio Secure Voice System (RRSVS) and the Joint Tactical Information Distribution System (JTIDS) Module (JM) Link 16 Upgrade.

AN/TYQ-23A(V)1 OM is a low density/high demand (LD/HD), rapidly deployable, ground-based C2 asset. This automated, computer-based information system provides operators the real-time battlespace picture necessary to plan, direct, and control tactical air operations and airspace management tasks. In order to meet warfighter requirements, incremental updates are required. For example, these improvements will add Secret Internet Protocol Router Network (SIPRnet), Mode 5 integration, improved data links, and Multiple Source Correlator Tracker upgrades. Modifications will be required to integrate with the Three Dimensional Expeditionary Long Range Radar (3DELRR). AN/TRC-213/214 RRSVS is a voice radio and OM-interface unit. The RRSVS allows real-time, secure voice communications between aircraft and battle management C2 operators in the CRC. Everything over Internet Protocol (EoIP), which is used for external communications, Mobile User Objective System (MUOS) and Integrated Waveform will also be integrated into a future RRSVS upgrade. JM Link 16 Upgrade will provide crypto modernization and will meet the FAA mandated frequency re-mapping requirement.

Activities also include studies and analysis supporting current and future program planning and future development of open system architecture requirements.

This program is in Budget Activity 7, Operational System Development. 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F <i>I Control and Reporting Center (CRC)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.559	5.433	0.000	5.433
Current President's Budget	0.000	0.557	13.292	0.000	13.292
Total Adjustments	0.000	-0.002	7.859	0.000	7.859
• Congressional General Reductions	0.000	-0.002			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	7.859	0.000	7.859

Change Summary Explanation

This program, BA 07 PE 0207412F, project 67485L, OM Mod Increment 1, is a new start. Increased funding in FY17 is for OM Mod Increment 1 to cover the new start.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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<p>Title: JM Link 16 Upgrade</p> <p>Description: JM Link 16 Upgrade will provide for crypto modernization and will meet the DoD mandated frequency re-mapping requirement.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Develop and support efforts of the Joint Tactical Information Distribution System (JTIDS) upgrade.</p> <p>FY 2017 Plans: Will continue to develop and support efforts of the JM Link 16 Upgrade</p>	0.000	0.557	5.433
<p>Title: OM Mod Increment 1</p> <p>Description: OM Mod Increment 1 upgrades will meet user requirements to replace the Battle Control Three (BC3) CRC system in the AOR which will require Secret Internet Protocol Router Network (SIPRnet)</p> <p>FY 2015 Accomplishments:</p>	0.000	0.000	7.859

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F I <i>Control and Reporting Center (CRC)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
N/A			
FY 2016 Plans: N/A			
FY 2017 Plans: Will integrate and test CRC future baseline organic radar (3DELRR).			
Accomplishments/Planned Programs Subtotals	0.000	0.557	13.292

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 833040: <i>Theater Air Control Sys Improvements</i>	50.033	22.710	1.163	0.000	1.163	14.413	12.134	2.872	2.922	Continuing	Continuing

Remarks

E. Acquisition Strategy
 The CRC program is utilizing evolutionary development to modernize and further advance current and future battlespace awareness and tactical battle management command and control capabilities. A variety of contract types will be utilized depending on type of effort. Management strategy relies on Air Force Program Executive Officer for Battle Management (AFPEO BM) as the PEO; and Air Force Life Cycle Management Center (AFLCMC) as the Contracting Authority. In 4th quarter of FY 2016 the entire program including SPM responsibilities transitions to HBZ at Hill AFB, Utah.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / <i>Control and Reporting Center (CRC)</i>	Project (Number/Name) 67485L / <i>Theater Air Control System Imp (TACSI)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JM Link 16 Upgrade	TBD	TBD : TBD	-	0.000	Mar 2016	0.208		5.433	Jan 2017	0.000		5.433	Continuing	Continuing	-
OM Mod Increment 1	TBD	TBD : TBD	-	0.000		0.000		7.071	Jan 2017	0.000		7.071	Continuing	Continuing	-
Subtotal			-	0.000		0.208		12.504		0.000		12.504	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	Various : Various, MA	-	0.000		0.150	May 2016	0.488	Jun 2017	0.000		0.488	Continuing	Continuing	-
Subtotal			-	0.000		0.150		0.488		0.000		0.488	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	Various	Various : Hanscom, MA	-	0.000		0.199	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Program Management Administration - Hill AFB	TBD	TBD : Hill AFB, UT	-	0.000		0.000		0.300	Jan 2017	0.000		0.300	Continuing	Continuing	-
Subtotal			-	0.000		0.199		0.300		0.000		0.300	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207412F / <i>Control and Reporting Center (CRC)</i>				Project (Number/Name) 67485L / <i>Theater Air Control System Imp (TACSI)</i>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.000	0.557		13.292	0.000	13.292	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / <i>Control and Reporting Center (CRC)</i>	Project (Number/Name) 67485L / <i>Theater Air Control System Imp (TACSI)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JM Link 16 Upgrade																												
OM Mod Increment 1																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / <i>Control and Reporting Center (CRC)</i>	Project (Number/Name) 67485L / <i>Theater Air Control System Imp (TACSI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JM Link 16 Upgrade	4	2016	2	2018
OM Mod Increment 1	2	2017	1	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	172.785	131.812	86.644	0.000	86.644	121.067	89.372	86.625	77.143	Continuing	Continuing
67411L: <i>Airborne Warning & Control System (AWACS)</i>	-	172.785	131.812	86.644	0.000	86.644	121.067	89.372	86.625	77.143	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mission: E-3 Airborne Warning and Control System (AWACS) is the premier airborne platform providing Battle management (BM)/Command and Control (C2) 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.

1. 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. Non-compliance will result in airspace restrictions and denials that will impact AWACS ability to support worldwide responses to situations requiring immediate on-scene BM/C2. 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). Also included as part of the modification is the addition of data link communications, voice and data link digital radios, improved visual displays, and competitive acquisition of DRAGON flight simulators. Emphasis on employment of Commercial-Off-The-Shelf (COTS) avionics is expected to lower cost, reduce the tech refresh cycle, and enhance life cycle management. DRAGON will provide development of support and test equipment needed for DRAGON production; DRAGON will also provide initial DMS and Initial Contractor Support (ICS) needed to support the first US developmental test aircraft (i.e., D-1) prior to the contract award of the DRAGON production effort. The Engineering and Manufacturing Development (EMD) phase of DRAGON is being executed as a Cooperative Program between the US and NATO.

2. E-3 Electronic Protection (EP): EP will provide improved radar processing in a specific flight environment to meet a classified requirement. Processing will initially address radar modes comprising 90% of operational AWACS radar usage. EP will install an adjunct processor that works in parallel with the current Radar System Improvement Program (RSIP) system. The EP-processed radar picture will appear on the battle manager's display in place of the current RSIP output when the EP radar modes are selected.

3. E-3 Training, Support, and Infrastructure (TSI): TSI provides continuing management support for AWACS modernization and enhancement. These activities include managing the AWACS Development Test and Evaluation (DT&E) and Production infrastructure and tracking and monitoring the AWACS vendor's core mission and aircrew training, support equipment and program Government Furnished Property. The overall DT&E test infrastructure supports development, production, and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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sustainment projects and maintains facilities to support AWACS aircraft during system and sub-system testing at Boeing Field, WA, Baltimore, MD, and Oklahoma City, OK. Funding is shared between Research, Development, Test, and Evaluation (RDT&E) and production funds. The TSI assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a maintenance fee basis, not limited to projects for France, Saudi Arabia, United Kingdom, Japan, and North Atlantic Treaty (NATO) AEW&C 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 international customers with a configured development and qualification system and subsystem environment supporting all AWACS system and radar development, production, and sustainment. 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.

4. 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 the investigation, analysis and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. C2ISR primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes developing an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as materiel solutions for the user needs. C2ISR will also support an analytical comparison of the operational effectiveness, suitability, and life-cycle cost of alternative materiel solutions beyond the current AWACS that satisfy an established capability need identified in an Initial Capabilities Document (ICD).

5. E-3 Internet Protocol Enabled Communication (IPEC): IPEC will provide the Block 40/45 E-3 with a medium-bandwidth Internet Protocol (IP) communications capability to connect to the Global Information Grid and will support net-centric operations/warfare. IPEC will provide a reliable IP-enabled communication capability to support a shortened digitized kill-chain of time-sensitive targets. The modification will provide a permanent Inmarsat-based IP-enabled communications package supporting warfighter identified requirements for increased bandwidth Secret Internet Protocol Router Network (SIPRNet) and multi-domain networks. IPEC was originally planned for accomplishment as a traditional acquisition program, but due to warfighter demand, the effort has been re-classified as an Urgent Operational Need (UON).

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 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) BM/C2 combat ID. CID DMS supports the kill chain and decision superiority. The upgrade will also provide for better integration into Block 40/45 and NGIFF equipped AWACS aircraft.

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. Current 20 year old Class 2 terminal has sustainability/DMS issues and does not support mandated Crypto Mod (CM) & Freq. Remap (FR). CNU resolves DMS issues, provides CM & FR, Link 16 enhancements & growth for Next Gen Tactical Data Link (TDL). In previous budget cycle, this effort was referred to as Multifunctional Information Distribution System Joint Tactical Radio System (MIDS JTRS).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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The FY 2017 funding request was reduced by \$22.122M to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational Systems 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	180.804	161.812	108.766	0.000	108.766
Current President's Budget	172.785	131.812	86.644	0.000	86.644
Total Adjustments	-8.019	-30.000	-22.122	0.000	-22.122
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-30.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-1.800	0.000			
• SBIR/STTR Transfer	-6.219	0.000			
• Other Adjustments	0.000	0.000	-22.122	0.000	-22.122

Change Summary Explanation

- The FY 2016 budget reduced by \$30M for "Program Decrease".
- The FY 2017 funding request was reduced by \$22.122M to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	122.931	73.277	38.123	-	38.123
Description: DRAGON					
FY 2015 Accomplishments:					
-Performed Handover Test of US development test aircraft (D-1), transferred aircraft to Boeing and began the aircraft modification.					
-Started flight testing of the NATO developmental aircraft (N- 1).					
-Started the Technical Order (TO) validation for N-1.					
-Started the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) for N-1.					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>			
C. Accomplishments/Planned Programs (\$ in Millions)					
-Initiated development of Automatic Dependent Surveillance - Broadcast (ADS-B) Out capability to DRAGON in FY15.					
FY 2016 Plans:					
-Complete N-1 (common) Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA).					
-Perform D-1 Installation & Checkout.					
-Start D-1 Ground Test and Flight Test.					
-Conduct D-1 Tech Order validation.					
-D-1 Ops Type 1 training starts					
-Start D-1 FCA and PCA.					
-N-1 Type 1 training complete.					
-Complete flight testing on N-1.					
-Boeing will deliver N-1.					
-Will award contract for DRAGON simulators.					
FY 2017 Base Plans:					
-Will complete development of D-1 FCA and PCA.					
-Boeing will deliver D-1.					
-Boeing will deliver two virtual desktop trainers.					
Title: E-3 Electronic Protection (EP)					
Description: EP					
FY 2015 Accomplishments:					
-Performed Successful Radar Level Preliminary Design Review (PDR).					
-Awarded Engineering Manufacturing and Development (EMD) contract.					
-Began development of classified technology solutions to mitigate issues/concerns identified under the Radar Modernization Program (RMP) study.					
FY 2016 Plans:					
-Continue development of classified technology solutions to mitigate issues/concerns identified in the RMP study.					
-Conduct System Level PDR.					
	19.277	26.092	8.325	-	8.325

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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-Conduct Critical Design Review (CDR). FY 2017 Base Plans: -Will continue development and maturation of classified technology radar solutions in both the Systems Integration Lab (SIL)/Software Development Facility (SDF) and Avionics Integration Laboratory (AIL) in preparation for the EMD ground and flight test.					
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Title: E-3 Training, Support and Infrastructure (TSI) Description: TSI	10.716	13.840	14.131	-	14.131
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FY 2015 Accomplishments: -Supported AWACS developmental and production programs lab integration efforts. -Provided system lab support to EP, Block 40/45, DRAGON, Next Generation Identification Friend or Foe (NGIFF), Internet Protocol Enabled Communication (IPEC), radar improvement efforts, integration and test. -Supported E-3 and other OSD mandated interoperability testing and provided support for mandatory Operational, Safety, and Suitability and Effectiveness efforts. -Supported the E-3 AWACS Developmental Test and Evaluation AIL.					
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FY 2016 Plans: -Continue to support AWACS developmental and production programs lab integration efforts. -Continue to provide system lab support to EP, Block 40/45, DRAGON, NGIFF, IPEC, radar improvement efforts, integration and test. -Continue to support E-3 and other OSD mandated interoperability testing and provide support for mandatory Operational, Safety, and Suitability and Effectiveness efforts. -Continue to support the E-3 AWACS Developmental Test and Evaluation AIL.					
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FY 2017 Base Plans: -Will award follow-on contract(s). -Will support AWACS developmental and production programs lab integration efforts. -Will provide system lab support to EP, Block 40/45, DRAGON, NGIFF, IPEC, radar improvement, integration and test. -Will support AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program.					
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Will support the E-3 AWACS Developmental Test & Evaluation AIL.					
Title: E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) Description: C2ISR FY 2015 Accomplishments: -Conducted engineering / integration studies to determine required modifications and associated costs to upgrade and support Risk Reduction activities. -Continued integration with joint and coalition forces in a net-centric environment. FY 2016 Plans: -Conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support Risk Reduction activities for program planning. -Continue to execute International Cooperative Research & Development (ICR&D). FY 2017 Base Plans: -Will continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning. -Will continue to execute cooperative IR&D.	4.235	4.861	4.785	-	4.785
Title: E-3 Internet Protocol Enabled Communication (IPEC) Description: IPEC FY 2015 Accomplishments: -Awarded EMD contract to develop a medium bandwidth IP capability capitalizing on the Inmarsat terminal development conducted under the DRAGON program. FY 2016 Plans: -Continue EMD activities in preparation for contractor Development Test (DT) and Government DT and Operational Test (OT). FY 2017 Base Plans: -Will complete EMD, DT, and OT.	15.626	13.742	19.280	-	19.280
Title: E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Description: CID DMS	0.000	0.000	1.000	-	1.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>	

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: -Will conduct a study focused buying down development risk(s) in advance of awarding an EMD contract.					
Title: E-3 Communication Network Upgrade (CNU) Description: CNU	0.000	0.000	1.000	-	1.000
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: -Will conduct a study focused buying down development risk(s) in advance of awarding an EMD contract.					
Accomplishments/Planned Programs Subtotals	172.785	131.812	86.644	-	86.644

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # E00300: E-3	16.491	12.828	82.786	6.600	89.386	145.452	157.431	168.853	156.540	Continuing	Continuing
• APAF: BA05: Line Item # E34045: <i>Airborne Warning and Control System</i>	191.284	178.308	223.427	0.000	223.427	103.420	58.154	29.309	0.000	-	-
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	2.957	15.616	22.061	0.000	22.061	22.502	23.938	24.366	21.472	Continuing	Continuing

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>	
E. Acquisition Strategy The modernization of the AWACS weapon system consists of multiple capability upgrades that are developed and fielded on an existing sole source Indefinite Delivery/ Indefinite Quantity (ID/IQ) contract to the Boeing Corporation, Seattle, WA and Oklahoma City, OK. Full and open competition is explored for all new efforts where market research indicates opportunities exist. Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/BM) is the PEO and Milestone Decision Authority (MDA) for all 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. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the AWACS portfolio and provides Contracts, Legal, and Comptroller Support.		
F. Performance Metrics 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(U) E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	Boeing : Seattle, WA	-	119.612	Jan 2015	68.349	Jan 2016	34.181	Jan 2017	0.000		34.181	Continuing	Continuing	TBD
(U) E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)	SS/ Various	Boeing : Seattle, WA	-	0.050	Jan 2015	2.670	Jan 2016	4.785	Jan 2017	0.000		4.785	Continuing	Continuing	TBD
(U) E-3 Electronic Protection (EP)	SS/CPIF	Boeing : Seattle, WA	-	16.971	Aug 2015	23.582	Feb 2016	5.658	Jan 2017	0.000		5.658	Continuing	Continuing	TBD
(U) E-3 Internet Protocol Enabled Communication (IPEC)	SS/ Various	Boeing : Oklahoma City, OK	-	14.071	Sep 2015	10.891	Mar 2016	16.429	Jan 2017	0.000		16.429	Continuing	Continuing	TBD
(U) E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS)	TBD	TBD : TBD	-	0.000		0.000		1.000	Jan 2017	0.000		1.000	Continuing	Continuing	TBD
(U) E-3 Communication Network Upgrade (CNU)	TBD	TBD : TBD	-	0.000		0.000		1.000	Jan 2017	0.000		1.000	Continuing	Continuing	TBD
(U) Prior Platform Modifications	Various	Various : Various, NA	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	150.704		105.492		63.053		0.000		63.053	-	-	-

Remarks
Total Program does not include NATO funds.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DRAGON EMD	1	2015	3	2017
DRAGON DT/OT	1	2015	3	2019
DRAGON Milestone C (Apr 2017)	3	2017	3	2017
EP Technology Development	1	2015	4	2015
EP Milestone B (Aug 2015)	4	2015	4	2015
EP EMD	4	2015	2	2019
EP Milestone C (Apr 2019)	3	2019	3	2019
EP DT/OT	4	2018	2	2019
TSI	1	2015	4	2021
C2ISR	1	2015	4	2021
IPEC TD	1	2015	4	2015
IPEC EMD	4	2015	2	2017
IPEC Ktr DT & Gov't DT/OT	3	2016	2	2017
IPEC Milestone C (Jun 2017)	2	2017	2	2017
CID DMS TD	1	2017	3	2018
CID DMS Milestone B (Aug 2016)	3	2018	3	2018
CID DMS EMD	3	2018	4	2021
CID DMS Milestone C (Sep 2021)	4	2021	4	2021
CNU TD Phase	1	2017	2	2018
CNU Milestone B (Aug 2016)	2	2018	2	2018
CNU EMD	2	2018	2	2020
CNU Milestone C (Jan 2020)	2	2020	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.650	6.001	2.442	0.000	2.442	3.645	3.714	3.783	3.849	Continuing	Continuing
675234: <i>TACP Support</i>	-	3.650	6.001	2.442	0.000	2.442	3.645	3.714	3.783	3.849	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Terminal Control Training and Rehearsal (JTC TRS) project, 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) Air Traffic Control (ATC), Assault Zone operations, Guardian Angel combat rescue, 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 projected to enable 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 Project provides research and development to facilitate interoperability with joint and sister Service air-ground simulation using industry standards. Future JTC TRS development 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 Personnel Recovery (PR) capability is envisioned to be a "plug and play" module for the host JTC TRS. The PR capability will provide Guardian Angel personnel with an immersive LVC environment to plan, train, and rehearse their employment, rescue/recovery, and combat trauma care skills. 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.

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.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts for systems, fielded or approved, for production, that have been fully validated through formal Operation Utility Evaluation (OUE) and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>				
B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
Previous President's Budget	3.754	6.001	4.301	0.000	4.301	
Current President's Budget	3.650	6.001	2.442	0.000	2.442	
Total Adjustments	-0.104	0.000	-1.859	0.000	-1.859	
• 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	-0.104	0.000	-1.859	0.000	-1.859	
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2015	FY 2016	FY 2017
Title: JTC TRS Trainer Development				0.000	0.000	2.000
Description: Development and test of Engineering Change Proposals (ECPs) for Tactical ATC and TACP-CASS.						
FY 2015 Accomplishments: N/A						
FY 2016 Plans: N/A						
FY 2017 Plans: Development and test of Engineering Change Proposals (ECPs) for Tactical ATC and TACP-CASS.						
Title: JTAGSS Trainer Development				3.650	6.001	0.442
Description: Develops high fidelity simulation system for ASOC/SOF Command and Control System that supports JTAC training. Currently an AFRL program funded by Air Combat Command						
FY 2015 Accomplishments: Continued Phase 2 development of JTAGSS simulator configuration.						
FY 2016 Plans: Completed JTAGSS Phase 2 and transition to acquisition.						
FY 2017 Plans:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Complete JTAGSS 3.0. Integrate TACP Close Air Support System 1.4.4. and complete internal agents.			
Accomplishments/Planned Programs Subtotals	3.650	6.001	2.442

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA 03: Line Item # 837100: <i>Tactical C-E Equipment</i>	9.063	43.187	15.728	0.000	15.728	4.111	13.023	3.891	3.961	Continuing	Continuing

Remarks

E. Acquisition Strategy

a. The JTC TRS acquisition will be a single step to full capability as defined in the CPD. A small business set-aside competitive lowest price technically acceptable source selection will be conducted and result in the award of a single contract to produce and sustain JTC TRS systems. Pre-priced production options will also include replacement or modification, as required, of current fielded active duty immersive JTAC training systems (Air National Guard (ANG) Advanced JTAC Training System (AAJTS)) to the JTC TRS software and EME baseline. The contract structure will allow for maintaining concurrency, implementing system improvements/technical refresh, and other modifications as required. The JTC TRS acquisition strategy is to enter the acquisition process pre-Milestone C and obtain a decision to procure up to five Low-Rate Initial Production (LRIP) at contract award. An Operational Utility Evaluation (OUE) will be conducted in place of Operational Test and Evaluation. Following successful OUE, a Full Rate Production (FRP) decision will be sought to authorize procurement of the remaining total planned production quantity. Development will be required for engineering changes related to Air Traffic Control (ATC) and TACP-Close Air Support System.

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.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>	Project (Number/Name) 675234 / <i>TACP Support</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JTC TRS Trainer Development	C/FFP	AFLCMC/WNS, AFMC : Wright Patterson AFB, OH	-	0.000		0.000		2.000	Mar 2017	0.000		2.000	Continuing	Continuing	-
JTAGSS Development	C/CPFF	AFRL, AFMC : Wright Patterson AFB, OH	-	3.650	Dec 2014	6.001	Dec 2015	0.442	Dec 2016	0.000		0.442	Continuing	Continuing	-
Subtotal			-	3.650		6.001		2.442		0.000		2.442	-	-	-

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.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>	Project (Number/Name) 675234 / <i>TACP Support</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JTC TRS RFI	■																											
JTC TRS RFP				■																								
JTC TRS Contract Award																												
JTC TRS Test and Evaluation								■																				
JTC TRS Study Options and Engineering Change Proposals (ECPs)																												
JTAGSS Development																												
JTAGSS Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / <i>Tactical Airborne Control Systems</i>	Project (Number/Name) 675234 / <i>TACP Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JTC TRS RFI	1	2015	1	2015
JTC TRS RFP	4	2015	4	2015
JTC TRS Contract Award	2	2016	2	2021
JTC TRS Test and Evaluation	2	2016	3	2016
JTC TRS Study Options and Engineering Change Proposals (ECPs)	2	2017	3	2020
JTAGSS Development	1	2016	4	2020
JTAGSS Production	4	2017	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	7.291	6.793	10.911	0.000	10.911	10.552	10.882	11.070	11.269	Continuing	Continuing
675307: <i>TARGETING ENTERPRISE RESEARCH</i>	-	5.585	5.050	6.263	0.000	6.263	5.839	5.948	6.049	6.157	Continuing	Continuing
675309: <i>GEO Info & Serv Software</i>	-	1.706	1.743	4.648	0.000	4.648	4.713	4.934	5.021	5.112	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.

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

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	7.891	7.793	11.260	0.000	11.260
Current President's Budget	7.291	6.793	10.911	0.000	10.911
Total Adjustments	-0.600	-1.000	-0.349	0.000	-0.349
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.600	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.349	0.000	-0.349

Change Summary Explanation

FY15: Funds reprogrammed to support emerging CALDERA EVENT technology

FY16: Congressional reduction for forward financing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675307: <i>TARGETING ENTERPRISE RESEARCH</i>	-	5.585	5.050	6.263	0.000	6.263	5.839	5.948	6.049	6.157	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.

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

	FY 2015	FY 2016	FY 2017
<p>Title: Targeting Enterprise Research</p> <p>Description: Continue to conduct Targeting Enterprise research and advancement for projects such as Information for Operational and Tactical Analysis (IOTA), Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3), Intelligence, Surveillance and Reconnaissance (ISR) Strategy-to-Task Assessment of Kill-chain Effectiveness (STAKE), and Imagery Analyst (IA) Pioneer Electronic Light Table (ELT), to include emerging technology (Target System Analysis, 4D visualization, etc.) the System Architect and Integration Facilitator (SAIF) effort.</p> <p>FY 2015 Accomplishments: Enhanced current analysis capabilities with improved applications and services.</p> <p>FY 2016 Plans: Continue efforts to address operator desired changes and improve/increase interoperability of applications. Migrate and consolidate targeting capabilities into one portfolio under the Targeting and Geospatial Intelligence (T&G) Program Management Office (PMO).</p> <p>FY 2017 Plans: Continue to migrate and consolidate targeting capabilities into one portfolio under the T&G PMO. The standing up of the System Architect and Integration Facilitator (SAIF) - capability to facilitate agile development for new tools and applications.</p>	4.565	2.320	5.394
<p>Title: Joint Targeting Toolbox (JTT)</p> <p>Description: Develop full-spectrum mission areas for Joint Targeting Toolbox (JTT) user interface and data structures.</p> <p>FY 2015 Accomplishments:</p>	0.912	2.030	0.156

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Completed development of enhanced target lists and folders for kinetic and non-kinetic targeting mission areas, to include importing data from all National Geospatial-Intelligence Agency (NGA) certified point mensuration applications, targeting of critical elements, and JTT workflow enhancement.</p> <p>FY 2016 Plans: Modernize and improve JTT interoperability and data exchange with other applications, and incorporate new targeting capabilities into those applications including the overall Targeting Enterprise. Build in new capabilities (mass weaponeering deletion, target graphic association to specific JDPI, creation of collateral damage and sensitive target list, ability to select and delete objectives from multiple targets, ability to add justification remarks to the Target List, etc).</p> <p>FY 2017 Plans: Continue efforts to Modernize and improve JTT interoperability and data exchange with other applications, and incorporate new targeting capabilities into those applications including the overall Targeting Enterprise. Migrate JTT to a modular format that is conducive with the Global Command & Control System – Joint (GCCS-J) architecture.</p>				
<p>Title: Common Geopositioning Services (CGS)</p> <p>Description: Upgrade Common Geopositioning Services (CGS)</p> <p>FY 2015 Accomplishments: Continued to transition to new 3D and stereo display systems will begin in FY15 and continue through FY16. Delivered CGS version 2.3.6 for test integration into the Targeting Application Workstation (TAW), addressing highest Air Combat Command (ACC) priority change requests and provide a new measurement capability for images.</p> <p>FY 2016 Plans: Continue to address highest Air Combat Command (ACC) priority change requests: to transition to new 3D stereo display systems; and provide a new measurement capability for images. Another CGS release (2.3.7) will be planned to make CGS Web a deployed capability. Efforts to address operator concerns, issues, and desired changes will also be continued. CGS 2.3.7 will be developed and tested with imagery in the new NSGPDD format and new tactical ISR sensor models.</p> <p>FY 2017 Plans: Transition CGS Web and continue NGA development of candidate capabilities (CGS Web, web-based stereo viewing capability, merging Geographic Information System (GIS) with CGS Web; integration of data sources for multiple platforms. All Navy installations, afloat and ashore, will be updated to CGS 2.3.7 and current NGA-provided iStore configurations as legacy formats for NTM are discontinued. This technical refresh will be accomplished by the Distributed Common Ground System - Navy (DCGS-</p>		0.108	0.700	0.713

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
N) through software and hardware changes to the Increment 1, Block 1 and 2, installations maintained by SPAWAR (PMW-120). CGS 2.3.7 will be fielded with the IA Pioneer ELT in both Navy and Air Force installations.			
Accomplishments/Planned Programs Subtotals	5.585	5.050	6.263

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item #832070: <i>Intelligence Comm Equipment</i>	5.110	3.894	6.294	0.000	6.294	6.534	6.273	4.384	4.464	Continuing	Continuing

Remarks
Combat Air Intelligence System (CAIS) procurement funds.

D. Acquisition Strategy
All contracts are awarded based on full and open competition.

E. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Targeting Enterprise Research	Various	TBD : TBD	-	2.868	Dec 2015	0.688	Dec 2015	3.733	Dec 2016	0.000		3.733	Continuing	Continuing	TBD
Joint Targeting Toolbox	TBD	TBD : TBD	-	0.912	Jul 2015	2.030	Dec 2015	0.156	Dec 2016	0.000		0.156	Continuing	Continuing	TBD
Common Geopositioning Services	Various	BAE Systems : San Diego, CA	-	0.108	Sep 2015	0.700	May 2016	0.713	May 2017	0.000		0.713	0.000	1.521	-
Subtotal			-	3.888		3.418		4.602		0.000		4.602	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Targeting Enterprise Research	Various	SPAWAR : Phili, PA	-	0.556	Jan 2015	0.560	Jan 2016	0.570	Jan 2017	0.000		0.570	0.000	1.686	-
Subtotal			-	0.556		0.560		0.570		0.000		0.570	0.000	1.686	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46th Test Squadron	PO	46th Test Squadron : Eglin, FL	-	0.332	Dec 2015	0.220	Dec 2016	0.224	Dec 2017	0.000		0.224	0.000	0.776	-
Subtotal			-	0.332		0.220		0.224		0.000		0.224	0.000	0.776	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Targeting Research Enterprise	Various	Program Management Office : Hanscom, MA	-	0.809	Dec 2014	0.852	Jan 2016	0.867	Jan 2017	0.000		0.867	0.000	2.528	-
Subtotal			-	0.809		0.852		0.867		0.000		0.867	0.000	2.528	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>				Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>				

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.585	5.050	6.263	0.000	6.263	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Software/Hardware Development	[REDACTED]																											
Test and Evaluation	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675307 / <i>TARGETING ENTERPRISE RESEARCH</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software/Hardware Development	1	2015	4	2021
Test and Evaluation	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>				Project (Number/Name) 675309 / <i>GEO Info & Serv Software</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675309: <i>GEO Info & Serv Software</i>	-	1.706	1.743	4.648	0.000	4.648	4.713	4.934	5.021	5.112	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, unit level intelligence, technology exploration and refresh initiatives, management and dissemination architecture, geospatial information and services modernization, and enablers for 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 Geospatial Product Library (GPL) which is currently fielded to all combatant command air components and subordinate units supporting global air operations. The GPL provides digital GEOINT data to support mission planning, targeting & intelligence in support of mission objectives.

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

	FY 2015	FY 2016	FY 2017
Title: Enhanced Geospatial Product Library (EGPL)	1.706	1.743	4.648
Description: Provide continuing support for EGPL software and storage to meet future and evolving IT and GEOINT standards and support.			
FY 2015 Accomplishments: Completed EGPL version 2.0.2 engineering manufacturing development (EMD) phase.			
FY 2016 Plans: Continue efforts to reduce duplication of functionality, increase communication between enterprise tools, and increase functions in critical mission areas. Begin to enhance data services and data access across base and network design and continue existing development support (EGPL data update, system security certification, etc).			
FY 2017 Plans: Continue year in EGPL Version 3.0 development, test efforts, sustainment, (Development Test (DT), and Force Development Evaluation (FDE)).			
Accomplishments/Planned Programs Subtotals	1.706	1.743	4.648

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675309 / <i>GEO Info & Serv Software</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF:BA03: Line Item #832070: <i>Intelligence Comm Equipment</i>	5.110	3.894	6.294	0.000	6.294	6.534	6.273	4.384	4.464	Continuing	Continuing

Remarks

Combat Air Intelligence System (CAIS) procurement funds

D. Acquisition Strategy

All major contracts within this project will be awarded after full and open competition.

E. Performance Metrics

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 2017 Air Force												Date: February 2016			
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 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhanced Geospatial Product Library	Various	TBD : TBD	-	1.406	Jan 2015	1.241	Jan 2016	4.390	Jan 2017	0.000		4.390	Continuing	Continuing	-
Subtotal			-	1.406		1.241		4.390		0.000		4.390	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
46 Test Squadron	PO	46th Test Squadron : Eglin, FL	-	0.058	Dec 2015	0.116	Dec 2016	0.118	Dec 2017	0.000		0.118	0.000	0.292	-
Subtotal			-	0.058		0.116		0.118		0.000		0.118	0.000	0.292	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	Not Specified : Hanscom, MA	-	0.242	Jan 2015	0.386	Jan 2016	0.140	Jan 2017	0.000		0.140	0.000	0.768	-
Subtotal			-	0.242		0.386		0.140		0.000		0.140	0.000	0.768	-
Project Cost Totals			-	1.706		1.743		4.648		0.000		4.648	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675309 / <i>GEO Info & Serv Software</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Software Development																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / <i>Combat Air Intelligence System Activities</i>	Project (Number/Name) 675309 / <i>GEO Info & Serv Software</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Development	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	4.616	12.411	11.843	0.000	11.843	10.592	10.790	10.991	11.187	Continuing	Continuing
676013: <i>Equipment Modernization</i>	-	4.616	12.411	11.843	0.000	11.843	10.592	10.790	10.991	11.187	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Air Control Party (TACP)s are Air Force units manned by airmen who advise Army Ground Commanders and plan, request and control air power in support of army ground maneuver operations. TACPs also coordinate, request, and control airlift support and intelligence, surveillance, and reconnaissance (ISR) support for Army combat operations, and they provide ground communications support for federal disaster response and Homeland Defense operations. TACPs deploy with their aligned Army units and operate in a variety of environments including fixed operations from tactical operations centers (TOCs), mobile operations in tactical vehicles, and dismounted (on foot) operations with Army infantry patrols.

The purpose of the TACP-Modernization program is to upgrade TACP voice, data and video communications capabilities, upgrade targeting capabilities, and improve TACP battlefield awareness capabilities. These capabilities are employed at all echelons of Army organizations by: Air Support Operation Centers (ASOCs), Division TACPs, Brigade TACPs, Battalion TACPs, and Joint Terminal Attack Controllers (JTACs) deployed with Army companies or scout teams on the front lines. 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 through the use of networked data communications.

The TACP-M program provides and modernizes capabilities in three major categories/areas:(1)ASCOC/TOC Systems(used in fixed Air Support Operations Centers and Army Tactical Operations Centers),(2)Dismounted and Mobile Systems(used by JTACs during infantry operations and vehicle-mounted mobile operations), and (3) Close Air Support System (CASS) software. CASS 1.4.5 software comes in two versions: A) Dismounted version for dismounted mission operations and a B) Mounted version for ASOC, TOC, and Mobile Systems (ATM).

The Close Air Support System (CASS) software segment interfaces with all TACP-M components and provides interoperability with joint strike aircraft (F-35, A-10, F-16, F-15E, F/A-18, AV-8B, etc.), remotely piloted aircraft (RPA), artillery fire support systems, network-enabled weapons, and C2 nodes. To enable data communications with those systems / nodes, CASS incorporates several communications protocols including Variable Message Format (VMF), Link 16, Marine Tactical System (MTS), and U.S. Message Text Format (USMTF). CASS v1.4.5 will provide advanced communication, advanced targeting capability, and significant interoperability improvements for mobile computing devices used by Dismounted JTACs, for vehicle-mounted systems, and for stationary systems used in operations centers. Future upgrades necessary to maintain interoperability with strike aircraft, joint fire support systems, and emerging data networking waveforms will be guided by the TACP CASS Information System Initial Capabilities Document (IS ICD approved by the Air Force Requirement Oversight Council (AFROC), Functional Capabilities Board (FCB), and Joint Capabilities Board (JCB).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>
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This program is in Budget Activity 07, 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.850	12.465	12.108	0.000	12.108
Current President's Budget	4.616	12.411	11.843	0.000	11.843
Total Adjustments	-1.234	-0.054	-0.265	0.000	-0.265
• Congressional General Reductions	0.000	-0.054			
• 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	-1.037	0.000			
• SBIR/STTR Transfer	-0.197	0.000			
• Other Adjustments	0.000	0.000	-0.265	0.000	-0.265

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Close Air Support System (CASS) Description: The CASS Software program will modernize software for Communications, Command and Control (C3) processing systems for multiple TACP mission areas, i.e., the Air Support Operations Centers (ASOC), Tactical Operation Centers (TOC), Mounted operations, and Dismounted operations. FY 2015 Accomplishments: - Completed the design and development of the CASS v1.4.5 Dismounted software in preparation for government testing starting in first quarter FY16. This included the completion of critical design review, Human System Interfaces (HSI) working groups, including site visits to operational TACP units. - Initiated the development and integration of a software modem capability for the Dismount software. - Initiated the development of CASS v1.4.5 tailored software for use in ASOC, TOC and Mobile Systems (ATM). - Continued development engineering efforts to incorporate capabilities such as, Call For Fires (CFF) and Small Diameter Bomb II (SDB II) interfaces. FY 2016 Plans: - This includes, but is not limited to: - Continue testing and initiate training for Dismounted CASS software developed for the Operational Control System (OCS).	4.616	12.411	11.843

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Continue testing and initiate training for CASS software developed for ASOC, TOC and Mobile Systems (ATM). - Continue developing software to operate on new TACP-M platforms such as; Mobile Communications System (MCS), TACP-M Transportable Gateway (TTG), and other TACP systems. - Continue to develop, integrate, and test Machine to Machine (MTM) interfaces with C2 Nodes, USAF aircraft, and Ground Forces as well as interoperability with the Army Tactical Network, which will enhance communication capability among TACP and Army warfighters. - Continue the integration and test of the software modem capability for the Dismounted software. - Continue Call For Fires (CFF) and Small Diameter Bomb II (SDBII) engineering builds to enhance interoperability of future CASS software. <p><i>FY 2017 Plans:</i></p> <ul style="list-style-type: none"> - This includes, but is not limited to: - Will complete fielding of the software modem capability in the Dismounted CASS v1.4.5 software. - Will continue fielding the Dismounted CASS v1.4.5 software for use with the Operational Control System (OCS). - Will continue fielding CASS 1.4.5 software for use in ASOCs, TOCs, and Mobile Systems (ATM). <p>This will include completing the preliminary and critical design reviews, initiating Human System Interface (HSI) working groups, and conducting site visits to operational TACP units to obtain operator inputs.</p> <ul style="list-style-type: none"> - Will continue design and development of CASS software version 2.0 software in preparation for government testing starting in FY18. - Will continue to integrate, and test CASS data communications interfaces with C2 Nodes, CAS aircraft, Army Tactical Networks, Soldier Radio Waveform (SRW) networks, and Mobile User Objective System (MUOS) SATCOM networks to enhance interoperability between TACPs, and other joint warfighters. - Will continue to develop Call-for-Fire (CFF) and Small Diameter Bomb II (SDB II) control messages. <p>Exhibit R-2A (PE 0207444F)</p>			
Accomplishments/Planned Programs Subtotals	4.616	12.411	11.843

D. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• OPAF: BA03: Line item #837100: <i>Tactical C-E Equipment</i>	20.504	32.151	41.823	0.000	41.823	42.677	55.549	29.862	30.399	Continuing Continuing

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>
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E. Acquisition Strategy
TACP-M is executing an incremental development for the TACP CASS software. TACP CASS software systems engineering, design, integration, and fielding support is being provided under a cost plus incentive fee contract. Hanscom AFB, MA is managing the contractual effort

F. Performance Metrics
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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>	Project (Number/Name) 676013 / <i>Equipment Modernization</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CASS Sys Int Software Dev't (CASS 1.4.5)	C/CPIF	Rockwell Collins : Poway, CA	-	0.821	May 2015	8.280	Feb 2016	1.471	Jan 2017	0.000		1.471	Continuing	Continuing	-
CASS Sys Int Software Dev't (CASS 2.0)	C/TBD	TBD : TBD	-	0.000		0.000		6.278	Jun 2017	0.000		6.278	Continuing	Continuing	-
NSWC Crane (Naval Surface Warefare Center)	MIPR	NSWC Crane : Crane, IN	-	0.950	Jan 2015	1.000	Feb 2016	1.007	Jan 2017	0.000		1.007	Continuing	Continuing	-
Subtotal			-	1.771		9.280		8.756		0.000		8.756	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CASS 1.4.5 Equipment Hardware	MIPR	ARMY : Aberdeen, MD	-	0.099	Apr 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.099		0.000		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Agency Support	Various	Various : TBD	-	0.574	Dec 2014	0.818	Dec 2015	0.874	Dec 2016	0.000		0.874	Continuing	Continuing	-
Subtotal			-	0.574		0.818		0.874		0.000		0.874	-	-	-

Remarks
Development, operational and interoperability testing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>	Project (Number/Name) 676013 / <i>Equipment Modernizaton</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Close Air Support (CASS) v1.4.5 Dismounted SW Dev (July - Dec 2015)																												
Close Air Support System (CASS) v1.4.5 Qualification Testing (QT) (Feb - May 2016)																												
Close Air Support System (CASS) v1.4.5 Force Dev Eval (FDE) (Jun - Aug 2016)																												
Close Air Support System (CASS) v1.4.5 Release 1 IOC (Dec 2016)																												
Close Air Support System (CASS) v1.4.5 Release 2 FOC (Aug 2017)																												
Close Air Support System (CASS) v2.0 Contract Award (Jun 2017)																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 1 IOC (Nov 2019)																												
Close Air Support System (CASS) v2.0 Dismount/Mount FOC all Rels																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 (Dec 2018)																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 Gov Testing (Oct 2019)																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 IOC (Jun 2020)																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 3 Design and Dev (Oct 2019)																												
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 3 Gov Testing (June 2020)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>	Project (Number/Name) 676013 / <i>Equipment Modernizaton</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Close Air Support (CASS) v1.4.5 Dismounted SW Dev (July - Dec 2015)	4	2015	1	2016
Close Air Support System (CASS) v1.4.5 Qualification Testing (QT) (Feb - May 2016)	2	2016	3	2016
Close Air Support System (CASS) v1.4.5 Force Dev Eval (FDE) (Jun - Aug 2016)	3	2016	4	2016
Close Air Support System (CASS) v1.4.5 Release 1 IOC (Dec 2016)	2	2017	2	2017
Close Air Support System (CASS) v1.4.5 Release 2 FOC (Aug 2017)	4	2017	4	2017
Close Air Support System (CASS) v2.0 Contract Award (Jun 2017)	3	2017	3	2017
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 1 IOC (Nov 2019)	1	2020	1	2020
Close Air Support System (CASS) v2.0 Dismount/Mount FOC all Rels	2	2021	2	2021
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 (Dec 2018)	1	2019	1	2020
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 Gov Testing (Oct 2019)	1	2020	2	2020
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 2 IOC (Jun 2020)	2	2020	3	2020
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 3 Design and Dev (Oct 2019)	1	2020	3	2020
Close Air Support System (CASS) v2.0 Dismount/Mount Rel 3 Gov Testing (June 2020)	3	2020	1	2021
Close Air Support System (CASS) v2.0 Dismount/Mount FOC all Rels (March 2021)	2	2021	2	2021
Close Air Support System (CASS) v2.1 ASOC/TOC Contract Award (June 2018)	3	2018	3	2018
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 1 Design and Dev (June 2018)	3	2018	4	2018
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 1 Gov Testing (Dec 2019)	1	2020	1	2020
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 1 IOC (Oct 2020)	1	2021	1	2021
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 2 Design and Dev (Feb 2020)	2	2020	1	2021
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 2 Gov Testing (Nov 2020)	1	2021	2	2021
Close Air Support System (CASS) v2.1 ASOC/TOC Rel 2 IOC (Mar 2021)	2	2021	2	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force			Date: February 2016	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>	Project (Number/Name) 676013 / <i>Equipment Modernizaton</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
Close Air Support System (CASS) v2.1 ASOC/TOC All Rels FOC (July 2021)	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.699	1.674	1.515	0.000	1.515	1.749	1.750	1.782	1.814	Continuing	Continuing
675045: <i>C2ISR Tactical Data Link</i>	-	1.699	1.674	1.515	0.000	1.515	1.749	1.750	1.782	1.814	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Data Links (TDL), as a subset of the broader airborne network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with new and standardized waveforms and data formats allowing line-of-sight (LOS) and beyond-line-of-sight (BLOS) intra- and inter-flight communications. TDLs increase mission effectiveness, provide positive identification of aircraft in the network, correlate on and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDLs are used by all service theater command and control (C2) elements, weapons platforms, and sensors.

TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Multifunction Advanced Data Link (MADL) Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), and Tactical Targeting Network Technology (TTNT). TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016E) and applicable Interface Change Proposals (ICPs), assisting with Air Force and joint interoperability certification testing with the Air Combat Command (ACC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS.

This effort provides critical capability and enhancements to the airborne network by creating common development, integration and interoperability among ground and C2 platforms and responds to quick reaction capability integration and demonstration including, but not limited to Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Predator, Reaper, Rivet Joint, Combat Sent, and Cobra Ball. TDLs keep all C2ISR platforms and data linked weapons current/interoperable in the airborne network to enable Global Strike, Global Persistent Attack, Offensive and Defensive Counterair (OCA and DCA) and Suppression of Enemy Air Defenses (SEAD) missions.

Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

This program is in Budget Activity 7, Operational System Development. These budget activities include development efforts to upgrade systems currently fielded or has 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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.744	1.681	1.748	0.000	1.748
Current President's Budget	1.699	1.674	1.515	0.000	1.515
Total Adjustments	-0.045	-0.007	-0.233	0.000	-0.233
• Congressional General Reductions	0.000	-0.007			
• 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	-0.233	0.000	-0.233

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: E-3 AWACS Block 40/45 Mode 5 and MIL-STD- 6016E Link 16 Enhancements	0.586	1.010	0.801
Description: Improve E-3 AWACS Block 40/45 Link 16 interoperability and compatibility by incorporating key changes to communications software baseline.			
FY 2015 Accomplishments:			
- Studied and assessed the sustainability of the Joint Tactical Information Distribution System (JTIDS) Class 2H terminal			
- Studied and assessed the top technical risks for upgrading the AWACS JTIDS terminal with a terminal supporting Link 16 enhancements, especially the Crypto Modernization (CM) and Frequency Remapping (FR) mandates			
- Supported JALN analysis activities related to airborne networking operations of C2 platform			
FY 2016 Plans:			
- Upgrade advanced MIDS terminal lab assets for integration prototyping			
- Complete the study and assessment to address the sustainability of the JTIDS Class 2H terminal			
- Continue the study to evaluate the top technical risks for replacing the AWACS JTIDS Class 2H terminal with a more advanced Multifunctional Information Distribution System (MIDS) terminal			
- Complete the assessment for the use of Ethernet instead of a MIL-STD-1553B interface to the AWACS JTIDS Class 2H terminal and the implementation of a Tactical Targeting Network Technology (TTNT) IP communication capability with the terminal			
-- Support more advanced MIDS terminal, will complete development, evaluation, and documentation of a report that will address an upgraded High Powered Antenna (HPA) and antenna interface options for AWACS, to include potential modification of the current JTIDS Class 2H HPA			
--- Conduct study assessing impact of incorporating MIDS terminal into AWACS			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
---- Results of study implemented into AWACS				
FY 2017 Plans: - Will continue the integration of a more advanced MIDS terminal to include required Human/Computer Interface (HCI) changes and advanced terminal capabilities (such as Concurrent Multinetting (CMN4) for AWACS - Will fund further integration prototyping of the upgraded High Power Amplifier (HPA) and antenna interface				
Title: Aerial Network Engineering Lab Description: Funded Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to Link-16 Pathfinder and strength track reporting and fusion/correlation.		0.332	0.332	0.332
FY 2015 Accomplishments: - Performed C2 focused airborne networking studies supporting data link enhancements -- Completed lab demonstrations to better understand impacts of advanced Link-16 Network management and planning concepts on system integration -- Analyzed the system level engineering fusion/correlation translation of sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) on host system Operational Flight Programs (OFPs)				
FY 2016 Plans: - Perform C2 focused airborne networking studies supporting data link enhancements -- Begin lab demonstrations to better understand impacts of advanced Link-16 radio terminal modernization that will include strengthening the network against jamming -- Begin updates to lab emulators that model fusion/correlation and translation of sensor data that includes: MADL and IFDL on host system OFPs				
FY 2017 Plans: - Will continue C2 focused airborne networking studies supporting data link enhancements -- Will continue lab demonstrations to better understand impacts of advanced Link-16 radio terminal modernization that will include strengthening the network against jamming --- Will provide reports that highlight most promising Link 16 anti-jam technologies to pursue for further operational development - Will complete analysis of information provided by previous years lab demonstrations that focused on IFDL and MADL track correlation and fusion -- Will provide a report that highlights major focus areas for testing the 5th to 4th Generation Gateway with C2ISR platforms				
Title: E-3 AWACS Block 40/45 User Identified Critical Interface Change Proposals (ICPs)		0.781	0.332	0.382

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Description: E-3 AWACS Block 40/45 User Identified Critical ICPs will be implemented such as time slot reallocation, strength track reporting and correlation, global area reference system, and MIL-STD updates.			
FY 2015 Accomplishments: - Integrated and tested E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) -- These included time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates			
FY 2016 Plans: - Activity implements E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) -- These include time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates			
FY 2017 Plans: - Activity will implement E-3 AWACS Block 40/45 User Identified Interface Change Proposals and Mil-Std Updates			
Accomplishments/Planned Programs Subtotals	1.699	1.674	1.515

D. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE:BA05:PE 0604281F: <i>TDN Enterprise</i>	30.282	59.996	82.380	0.000	82.380	74.628	22.073	22.512	22.909	Continuing	Continuing
• APAF:BA05:Line Item #F01500: <i>F-15</i>	0.002	2.837	0.000	0.000	0.000	4.424	5.032	6.617	6.739	Continuing	Continuing
• APAF:BA05:Line Item #F01600: <i>F-16</i>	0.000	3.200	6.447	0.000	6.447	6.117	6.755	8.371	8.525	Continuing	Continuing
• APAF:BA05:Line Item #B00200: <i>B-2A</i>	0.049	0.474	0.415	0.000	0.415	0.295	0.247	0.201	0.206	Continuing	Continuing
• APAF:BA05:Line Item #B01B00: <i>B-1B</i>	0.223	1.011	1.380	0.000	1.380	0.535	0.794	0.000	0.000	Continuing	Continuing
• OPAF:BA03:Line Item #831010: <i>Comsec Equipment</i>	0.000	2.246	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF:BA03:Line Item #834010: <i>General Information Technology</i>	0.000	0.000	1.580	0.000	1.580	1.490	1.490	1.516	1.544	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

E. Acquisition Strategy

Air Force Program Executive Officer for Command, Control, Communications, Intelligence, Surveillance, Reconnaissance and Networks (PEO C3I&N) is the PEO for C2ISR TDL. PEO C3I&N manages activities for the common development, integration and interoperability across the entire airborne network. These actions ensure TDLS are procured and maintained as a joint, end-to-end, command and control system. This program executes various types of contract types to provide technical expertise necessary to test, evaluate and provide recommended solutions to modernize C2 platform data links. The program delivers annual lab tested software implementations of Airborne Warning and Control System (AWACS) Link 16 Interface Change Proposals (ICPs). Additionally, the program participates in annual lab demonstrations that produce reports as required to assist with platform integration of Link 16 modernization efforts.

The E-3 Platform architecture utilizes a JTIDS Class 2H Link 16 radio with defined environmental and physical cabinet constraints. An Investigation Report (IR) was initiated to investigate the integration of an Ethernet enabled Concurrent Multinetting (CMN) MIDS JTRS variant into the E-3 platform. To understand the dynamics of the L-16 enhancements and facilitate integration of new Link 16 capabilities onto the E-3 platform to ensure cross-service interoperability; an IR was issued.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207448F / C2ISR Tactical Data Link	Project (Number/Name) 675045 / C2ISR Tactical Data Link
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2ISR Tactical Data Link Software Enhancements	SS/CPFF	Various : CA	-	0.586	May 2015	1.010	Jun 2016	0.801	Mar 2017	0.000		0.801	Continuing	Continuing	TBD
Subtotal			-	0.586		1.010		0.801		0.000		0.801	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2ISR Tactical Data Link Aerial Network Engineering Lab	SS/ Various	AFLCMC Hanscom AFB : Bedford, MA	-	0.332	Oct 2014	0.332	Oct 2015	0.332	Oct 2016	0.000		0.332	Continuing	Continuing	TBD
Subtotal			-	0.332		0.332		0.332		0.000		0.332	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2ISR Tactical Data Link PMA - Program Office and Contractor Support	Various	Various : Various	-	0.616	Jan 2015	0.172	Dec 2015	0.220	Dec 2016	0.000		0.220	Continuing	Continuing	TBD
C2ISR Tactical Data Link FFRDC Support	SS/ Various	MITRE : Bedford, MA	-	0.165	Oct 2014	0.160	Oct 2015	0.162	Oct 2016	0.000		0.162	Continuing	Continuing	TBD
Subtotal			-	0.781		0.332		0.382		0.000		0.382	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207448F / C2ISR Tactical Data Link	Project (Number/Name) 675045 / C2ISR Tactical Data Link
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AWACS Block 40/45 Mode 5 Link 16 Software Enhancements																												
Aerial Network Engineering Lab																												
AWACS Block 40/45 User Identified Critical ICPs																												
Aerial Network Engineering Lab Link 16 Network Management Lab Demonstration																												
Aerial Network Engineering Lab Link 16 Network Radio Terminal Modernization Demonstration																												
Aerial Network Engineering Lab Link 16 Report Link 16 Anti-Jamming Technologies (May 2017)																												
Aerial Network Engineering Lab Link 16 Report 5th to 4th Generation Gateway testing measures for C2 (June 2017)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207448F / C2ISR Tactical Data Link	Project (Number/Name) 675045 / C2ISR Tactical Data Link
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AWACS Block 40/45 Mode 5 Link 16 Software Enhancements	2	2015	4	2019
Aerial Network Engineering Lab	1	2015	4	2021
AWACS Block 40/45 User Identified Critical ICPs	1	2015	4	2021
Aerial Network Engineering Lab Link 16 Network Management Lab Demonstration	2	2015	3	2015
Aerial Network Engineering Lab Link 16 Network Radio Terminal Modernization Demonstration	2	2016	4	2016
Aerial Network Engineering Lab Link 16 Report Link 16 Anti-Jamming Technologies (May 2017)	3	2017	3	2017
Aerial Network Engineering Lab Link 16 Report 5th to 4th Generation Gateway testing measures for C2 (June 2017)	3	2017	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207452F / DCAPES
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	23.694	0.806	16.723	14.979	0.000	14.979	13.761	11.278	4.949	0.000	76.900	163.090
674801: <i>DCAPES INC 2B</i>	0.000	0.000	15.828	14.979	0.000	14.979	13.761	11.278	4.949	0.000	76.900	137.695
674802: <i>DCAPES Increment 2A</i>	23.694	0.806	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.395

Program MDAP/MAIS Code: 500

A. Mission Description and Budget Item Justification

The mission of Deliberate and Crisis Action Planning and Execution Segments (DCAPES) is to support Joint and Air Force Adaptive Planning and Execution (APEX) needs by enabling the warfighter to rapidly respond to a Combatant Commander's (COCOM's) force requirements through the development, management, presentation, and execution of scalable packages of manpower and equipment comprising our Aerospace Expeditionary Forces (AEF). Provide real-time command, control, planning, and execution information supporting the United States Air Force (USAF) manpower, personnel, operations and logistics force presentation and execution processes while providing a single integrated data environment to project aerospace power anywhere in world. DCAPES enables force projection C2 to all missions requiring USAF presence regardless of mission type (contingency, humanitarian, disaster relief, etc.).

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

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.821	16.796	16.222	0.000	16.222
Current President's Budget	0.806	16.723	14.979	0.000	14.979
Total Adjustments	-0.015	-0.073	-1.243	0.000	-1.243
• Congressional General Reductions	0.000	-0.073			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.015	0.000			
• Other Adjustments	0.000	0.000	-1.243	0.000	-1.243

Change Summary Explanation

In FY17, the DCAPES program was reduced to align with the non-advocate cost assessment.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207452F / DCAPES				Project (Number/Name) 674801 / DCAPES INC 2B			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674801: DCAPES INC 2B	0.000	0.000	15.828	14.979	0.000	14.979	13.761	11.278	4.949	0.000	76.900	137.695
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DCAPES Increment 2B provides capabilities that enable the Air Force to posture trained and equipped forces, organized in effects-based operational capability packages, to deliver effective aerospace capabilities to the Joint warfighter. Furthermore, it includes the migration of the application from four regionally fielded strategic server enclaves fielded on the Global Command and Control System – Air Force to a virtualized platform in Defense Information Systems Agency Defense Enterprise Computing Centers. Additional technical requirements planned for Increment 2B include enabling the system to support Public Key Infrastructure and Public Key enabling as well as 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.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DCAPES INCREMENT 2B	-	15.828	14.979	0.000	14.979
Description: DCAPES Increment 2B includes Infrastructure Support, Business Intelligence, and the development of eight War Fighter Requirements; however, the Program will execute War Fighter Requirements 1-5 during the FY17 President's Budget.					
FY 2016 Plans:					
- Complete Increment 2B Milestone B in 2nd Qtr. FY16.					
- Complete JIE Migration (FDCCI) 2nd Qtr. FY17.					
- Continue Infrastructure and Integration builds and begin development of War Fighter Requirements 1-3:					
-- Requirement 1: Eliminate Social Security Number from DCAPES and replace with the Department of Defense Electronic Data Interface Personnel Identifier.					
-- Requirement 2: DCAPES and Global Force Management (GFM) Interoperability.					
-- Requirement 3: Enhanced Contingency-Rotational Air Expeditionary Force Scheduling Tool Interface.					
FY 2017 Base Plans:					
- Continue maintaining builds for infrastructure and begin development of War Fighter Requirements 4-5:					
-- Requirement 4: Provide users the capability to build, manage, and maintain Manpower & Equipment Force Packaging.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674801 / DCAPES INC 2B

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-- Requirement 5: Build Logistics Factor File to compute resupply requirements and ID sustainment items and shortfalls. FY 2017 OCO Plans: N/A.					
Accomplishments/Planned Programs Subtotals	-	15.828	14.979	0.000	14.979

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The DCAPES program successfully awarded the DCAPES 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 2015 and ends on 5 April 2020, given all option years are exercised.

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, DCAPES will transition from a waterfall approach used in Increment 2A to an evolutionary 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 DCAPES Program Management Office (PMO) will utilize a mix of agreements (Service Level Agreements and Memorandums) with DCAPES interface partners. A Service Level Agreement is in place with the Capabilities Integration Environment (AFLCMC/HNIZ) to conduct software development and testing. Memorandums of Agreement with Joint Interoperability Test Command, Air Force Operational Test and Evaluation Command, and the 46th Test Squadron are in place and outline the test support required before fielding the system.

The DCAPES Increment 2B requirements have been packaged into eight discreet capabilities which will be developed in multiple smaller increments. Each capability will be developed using several builds and with one or more fieldings to satisfy the approved requirements within each package.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674801 / DCAPES INC 2B
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES Increment 2B (Risk Reduction - HIB-1744)	TBD	Various : TBD	0.000	0.000		7.014	Mar 2016	0.000		0.000		0.000	0.000	7.014	-
DCAPES Increment 2B/ Prime Contract (HIB-1375)	C/CPAF	Array Information Technology, Inc. : Greenbelt, MD	0.000	0.000		3.091	Apr 2016	9.742	Apr 2017	0.000		9.742	56.896	69.729	-
DCAPES Infrastructure/ Integration (HIB-1470)	C/CPFF	DATUM Software Inc. : John Creek, GA	0.000	0.000		0.950	Feb 2016	0.950	Feb 2016	0.000		0.950	3.692	5.592	-
DCAPES Architecture Documentation Development (HIB-1367)	C/FFP	Copper River IT : Anchorage, AK	0.000	0.000		0.312	Jun 2016	0.326	Jun 2016	0.000		0.326	1.304	1.942	-
Subtotal			0.000	0.000		11.367		11.018		0.000		11.018	61.892	84.277	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES HIB Integration Contract Support (HIB-1705)	C/Variou	TM Capture Services, LLC : Dayton, OH	0.000	0.000		0.752	Apr 2016	0.752	Apr 2017	0.000		0.752	3.008	4.512	-
DCAPES Cost Analysis Contract Support	C/CPFF	Tecolote Research, Inc. : Goleta, CA	0.000	0.000		0.220	Oct 2015	0.220	Oct 2016	0.000		0.220	0.880	1.320	-
DCAPES Engineering Contract Support (HIB-1380)	C/CPFF	Jacobs Technology, Inc. : Lincoln, MA	0.000	0.000		0.810	May 2016	0.810	May 2017	0.000		0.810	1.240	2.860	-
DCAPES FFRDC (Engineering - HIB-1368)	SS/CPFF	Mitre : Bedford, MA	0.000	0.000		0.323	Oct 2016	0.323	Oct 2017	0.000		0.323	1.592	2.238	-
DCAPES Requirement Elaboration Contract Support (HIB-1671)	C/FFP	Certified Tech. Expert : Montgomery, AL	0.000	0.000		0.220	Jul 2016	0.220	Jul 2017	0.000		0.220	0.608	1.048	-
DCAPES Contract System Integration/Tech Support (CIE - HIB-1376)	MIPR	AFLCMC/HNIZ Capabilities Integration	0.000	0.000		0.410	Sep 2016	0.410	Sep 2017	0.000		0.410	2.776	3.596	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674801 / DCAPES INC 2B
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Environment (CIE) : MAFB-Gunter Annex, AL													
DCAPES Development Environment HW (CIE - HIB-1685)	C/Various	Various : TBD	0.000	0.000		0.500	Jan 2016	0.000		0.000		0.000	0.000	0.500	-
DCAPES Licenses (Software/Hardware - HIB-1377)	C/Various	Various : TBD	0.000	0.000		0.192	Feb 2016	0.192	Feb 2017	0.000		0.192	0.768	1.152	-
DCAPES Government Purchase Card (HIB-1371/1706)	TBD	Various : TBD	0.000	0.000		0.012	Aug 2016	0.012	Aug 2017	0.000		0.012	0.060	0.084	-
Subtotal			0.000	0.000		3.439		2.939		0.000		2.939	10.932	17.310	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES Development Test and Evaluation (HIB-1369)	MIPR	46 Test Sqdn : Eglin AFB, FL	0.000	0.000		0.300	Jan 2016	0.300	Oct 2016	0.000		0.300	1.200	1.800	-
DCAPES Interoperability Testing and Evaluation (HIB-1369)	MIPR	DISA JITC : Haachuca, AZ	0.000	0.000		0.369	Oct 2015	0.369	Oct 2016	0.000		0.369	1.476	2.214	-
DCAPES User Test Support	TBD	Various : TBD	0.000	0.000		0.319	Sep 2016	0.319	Sep 2018	0.000		0.319	1.400	2.038	-
Subtotal			0.000	0.000		0.988		0.988		0.000		0.988	4.076	6.052	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674801 / DCAPES INC 2B
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DCAPES Increment 2B	1	2015	3	2020
MS B Preparation	1	2015	2	2016
MS B Decision (Mar 2016)	2	2016	2	2016
--- Requirements (1-5):	2	2016	3	2018
--- Increment 2B FDD	2	2020	2	2020
--- Increment 2B FD	3	2020	3	2020
--- JIE Migration (FDCCI)	2	2016	2	2017
---- Requirement #1 (EDIPI)	3	2016	1	2018
---- Requirement #2 (GFM-DI Interoperability)	3	2016	1	2018
---- Requirement #3 (ECAST)	3	2016	2	2018
---- Requirement #4 (MEFPAK)	3	2017	1	2020
---- Requirement #5 (Logistics Factor File)	3	2017	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207452F / DCAPES				Project (Number/Name) 674802 / DCAPES Increment 2A			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674802: DCAPES Increment 2A	23.694	0.806	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.395
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DCAPES Increment 2A delivered Air Force functional specific capabilities as well as technical changes necessary for the Air Force to migrate from a directly connected architectural relationship with the Joint Operations Planning and Execution System (JOPES) to one utilizing data services across the Wide Area Network (WAN). This 'Loose Coupling' solution enabled DCAPES to be interoperable with JOPES and at the same time significantly reduced interoperability 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.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DCAPES Increment 2A (Loose Coupling)	0.806	0.895	0.000	0.000	0.000
Description: Increment 2A includes Loose Coupling between Deliberate and Crisis Action Planning and Execution Segment (DCAPES) and Joint Operational Planning and Execution System (JOPES), Infrastructure Support, and Business Intelligence. Increment 2A also includes requirements definition, prototyping, development, testing, interoperability, sustainment, and service oriented architecture transition.					
FY 2015 Accomplishments: - Completed the Business Intelligence technical refresh during 1st Qtr. - Awarded the Development Prime contract on 6 Apr 2015.					
FY 2016 Plans: - Complete v4.2.2.2 1st Qtr. FY16 - Complete FDD activities and enter FD 1st Qtr. FY16 - Complete v5.0.0.2 (JOPES Outbound) 1st Qtr. FY16					
FY 2017 Base Plans: N/A.					
FY 2017 OCO Plans: N/A.					
Accomplishments/Planned Programs Subtotals	0.806	0.895	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674802 / DCAPES Increment 2A
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

Increment 2A used the Waterfall approach to develop functional capabilities and maintain interoperability with JOPES. The DCAPES program successfully awarded the DCAPES Development Task Order using the NETCENTS 2 Application Services Small Business Indefinite delivery Indefinite Quantity (IDIQ) contract. The task order, comprised of Cost Plus Fixed Fee CLINs, started on 6 April 2015 and ends on 5 April 2020, given all option years are exercised. This task order will be used to close out the Increment.

The DCAPES Program Management Office (PMO) will utilize a mix of agreements (Service Level Agreements and Memorandums) with DCAPES interface partners. A Service Level Agreement is in place with the Capabilities Integration Environment (AFLCMC/HNIZ) to conduct software development and testing. Memorandums of Agreement with Joint Interoperability Test Command, Air Force Operational Test and Evaluation Command, and the 46th Test Squadron are in place and outline the test support required before fielding the system.

E. Performance Metrics

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 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207452F / DCAPES					Project (Number/Name) 674802 / DCAPES Increment 2A				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES Increment 2A SW DEV/FOE - HIB-1342)	SS/ Various	Computer Science Corp. : Falls Church, VA	9.790	0.000		0.000		0.000		0.000		0.000	0.000	9.790	9.790
DCAPES SW DEV New Prime Contract (Increment 2A HIB-1670)	C/Various	Array Information Technology, Inc. : Greenbelt, MD	0.913	0.104	Apr 2016	0.000		0.000		0.000		0.000	0.000	1.017	1.017
DCAPES Risk Reduction	TBD	Various : TBD	0.000	0.000		0.895	Mar 2016	0.000		0.000		0.000	0.000	0.895	-
DCAPES Infrastructure / Integration (HIB-1470)	C/CPFF	DATUM Software Inc. : John Creek, GA	1.860	0.000		0.000		0.000		0.000		0.000	0.000	1.860	1.860
DCAPES BI Tools / Tech Refresh (HIB-1373)	C/CPFF	Array IT : Greenbelt, MD	0.996	0.000		0.000		0.000		0.000		0.000	0.000	0.996	0.996
DCAPES Architecture Documentation Development (HIB-1367)	C/FFP	Copper River IT : Anchorage, AK	0.545	0.326	Jul 2015	0.000		0.000		0.000		0.000	0.000	0.871	0.871
LOGFAC S/W Development (HIB-1372)	C/FFP	Harris IT services Corp. : Dulles, VA	2.414	0.000		0.000		0.000		0.000		0.000	0.000	2.414	2.414
LOGFAC Architecture Documentation Development (HIB-1367)	C/FFP	Cooper River IT : Anchorage, AK	0.136	0.000		0.000		0.000		0.000		0.000	0.000	0.136	0.136
Subtotal			16.654	0.430		0.895		0.000		0.000		0.000	0.000	17.979	-

Remarks
A. DCAPES Increment 2a (SW DEV/FOE): includes funding for past SW Development Contract/FOE (CSC) contract plus Extension.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES Contract Acquisition (HIB-1340)/ Logistic Functional Support (HIB-1343)	C/CPFF	OASIS Systems Inc : Lexington, MA	0.849	0.000		0.000		0.000		0.000		0.000	0.000	0.849	0.849

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674802 / DCAPES Increment 2A
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES HIB INTEGRATION CONTRACT SUPPORT (HIB-1705)	C/Various	TM Capture Services, LLC : Dayton, OH	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
DCAPES Contract Cost Analysis Support (HIB-1366)	C/CPFF	Tecolote Research, Inc. : Goleta, CA	0.470	0.000		0.000		0.000		0.000		0.000	0.000	0.470	0.470
DCAPES Contract Engineering Support (HIB-1380)	C/CPFF	Jacobs Technology, Inc : Lincoln, MA	0.499	0.000		0.000		0.000		0.000		0.000	0.000	0.499	0.499
DCAPES FFRDC (Engineering - HIB-1368)	SS/CPFF	Mitre : Bedford, MA	0.821	0.323	Oct 2015	0.000		0.000		0.000		0.000	0.000	1.144	1.144
DCAPES Contract Requirement Elaboration Support (HIB-1671)	C/FFP	Certified Tech. Expert : Montgomery, AL	0.396	0.000		0.000		0.000		0.000		0.000	0.000	0.396	0.396
DCAPES Contract System Security-Information Assurance (HIB-1377)	C/CPFF	Centech Group : Falls Church, VA	0.323	0.000		0.000		0.000		0.000		0.000	0.000	0.323	0.323
DCAPES Contract Sys Integration/Tech Support (CIE - HIB-1376)	Various	Various : Various	0.849	0.000		0.000		0.000		0.000		0.000	0.000	0.849	0.849
DCAPES Licenses Software/Hardware (HIB-1377)	C/Various	Various : Various	0.155	0.000		0.000		0.000		0.000		0.000	0.000	0.155	0.155
DCAPES SIPRNET Comm. Line-Information Assurance (HIB-1330)	MIPR	Various : Various	0.085	0.000		0.000		0.000		0.000		0.000	0.000	0.085	0.085
DCAPES GOVERNMENT PURCHASE CARD (HIB-1371/1706)	Various	Various : Various	0.002	0.003	Dec 2014	0.000		0.000		0.000		0.000	0.000	0.005	0.005
LOGFAC Contract Acquisition (HIB-1340) / Logistics Support (HIB-1343)	C/CPFF	Oasis Systems Inc. : Lexington, KY	0.045	0.000		0.000		0.000		0.000		0.000	0.000	0.045	0.045

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674802 / DCAPES Increment 2A
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LOGFAC Contract Cost Analysis Support (HIB-1366)	C/CPFF	Tecolote Research Inc : Goleta, CA	0.052	0.000		0.000		0.000		0.000		0.000	0.000	0.052	0.052
LOGFAC Contract Engineering Support (HIB-1380)	C/CPFF	Jacobs Technology Inc : Lincoln, MA	0.055	0.000		0.000		0.000		0.000		0.000	0.000	0.055	0.055
LOGFAC Contract Requirement Elaboration Support (HIB-1671)	C/FFP	Certified Technical Experts : Montgomery, AL	0.044	0.000		0.000		0.000		0.000		0.000	0.000	0.044	0.044
LOGFAC Contract Systems Security / IA Support (HIB-1377)	C/CPFF	Centech Group Inc : Falls Church, VA	0.056	0.000		0.000		0.000		0.000		0.000	0.000	0.056	0.056
LOGFAC FFRDC (HIB-1368)	SS/CPFF	MITRE : Bedford, MA	0.090	0.000		0.000		0.000		0.000		0.000	0.000	0.090	0.090
Subtotal			4.791	0.326		0.000		0.000		0.000		0.000	0.000	5.117	-

Remarks
DCAPES HIB INTEGRATION CONTRACT SUPPORT (HIB-1705) REPLACES THE CONTRACT ACQUISITION (HIB-1340)/LOGISTICS FUNCTIONAL SUPPORT (HIB-1343) CONTRACT.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCAPES Development Test and Evaluation (HIB-1369)	MIPR	46 Test Sqdn : Eglin AFB, FL	0.885	0.000		0.000		0.000		0.000		0.000	0.000	0.885	0.885
DCAPES Operational Test and Evaluation (HIB-1369)	Various	605 Test Sqdn : Hurlburt Field, FL	0.092	0.000		0.000		0.000		0.000		0.000	0.000	0.092	0.092
DCAPES Interoperability Testing and Evaluation (HIB-1369)	MIPR	DISA JITC : Ft Haachuca, AZ	0.482	0.050	Oct 2015	0.000		0.000		0.000		0.000	0.000	0.532	0.532
DCAPES User Test Support (HIB-1341)	Various	Various : Various	0.311	0.000		0.000		0.000		0.000		0.000	0.000	0.311	0.311

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAPES	Project (Number/Name) 674802 / DCAPES Increment 2A
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DCAPES Increment 2A	1	2015	1	2016
--- Business Intelligence Technical Refresh	1	2015	1	2015
--- v4.2.2.2 (JOPES Inbound - Loose Coupling Start)	1	2015	1	2016
--- Development Contract Award	3	2015	3	2015
--- v5.0.0.2 (JOPES Outbound - Loose Coupling Complete) Fielding	4	2015	1	2016
--- Full Deployment Decision (FDD)	1	2016	1	2016
--- Full Deployment (FD)	1	2016	1	2016
--- v5.0.0.2 (JOPES Outbound)	1	2016	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	23.472	21.564	25.308	0.000	25.308	25.324	24.875	25.337	25.786	Continuing	Continuing
674037: <i>SEEK EAGLE Certifications</i>	-	23.472	21.564	25.308	0.000	25.308	25.324	24.875	25.337	25.786	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 countless different loading combinations determined by operational and training scenarios, missions, tactics, and weapon development programs. Aircraft stores combinations 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, Loads, Stability and Control, Electromagnetic Compatibility/Interference (EMC/EMI), Separations, Ballistics, and Safe Escape.

In support of certification, the program recommends about 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 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 & II (SDB), Laser Joint Direct Attack Munitions (LJDAM), Joint Air-to-Surface Standoff Missile (JASSM), Air Intercept Missile (AIM-9X), Advanced Medium Range Air-to-Air Missile (AIM-120D), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Rack), BRU-61 (SDB Bomb Rack), Wind Corrected Munitions Dispenser (WCMD), Sniper Targeting Pod with video data link, LITENING Targeting Pod with video data link, laser guided bombs, F-22 supersonic tank, B61 (Mod 12), penetrator warhead upgrades (BLU-111/BLU-117), practice bomb 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, assist the F-35 JPO with subject matter expertise in the System Development and Demonstration phase (e.g., development of organic store certifications capability to support F-35 in the Production, Sustainment, and Follow-on Development phases), sustain organic F-22 store certifications capability, and to obtain non-inventory stores and store data for post-integration certification requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>
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This program is in Budget Activity 7, Operational System Development. These budget activities include development efforts to upgrade systems currently fielded or which have approval for full rate production and anticipate production funding in the current or subsequent year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	23.844	21.564	25.560	0.000	25.560
Current President's Budget	23.472	21.564	25.308	0.000	25.308
Total Adjustments	-0.372	0.000	-0.252	0.000	-0.252
• 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	-0.372	0.000			
• Other Adjustments	0.000	0.000	-0.252	0.000	-0.252

Change Summary Explanation

No Significant Changes

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: F-22A	1.045	1.035	1.148	0.000	1.148
Description: F-22A Capability Development and Weapons Certification.					
FY 2015 Accomplishments:					
- Continued AIM-9X certification efforts					
- Completed certification of GBU-32 w/BLU-32 W/ BLU-110/B QRC					
- Completed certification of NAIM-120C7 and ATM-9AM-13					
FY 2016 Plans:					
- Complete certification of AIM-9X					
- Begin aircraft/store compatibility (ASC) efforts for requested configurations					
FY 2017 Base Plans:					
- Continue ASC efforts for requested configurations					
FY 2017 OCO Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>			
C. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: F-35</p> <p>Description: F-35 Capability Development for SEEK EAGLE to support Combat Air Force's (CAF's) anticipated requirements after Initial Operational Capability (IOC).</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support (IOC Toolsets) <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support (IOC Toolsets) - Complete certification of GBU-12 and GBU-31 mixed loads <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support (IOC Toolsets) - Complete certification of GBU-31 envelope expansion <p>FY 2017 OCO Plans:</p> <p>N/A</p>	1.500	1.500	2.600	0.000	2.600
<p>Title: M&S Capability</p> <p>Description: Modeling and Simulation (M&S) capability development in support of store certification</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development and improvement of M&S capability to support store certification disciplines. - Developed tools necessary to characterize F-22 and F-35 weapons bay environments including aero-acoustic prediction. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue development and improvement of M&S capability to support store certification disciplines. 	3.038	2.020	2.480	0.000	2.480

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>			
C. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Develop tools necessary to characterize F-22 and F-35 weapons bay environments including aero-acoustic prediction.</p> <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue development and improvement of M&S capability to support store certification disciplines. - Develop tools necessary to characterize F-22 and F-35 weapons bay environments including aero-acoustic prediction. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Aircraft/Store Compatibility (ASC) Analysis</p> <p>Description: Evaluate aircraft/store compatibility through analysis, M&S and flight and ground test. Provide flight recommendations to airworthiness authorities.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continually provided compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Supported SDB II, AIM-9X and B-61 (MOD 12) flight testing. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to provide compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Perform extensive SDB II, AIM-9X and B-61 (MOD 12) flight testing. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue to provide compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Perform extensive SDB II, AIM-9X and B-61 (MOD 12) flight testing. <p>FY 2017 OCO Plans: N/A</p>					
	4.880	4.980	5.280	0.000	5.280
<p>Title: Organic F-35 and CWDS Capabilities</p> <p>Description: Develop Mission Planning Software, including Combat Weapon Delivery Software (CWDS).</p>					
	13.009	12.029	13.800	0.000	13.800

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Supported F-35 and other airframe efforts aimed at improving aircrew interface. Supported CWDS requirements for multiple MPEs on the JMPS framework. - Continued transition to the redeveloped CWDS software for alignment with the JMPS roadmap architecture. - Continued support of legacy CWDS development until full transition of all MPEs to new JMPS framework has occurred. <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> - Support F-35 and other airframes for continued support of efforts aimed at improving aircrew interface. Continue support of CWDS requirements for multiple MPEs on the JMPS framework. - Begin to support the F-35 mission planning support environment using the current CWDS development as a baseline for development. - Continue transition to the redeveloped CWDS software for alignment with the JMPS roadmap architecture. - Continue support of legacy CWDS development until full transition of all MPEs to new JMPS framework has occurred. <p><i>FY 2017 Base Plans:</i></p> <ul style="list-style-type: none"> - Support F-35 and other airframes for continued support of efforts aimed at improving aircrew interface. Continue support of CWDS requirements for multiple MPEs on the JMPS framework. - Begin to support the F-35 mission planning support environment using the current CWDS development as a baseline for development. - Continue transition to the redeveloped CWDS software for alignment with the JMPS roadmap architecture. - Continue support of legacy CWDS development until full transition of all MPEs to new JMPS framework has occurred. <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	23.472	21.564	25.308	0.000	25.308

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

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>	

E. Acquisition Strategy

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. For initial aircraft-weapons integration, the aircraft or weapon program office is responsible for budgeting and providing the test assets to AFSEO for the store certification requirements. For post integration certification requirements, AFSEO funds are used to obtain the non-inventory test assets.

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>	Project (Number/Name) 674037 / <i>SEEK EAGLE Certifications</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Organic F-22 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	0.550	Aug 2015	0.540	Mar 2016	0.653	Mar 2017	0.000		0.653	Continuing	Continuing	-
F-22 Capabilities	C/CPFF	Raytheon : Waltham, MA	-	0.495	Aug 2015	0.495	Mar 2016	0.495	Mar 2017	0.000		0.495	Continuing	Continuing	-
Organic F-35 and CWDS Capabilities	C/CPFF	Survice : Ft. Walton Beach, FL	-	13.009	Oct 2014	12.029	Oct 2015	13.800	Oct 2016	0.000		13.800	Continuing	Continuing	-
Organic F-35 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	1.500	Mar 2016	1.500	Mar 2016	2.600	Mar 2017	0.000		2.600	Continuing	Continuing	-
Multiple fighter and weapon capability support	C/CPFF	Lockheed Martin : Marietta, GA	-	0.000		0.200	Nov 2015	0.200	Nov 2016	0.000		0.200	Continuing	Continuing	-
F15 Test Support	C/CPFF	Boeing : St Louis, MO	-	0.010	Feb 2015	0.010	Jan 2016	0.010	Jan 2017	0.000		0.010	Continuing	Continuing	-
Enhance Existing and Develop Organic Electro EMI Capabilities	C/CPFF	Applied Research : Baltimore, MD	-	0.250	Feb 2015	0.250	Mar 2016	0.250	Mar 2017	0.000		0.250	Continuing	Continuing	-
Subtotal			-	15.814		15.024		18.008		0.000		18.008	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
96th Test Wing	RO	Eglin AFB : Eglin AFB, FL	-	6.623	Oct 2014	5.500	Oct 2015	6.250	Oct 2016	0.000		6.250	Continuing	Continuing	-
AEDC	PO	Arnold Engineering Dev Complex : Arnold AFB, TN	-	0.515	Jan 2015	0.520	Jan 2016	0.530	Jan 2017	0.000		0.530	Continuing	Continuing	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>	Project (Number/Name) 674037 / <i>SEEK EAGLE Certifications</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Store compatabilty analysis, to include, but not limited to, LJDAM, JASSM,SDB, AIM-9X, AIM-120, MALD, SNIPER, BRU-57, B61 (Mod 12), BLU-111, and BLU-117 [Requests are processed by user priority]	1	2015	4	2021
F-35 Capability Development: Initial Operational Capability	4	2015	4	2017
F-35 Capability Development: Full Operational Capability	4	2017	4	2019
F-22A Capability Development and Weapons Certification	1	2015	4	2018
Modeling and Simulation Capability: development and refresh of analysis tools	1	2015	4	2021
Organic F-35 and Combat Weapon Delivery Software: develop and enhance multiple mission planning environments on the Joint Mission Planning Software framework	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207601F / <i>USAF Modeling and Simulation</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	11.687	24.945	16.666	0.000	16.666	16.877	17.201	17.520	17.831	Continuing	Continuing
674567: <i>M&S Foundations</i>	-	3.163	13.613	5.676	0.000	5.676	6.731	6.864	6.992	7.116	Continuing	Continuing
675135: <i>Warfighter Readiness</i>	-	8.524	11.332	10.990	0.000	10.990	10.146	10.337	10.528	10.715	Continuing	Continuing

A. Mission Description and Budget Item Justification

United States Air Force (USAF) Modeling & Simulation (M&S) Program Element (PE) is broken into two thrust areas: Modeling and Simulation Foundations, and Warfighter Readiness. It directly supports Air Force, Joint, Coalition composite training and rehearsal, concept development, and acquisition and testing through modeling and simulation development as well as the integration of these across and within Live, Virtual, and Constructive (LVC) environments. This program focuses on support of Department of Defense (DoD) Training Transformation (T2). It allows the authoritative portrayal of new and emerging Air Force capabilities within DoD and coalition LVC environments; as well as reciprocating capabilities within Air Force LVC environments.

LVC environments today are used as the most cost effective and practical means to meet mission needs. In support of the DoD T2 initiative, USAF M&S program thrust areas develop and modernize models and simulations that are the constructive backbone of Air Force and joint training and rehearsal. Once these models and simulations are developed, they are integrated across training LVC environments for use by Major and Combatant Commands. This development and integration is 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. These, in turn, enable joint, coalition, and interagency training required to prepare forces for combat by generating the air and space picture for the Air and Space Operations Center (AOC), Joint Force Air Component Commander (JFACC), and Joint Force Commander in combat exercises; training over 100,000 personnel per year in exercises (e.g., Ulchi Freedom Guardian, Red & Blue Flags, Unified Endeavor, etc). These programs also provide the current foundational environment that enables warfighters to interact with high-fidelity tactical cockpit simulators, which replicate high demand/low density platforms that are often unavailable for training due to real-world operations; while simultaneously linking it to warfighters using their current command and control systems 1,000 miles away and the constructive simulations being run from key operational wargaming and simulation centers worldwide.

USAF M&S is integral to inter-agency Homeland Defense (HLD) exercises chartered to train combat units tasked to protect the Homeland, including the National Capital Region (exercise Amalgam Arrow); this generates equipment and manpower efficiencies by using simulations which reduce fuel consumption, aircraft wear and tear, and manpower costs. In support of the DoD drive to improve the effectiveness and efficiency of its enterprise-wide acquisition business processes, the USAF M&S Program Element develops and supports enhancements to models, simulations, tools, and the LVC infrastructure to provide for system-of-systems M&S capabilities across the lifecycle, reduce developmental costs, and minimize risks.

The FY 2017 funding request was reduced by \$.929 million to account for the availability of prior year execution balances.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207601F / <i>USAF Modeling and Simulation</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	12.034	24.994	22.812	0.000	22.812
Current President's Budget	11.687	24.945	16.666	0.000	16.666
Total Adjustments	-0.347	-0.049	-6.146	0.000	-6.146
• Congressional General Reductions	0.000	-0.049			
• 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	-0.347	0.000			
• Other Adjustments	0.000	0.000	-6.146	0.000	-6.146

Change Summary Explanation

FY17: Other Adjustments row list a reduction of \$6.146 million to include:

- reduce the Simulation and Analysis Facility (SIMAF) funding by \$5.05 million to meet the needs of higher Air Force priorities
- reduce \$.167 million for inflation
- the FY 2017 funding request was reduced by \$.929 million to account for the availability of prior year execution balances

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 674567 / M&S Foundations
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674567: M&S Foundations	-	3.163	13.613	5.676	0.000	5.676	6.731	6.864	6.992	7.116	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 rehearsal.

The Air, Space, and Cyberspace Constructive Environment-Information Operations Suite (ACE-IOS) provides the authoritative representation of Air Force information operations. ACE-IOS is comprised of models that support training and mission rehearsal for the Air Force, Joint Task Force commanders, and Combatant Commands (COCOM) battle staffs during Joint and Service exercises and experimentations.

Simulation and Analysis Facility (SIMAF) focuses on fostering M&S tools, data, and infrastructure to enable high confidence acquisition of capabilities to support the joint warfighter. This includes Live-Virtual-Constructive (LVC) infrastructure, tools and processes supporting LVC events, and models, tools, data, simulations/stimulation to support requirements definition, systems engineering and test activities. Activities include M&S support for studies and analysis to support both current program planning and execution and future program planning. These efforts will 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.

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

	FY 2015	FY 2016	FY 2017
Title: Air Constructive Environment - Information Operations Suite (ACE-IOS)	3.163	8.646	5.676
Description: ACE-IOS provides the authoritative representation of Air Force information operations. IOS is comprised of models that support training and mission rehearsal for the Air Force, Joint Task Force commanders, and Combatant Command battle staffs during Joint and Service exercises and experimentations.			
FY 2015 Accomplishments:			
- Completed ACE-IOS (version 5.0.16.0)			
- Integrated Distributed Mission Operations Center - sSpace models for satellite orbits/topology and precision Global Positioning System (GPS) jamming effects			
- Implemented Digital Terrain Elevation Data (DTED) and Line-of-Sight (LOS) service for sensor module and ground game			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 674567 / M&S Foundations		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Implemented Distributed Interactive Simulation (DIS) to High Level Architecture bridge for interaction between Air Force Synthetic Environment for Reconnaissance and Surveillance weaponized Unmanned Aerial Vehicle and Joint Land Component Constructive Training Capability Federation - Added Pacific Intelligence Reporting Directive standards to the Joint Virtual Editing Tool - Implemented close combat and personnel modeling requested by and in support of United States Pacific Command (USPACOM) exercises - Implemented offensive/defensive cyber operations between a cyber exercise range and kinetic battlefield exercise <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete ACE-IOS (version 5.0.17.0) - Develop Joint Data Translator as a service for Joint Live Virtual Constructive (JLVC) 2020 - Develop interface with Suter Project System for cross-initialization and run-time synchronization - Complete integration of DTED and LOS service in last three modules (jamming, electronic warfare, and networks) - Develop package available for DOD use to replace commercially licensed DIS package - Modernize United States Message Text Format production module and Java Server Pages - Develop Intelligence, Surveillance, and Reconnaissance (ISR) as a service for JLVC 2020, a prototype for the ACE-IOS services conversion scheduled for FY17 <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will complete ACE-IOS (version 5.0.18.0) <p>Will replace the commercially licensed Relational Database Management System (RDBMS) with a license-free database package</p> <ul style="list-style-type: none"> - Will replace all control Graphical User Interfaces (GUIs)/scripts with a single web-based GUI - Will continue to re-engineer ACE-IOS to an open architecture design - Will complete the modernization of all ACE-IOS modules as services with database access via the Application Programmers Interface (API) - Will develop the interface from the ACE-IOS to the JLVC 2020 database API 				
Title: Simulation and Analysis Facility (SIMAF)		0.000	4.967	0.000
Description: Develop, enhance and verify models, tools, data, simulations/stimulation environments for systems engineering and test activities.				
FY 2015 Accomplishments: N/A				
FY 2016 Plans: - Supports activities that include studies and analysis of current program planning/execution and future program planning				

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / <i>USAF Modeling and Simulation</i>	Project (Number/Name) 674567 / <i>M&S Foundations</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> -- Enables more efficient delivery of effective capabilities to the warfighter -- Reduces the time and resources required for design, development, test and evaluation, maintainability and sustainment - Supports the development and maturation of collaborative processes and capabilities within airborne network and air-ground layer interaction systems-of-systems assessments <p>FY 2017 Plans: N/A</p>				
Accomplishments/Planned Programs Subtotals		3.163	13.613	5.676
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy Air Force Life Cycle Management Center (AFLCMC) at Hanscom AFB, MA and the Simulation and Analysis Facility, Wright-Patterson AFB, OH manage the project's acquisition process. AFLCMC develops threats through engineering assessments and analysis. SIMAF focuses on M&S tools, data, and infrastructure to enable a high confidence of acquisition capabilities to support the warfighter. There acquisition goals are achieved through incremental development of the project's M&S activities. All major contracts are awarded using full and open competition.				
E. Performance Metrics 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 674567 / M&S Foundations
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Constructive Environment - Information Operations Suite (ACE-IOS)	C/Various	90th IOS : Lackland AFB, TX	-	3.100	Jul 2015	8.503	Feb 2016	5.528	Feb 2017	0.000		5.528	Continuing	Continuing	-
Simulation and Analysis Facility (SIMAF)	C/Various	SIMAF : Wright Patterson AFB, OH	-	0.000		4.967	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	3.100		13.470		5.528		0.000		5.528	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	C/CPFF	AFLCMC : Hanscom AFB, MA	-	0.063	Jun 2015	0.143	Apr 2016	0.148	Apr 2017	0.000		0.148	Continuing	Continuing	-
Subtotal			-	0.063		0.143		0.148		0.000		0.148	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation				Project (Number/Name) 674567 / M&S Foundations			
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.163	13.613		5.676	0.000	5.676	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air Contstructive Environment-Information Operations Suite (ACE-IOS)																												
- ACE-IOS - v5.0.16.0																												
- ACE-IOS - v5.0.17.0																												
- ACE-IOS - v5.0.18.0																												
- ACE-IOS - v5.0.19.0																												
- ACE-IOS - v5.0.20.0																												
- ACE-IOS - v5.0.21.0																												
- ACE-IOS - v5.0.22.0																												
Simulation and Analysis Facility (SIMAF)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Air Contstructive Envitronment-Information Operations Suite (ACE-IOS)	1	2015	4	2021
- ACE-IOS - v5.0.16.0	1	2015	4	2015
- ACE-IOS - v5.0.17.0	1	2016	4	2016
- ACE-IOS - v5.0.18.0	1	2017	4	2017
- ACE-IOS - v5.0.19.0	1	2018	4	2018
- ACE-IOS - v5.0.20.0	1	2019	4	2019
- ACE-IOS - v5.0.21.0	1	2020	4	2020
- ACE-IOS - v5.0.22.0	1	2021	4	2021
Simulation and Analysis Facility (SIMAF)	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675135: Warfighter Readiness	-	8.524	11.332	10.990	0.000	10.990	10.146	10.337	10.528	10.715	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 (COCOMs). 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. It includes the Air Force Modeling and Simulation Training Toolkit (AFMSTT), 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 Combat Commanders (COCOM) battle staffs. The primary models in the AFMSTT are the Air Warfare Simulation (AWSIM) and Air Base Simulation (ABS).

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

	FY 2015	FY 2016	FY 2017
Title: Air, Space, and Cyberspace Constructive Environment (ASCCE)	8.524	11.332	10.990
Description: Air Force Modeling & Simulation Training Toolkit (AFMSTT)/Air Warfare Simulation (AWSIM)			
FY 2015 Accomplishments:			
- Completed the software development of the Air, Space, and Cyberspace Constructive Environment (ASCCE) via the Air Force Modeling and Simulation Training Toolkit (AFMSTT) Version 5.7			
- Completed the modernization of the AFMSTT modular framework architecture and the early development of the Unified Mission Controller (UMC) capability that simplified operator training			
- The Base Simulation Model was updated to better reflect support to Pacific operations			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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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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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Supported a new competitive prime award and transition preparation <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete and field AFMSTT Version 5.9 and commence long lead development for AFMSTT Version 5.11 - Complete contract transition - Continue AFMSTT modular framework architecture refinements and transition to the AFMSTT Unified Mission Controller (UMC) capability - Migrate TADIL and Air Base Simulations to the AFMSTT modular framework - Continue new joint requirements and model interface changes to the Federate Object Models (FOMs) <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Complete the development, test, and fielding of AFMSTT Version 5.11 and commence development of AFMSTT Version 5.13 - Complete full developmental transition to the new AFMSTT UMC functionality with deprecation of select legacy point to point interfaces - Continue integration with spiral Joint Live Virtual Constructive (JLVC 2020) developments - Continue modeling of real world environments and new C2 systems' interfaces to ensure continued accurate and realistic - Commence long lead requirements derivation for prototyping of primary AWSIM application replacement 			
Accomplishments/Planned Programs Subtotals	8.524	11.332	10.990

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

N/A

Remarks

D. Acquisition Strategy

Air Force Life Cycle Management Center (AFLCMC) at Hanscom AFB, MA manages the acquisition and incremental development process for all the project's M&S activities. To continue current efforts, a new Small Business Set Aside (SBSA) contract that incorporates the modular framework into AFMSTT being awarded after full and open competition.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

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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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFMSTT/(Air Warfare Simulation (AWSIM))	C/CPFF	AFLCMC : Hanscom AFB, MA	-	6.999	Oct 2014	9.846	Jan 2016	9.588	Feb 2017	0.000		9.588	Continuing	Continuing	-
Subtotal			-	6.999		9.846		9.588		0.000		9.588	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	C/Variou	AFLCMC : Hanscom AFB, MA	-	1.525	Nov 2014	1.486	Nov 2015	1.402	Nov 2016	0.000		1.402	Continuing	Continuing	-
Subtotal			-	1.525		1.486		1.402		0.000		1.402	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.524	11.332	10.990	0.000	10.990	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 675135 / Warfighter Readiness

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air, Space, and Cyber Constructive Environment																												
- AFMSTT v5.7																												
- AFMSTT v5.9																												
- AFMSTT v5.11																												
- AFMSTT v5.13																												
- AFMSTT v6.1																												
- AFMSTT v6.3																												
- AFMSTT v6.5																												
- AFMSTT v6.7																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Air, Space, and Cyber Constructive Environment	1	2015	4	2021
- AFMSTT v5.7	1	2015	1	2015
- AFMSTT v5.9	1	2015	1	2016
- AFMSTT v5.11	1	2016	1	2017
- AFMSTT v5.13	1	2017	1	2018
- AFMSTT v6.1	1	2018	1	2019
- AFMSTT v6.3	1	2019	1	2020
- AFMSTT v6.5	1	2020	1	2021
- AFMSTT v6.7	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	5.749	6.035	4.245	0.000	4.245	6.071	6.185	6.300	6.412	Continuing	Continuing
672888: <i>Distributed Mission Operations Center (DMOC)</i>	-	5.749	6.035	4.245	0.000	4.245	6.071	6.185	6.300	6.412	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 dominant operations in air, space, cyber, ground, and surface domains in an environment for theater-level, full spectrum combat training for Air Force/joint/coalition partners. This reaches 31 geographically separated 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) 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 Distributed Mission Operations (DMO) technology and capability studies/analyses which support both current and future program planning and execution.

The DMOC utilizes RDT&E funding for the following to enhance DMO training:

1. **Distributed Mission Operations Capability/Battlespace Systems Development:** The DMOC upgrades and enhances the capabilities of various systems, tools, and simulators to incorporate ever-changing technology and emerging training requirements into DMO events such as VIRTUAL FLAG (VF), Coalition VF (CVF), etc. to enhance the quality of warfighter training. Activities include: a. Environment Generator development: DMOC is in partnership with the US Naval Air Systems Command (NAVAIR) 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; b. DMO Tool development: The DMOC Replay Tool facilitates a more complete mission review and debrief capability of the exercises as more sites and systems are added to events. Future DMO Tool development includes enhancement & improvement of the Distributed Interactive Simulation (DIS) Filter; the Tactical Air Datalink Information-J (TADIL-J) Doctor-J (Dr. J) tool to enable tactical datalinks to be communicated and translated between disparate simulator and operationally fielded (i.e. live aircraft) communication formats; and development of Intelligence, Surveillance, and Reconnaissance (ISR)/Battle Damage Assessment (BDA) to improve damage state models used by intelligence analysts in exercises and develops solutions for integrating Contested Degraded Operations (geographical and communications jamming) into DMO events; and c. Simulator Enhancement: Incorporates Mission Package standards upgrades into the Control and Reporting Center Simulation Package (CSP) to allow a real-world system to be used as a simulator when needed in DMO events.
2. **Certification & Accreditation (C&A) and Networthiness:** The DMOC supports requirements definition, integration test support, analysis, systems engineering support, and C&A and Networthiness of core systems. It implements requirements of Cybersecurity and is working toward the application of the Risk Management Framework and Continuous Monitoring. Efforts include Cross-Domain Information Sharing / Multi-national Information Sharing (CDIS/MNIS) ruleset development, load sharing, and testing; accreditation work for various newly developed / updated systems such as the DMOC Replay Tool, Dr. J, DIS Filter, and the DMOC Battlespace.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>
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3. Distributed Training Sites & Systems Integration: DMOC integrates distributed training sites and systems into LVC DMO training events; such as, VF and CVF (four-eyes events) 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 Commanders (CCDRs) emerging requirements.

The FY 2017 funding request was reduced by \$1.77 million to account for the availability of prior year execution balances.

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

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.956	6.035	6.015	0.000	6.015
Current President's Budget	5.749	6.035	4.245	0.000	4.245
Total Adjustments	-0.207	0.000	-1.770	0.000	-1.770
• 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	-0.207	0.000			
• Other Adjustments	0.000	0.000	-1.770	0.000	-1.770

Change Summary Explanation

The FY2017 funding request was reduced by \$1.77 million to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Distributed Mission Operations (DMO) Capability / Battlespace Systems Development	4.135	4.521	2.872
Description: Simulation software/hardware development in support of users conducting RDT&E, mission rehearsal, and concepts of operation development.			
FY 2015 Accomplishments:			
- Continued Next Generation Threat System (NGTS) development			
-- DMOC/NAVAIR Partnership: Enhanced NGTS source code to implement Air Force DMO requirements			
-- DMOC Initiative: Upgraded the plug-in using NGTS versions 3.1.0-3.1.43.2.0			
- Dr. J. tool enhanced			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> -- Improved Situation Awareness Data Link (SADL) messaging capabilities -- Transitioned to web based user interface -- Enhanced the capability to handle various message package sizes, filtering capability, and support for LVC red/blue datalink networks - Upgraded the CSP software to incorporate Mission Package 14 to meet current Combat Air Forces (CAF) DMO standards - Upgraded elements of the Standard Space Trainer for DMOC-Space (DMOC-S) that enhanced space participation in DMO events <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue NGTS development -- DMOC/NAVAIR Partnership: Enhance NGTS source code to implement Air Force DMO requirements -- DMOC Initiative: Upgrade the plug-in using NGTS versions 3.1.4-3.2.0 - ISR/BDA: Enhance system automation and model database to increase training for intel community - DIS Tool Enhancement -- Transition to web based user interface -- Enhancement/improve filtering, routing, and entity management to ensure seamless connectivity between disparate LVC systems - Development LAN: Design a dedicated network to allow design and testing of new/updated systems without impacting operational battlespace - Upgrade capabilities of DMOC-S Global Positioning System Environment to implement features to improve realism of space aspects in DMO events <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue NGTS development -- DMOC/NAVAIR Partnership: By enhancing NGTS source code to implement future Air Force DMO requirements -- DMOC Initiative: Will enhance the plug-in using NGTS versions 3.2.0 as future requirements are identified - Will continue DMO tool development (DIS Tools, DMOC Replay Tool, etc.) as modifications/improvements are identified after completion of DMO events to support changing M&S technology and emerging AF and COCOM requirements - Will continue to update the DMO Simulator as modifications/improvements are identified after completion of DMO events to support changing M&S technology and emerging AF and COCOM requirements - Will continue to support DMOC-S by upgrading systems that incorporate space aspects into DMO events 				
Title: Certification & Accreditation (C&A) and Networkiness		0.482	0.502	0.300

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Description: Support requirements definition, integration test support, scenario development, analysis, systems engineering support, and C&A and Networthiness of core systems. Implement requirements of Cybersecurity, Risk Management Framework, and Continuous Monitoring.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed C&A activities to re-accredit NGTS, Dr. J. CSP, and other battlespace systems - Supported CVF with Cross-Domain Information Sharing/Multi-national Information Sharing (CDIS/MNIS) ruleset development, load sharing, and testing <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Perform C&A activities to re-accredit DMO Tools, systems, and battlespace modifications after upgrades are completed - Support CVF with CDIS/MNIS ruleset development, load sharing, and testing based on FY16 requirements <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will perform C&A activities to re-accredit DMO Tools, systems, and battlespace modifications - Will continue to support CVF with CDIS/MNIS ruleset development, load sharing, and testing 				
<p>Title: Distributed Training Sites & Systems Integration</p> <p>Description: Establish distributed training site system integration and interoperability between DMOC, operational units, and modeling & simulation facilities.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - RED FLAG (RF)/Virtual Flags (VF)/Coalition Virtual Flag (CVF) Integration -- Integrated live Nevada Test and Training Range (NTTR) vehicle and aircraft position, orientation, vector, speed, and identification data to enhance operational and tactical Command and Control (C2) ISR training -- Integrated DMOC-S Space Based Infrared System (SBIRS) virtual reporting of Integrated Air & Missile Defense (IAMD) threats to operational C2 -- Integrated live and virtual US Army Patriot systems for inter-theater air defense - Integrated numerous other sites/systems based on higher headquarters/COCOM requirements <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - RF/VFs/CVF Integration -- Incorporate UHF voice transmission capability to integrate LVC systems -- Add capability to integrate high fidelity live NTTR threat systems data to support virtual ISR training -- Add virtual ISR capabilities to augment live NTTR training 		1.132	1.012	1.073

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Explore options for integration of 5th Gen fighters and advanced systems into FY16 VFs/CVF - Support higher headquarters /COCOM emerging requirements <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue the development of LVC concepts in support of RF/VFs/CVF integration - Will continue 5th Gen and future Distributed Mission Operations Network (DMON) infrastructure integration - Will support/leverage/collaborate DMOC efforts to establishment the Virtual Warfare Center-Nellis, to enable a high end testing and tactics development capability - Will support emerging higher headquarters/COCOM requirements 			
Accomplishments/Planned Programs Subtotals	5.749	6.035	4.245

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

N/A

Remarks

E. Acquisition Strategy

The Distributed Mission Operations Center (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 & 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.

DMOC has 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.

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. The IDE contract is cost-plus-fixed-fee with multiple task orders awarded for individual projects over the course of the fiscal year.

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 those products. Develops requirements for site/system integration of sites/systems into VF, CVF, and other DMO events. C2TSC is a firm-fixed-price contract that is incrementally funded over the course of the fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity

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

R-1 Program Element (Number/Name)

PE 0207605F / *Wargaming and Simulation Centers*

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>	Project (Number/Name) 672888 / <i>Distributed Mission Operations Center (DMOC)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Distributed Mission Operations (DMO) Capability / Battlespace Systems Development, Certification & Accreditation (C&A) and Networkiness, and Distributed Training Sites & Systems Integration	C/CPFF	Lockheed Martin : Kirtland AFB, NM	-	2.524	Mar 2015	2.568	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	94.000
Follow-on Distributed Mission Operations (DMO) Capability / Battlespace Systems Development, Certification & Accreditation (C&A) and Networkiness, and Distributed Training Sites & Systems Integration	C/FFP	TBD : Kirtland AFB, NM	-	0.000		0.000		2.751	Jan 2017	0.000		2.751	Continuing	Continuing	75.000
Subtotal			-	2.524		2.568		2.751		0.000		2.751	-	-	169.000

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical requirements development, integration/ acceptance testing, and engineering support	C/FFP	Alpha-Omega Change Engineering, Inc. : Kirtland AFB, NM	-	1.745	Sep 2015	1.713	Sep 2016	0.738	Sep 2017	0.000		0.738	Continuing	Continuing	30.000
Subtotal			-	1.745		1.713		0.738		0.000		0.738	-	-	30.000

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

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)
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

DMO Capability / Battlespace Systems Development (Design)																												
DMO Capability / Battlespace Systems Development (Development)																												
DMO Capability / Battlespace Systems Development (Integration/Test)																												
Certification & Accreditation (C&A) and Networthiness (Concept Activities)																												
Certification & Accreditation (C&A) and Networthiness (Design)																												
Certification & Accreditation (C&A) and Networthiness (Development)																												
Distributed Training Sites & Systems Integration (Design)																												
Distributed Training Sites & Systems Integration (Development)																												
Distributed Training Sites & Systems Integration (Integration/Test)																												
Virtual Flag 15-1 (VF 15-1) (Feb 2015)																												
VF 15-2 (Mar 2015)																												
VF 15-3 (May 2015)																												
Coalition Virtual Flag 15-4 (CVF 15-4) (Aug 2015)																												
VF 16-1 (Dec 2015)																												
VF 16-2 (Mar 2016)																												
VF 16-3 (May 2016)																												
CVF 16-4 (Aug 2016)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

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)
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
VF 17-1 (Dec 2016)								■																				
VF 17-2 (Mar 2017)									■																			
VF 17-3 (May 2017)										■																		
CVF 17-4 (Aug 2017)											■																	
VF 18-1 (Dec 2017)												■																
VF 18-2 (Mar 2018)													■															
VF 18-3 (May 2018)														■														
CVF 18-4 (Aug 2018)															■													
VF 19-1 (Dec 2018)																■												
VF 19-2 (Mar 2019)																	■											
VF 19-3 (May 2019)																		■										
CVF 19-4 (Aug 2019)																			■									
VF 20-1 (Dec 2019)																				■								
VF 20-2 (Mar 2020)																					■							
VF 20-3 (May 2020)																						■						
CVF 20-4 (Aug 2020)																							■					
VF 21-1 (Dec 2020)																								■				
VF 21-2 (Mar 2021)																									■			
VF 21-3 (Mar 2021)																										■		
CVF 21-4 (May 2021)																											■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>	Project (Number/Name) 672888 / <i>Distributed Mission Operations Center (DMOC)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DMO Capability / Battlespace Systems Development (Design)	1	2015	4	2021
DMO Capability / Battlespace Systems Development (Development)	2	2015	4	2021
DMO Capability / Battlespace Systems Development (Integration/Test)	3	2015	4	2021
Certification & Accreditation (C&A) and Networthiness (Concept Activities)	1	2015	4	2021
Certification & Accreditation (C&A) and Networthiness (Design)	2	2015	4	2021
Certification & Accreditation (C&A) and Networthiness (Development)	3	2015	4	2021
Distributed Training Sites & Systems Integration (Design)	2	2015	4	2021
Distributed Training Sites & Systems Integration (Development)	3	2015	4	2021
Distributed Training Sites & Systems Integration (Integration/Test)	4	2015	4	2021
Virtual Flag 15-1 (VF 15-1) (Feb 2015)	2	2015	2	2015
VF 15-2 (Mar 2015)	2	2015	2	2015
VF 15-3 (May 2015)	3	2015	3	2015
Coalition Virtual Flag 15-4 (CVF 15-4) (Aug 2015)	4	2015	4	2015
VF 16-1 (Dec 2015)	1	2016	1	2016
VF 16-2 (Mar 2016)	2	2016	2	2016
VF 16-3 (May 2016)	3	2016	3	2016
CVF 16-4 (Aug 2016)	4	2016	4	2016
VF 17-1 (Dec 2016)	1	2017	1	2017
VF 17-2 (Mar 2017)	2	2017	2	2017
VF 17-3 (May 2017)	3	2017	3	2017
CVF 17-4 (Aug 2017)	4	2017	4	2017
VF 18-1 (Dec 2017)	1	2018	1	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / <i>Wargaming and Simulation Centers</i>	Project (Number/Name) 672888 / <i>Distributed Mission Operations Center (DMOC)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
VF 18-2 (Mar 2018)	2	2018	2	2018
VF 18-3 (May 2018)	3	2018	3	2018
CVF 18-4 (Aug 2018)	4	2018	4	2018
VF 19-1 (Dec 2018)	1	2019	1	2019
VF 19-2 (Mar 2019)	2	2019	2	2019
VF 19-3 (May 2019)	3	2019	3	2019
CVF 19-4 (Aug 2019)	4	2019	4	2019
VF 20-1 (Dec 2019)	1	2020	1	2020
VF 20-2 (Mar 2020)	2	2020	2	2020
VF 20-3 (May 2020)	3	2020	3	2020
CVF 20-4 (Aug 2020)	4	2020	4	2020
VF 21-1 (Dec 2020)	1	2021	1	2021
VF 21-2 (Mar 2021)	2	2021	2	2021
VF 21-3 (Mar 2021)	3	2021	3	2021
CVF 21-4 (May 2021)	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.251	4.358	3.886	0.000	3.886	4.178	4.255	4.334	4.410	Continuing	Continuing
675190: <i>JFCOM Wargaming</i>	-	3.251	4.358	3.886	0.000	3.886	4.178	4.255	4.334	4.410	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, 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 pressure to reinvigorate, institutionalize, and systematize wargaming across the Department. This effort requires additional funding to increase 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 is completing its current wargaming cycles and charting a new course to better integrate and synergize the wargaming efforts in support of the new Air Force Strategy, Planning, and Programming (SP3) process. Specifically taking the current two Title 10 wargames and creating two Concept of Operations wargames, one Materiel wargame, and experiments as needed to match the SP3 process and cycles. Also represent the Air Force at other services and Joint wargames as they ramp up across the department. These efforts will make the difference between wise and unwise investment trajectories and make our forces more successful 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 WIE is 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 all the wargame to executed but also documented. Allowing for findings to quickly surface during the wargame and be noted and allowing post-game analysis. These findings Inform portfolio rebalancing exercises, concept and strategy development, and very senior leader decision making. At the conclusion of the current wargaming cycle, the current version of the WIE will need major overall to match the new charter and SP3 process along with supporting greater number and more diverse wargames.

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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	3.357	4.358	4.138	0.000	4.138
Current President's Budget	3.251	4.358	3.886	0.000	3.886
Total Adjustments	-0.106	0.000	-0.252	0.000	-0.252
• 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	-0.106	0.000			
• Other Adjustments	0.000	0.000	-0.252	0.000	-0.252

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Develop/ Upgrade M&S Tools for WIE	1.442	1.918	1.722
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 2015 Accomplishments:			
- Developed user interface to Satellite Toolkit (STK) to allow users to develop their own visualizations versus asking for support from the tech staff. STK is COTS product from Analytical Graphics Inc. that required customized software to interact in the WIE.			
- Developed Observation Tool to capture and manage participant insights and observations. Observation Tool enables post-game analysis supporting objective development, as well as further WIE development.			
- Incorporated the latest version and improved integration of the Air Force's latest version of Synthetic Theater of Operations Research Model (STORM). STORM is a theater campaign model used in pregame and postgame analysis to establish bookends.			
FY 2016 Plans:			
- Expand the WIE from the current construct to support all Air Force wargames. This will require reprogramming of some hard coded, CONOPS-specifics to into broader, more generic, wargame support. Additional models and analytical tools used by other wargames will require the creation of custom interfaces to allow interaction within the WIE.			
- Development and deployment of Force Tracker Request For Forces (RFF) Tool. RFF Tool will permit wargame participants to nominate, vet, and authorize the movement of forces through player selected processes. Its integration into Force Tracker makes			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>the process transparent in a universally accessible database, eliminating errors in transposition. It also serves as a record of participant decisions suitable for subsequent analysis.</p> <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Develop the WIE as a standard platform for Air Force wargaming, permitting integration with other Air Force Wargaming systems, such as BubbleNet at Lemay Center Wargaming Institute and the planned Schriever Wargame System. - Continue to expand and develop the WIE, incorporating latest technology and tools, in support of a more flexible and agile wargaming enterprise; quicker to respond and tailorable for a wider range of wargaming. This will require analysis of utility and functionality of additional models and analytical tools used by other wargames, as well as creation of custom interfaces to allow interaction within the WIE. 				
<p>Title: CRRA Development</p> <p>Description: Provides for capabilities, Requirements, and Risk Assessment (CRRA)</p> <p>FY 2015 Accomplishments: Develop Capabilities, Requirements, and Risk Assessment (CRRA)</p>		0.106	-	-
<p>Title: JCD&E Tools</p> <p>Description: Develop of scenarios and data for future synthetic environment that grounded in truth to support several wargame and mini-wargame.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Created classified scenario and data to support Unified Engagement 14. Framework for UE National Security Council to react/respond to UE Joint Force's intended plans. - Instantiated an environment for approximately 400 participants from the Air Force, Sister Services, Pacific Command, functional commands, and multinational coalition to plan to have blue, red, and adjudication teams to wargame. - Initiated wargame support plan to SP3. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Design and implement novel wargaming support plan in accord with SP3. This plan will include flexible and agile, quick-turn efforts to provide analytic support as required by HAF and SAF efforts. - Design and execute a midterm, theater-baseline wargame hosted by USAFE. This baseline wargame directly services HAF objectives and provides high fidelity data for subsequent quick-turn efforts supporting dynamic SP3 requirements. <p>FY 2017 Plans:</p>		1.351	2.058	1.782

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Refine wargame support plan to SP3 process, with respect to timing, sequence and focus to ensure greatest utility of wargaming efforts in the provision of analytic support; to include dynamic, quick-turn wargaming efforts in support of HAF and SAF initiatives as required. - Maintain, direct, and mature the Air Force Wargaming Enterprise to better coordinate, integrate, and leverage efforts, resources, and expertise across Air Force organizations. - Develop Scenarios, plan and execute materiel-focused, theater baseline wargame involving Air Force, Sister Services, Pacific Command, functional commands, and multinational coalition. 			
<p>Title: Software License & Replacement Costs</p> <p>Description: Supplies platforms for software in operational environments and for programmed replacement costs</p> <p>FY 2015 Accomplishments: Pays for annual license fee for the Modeling and Simulation, Mapping, and Microsoft collaboration and infrastructure fees. Also includes tech refresh on hardware used by WIE.</p> <p>FY 2016 Plans: Pays for annual license fee for the Modeling and Simulation, Mapping, and Microsoft collaboration and infrastructure fees. Also includes tech refresh on hardware used by WIE.</p> <p>FY 2017 Plans: Pays for annual license fee for the Modeling and Simulation, Mapping, and Microsoft collaboration and infrastructure fees. Also includes expanded tech refresh on hardware used by WIE.</p>	0.352	0.382	0.382
Accomplishments/Planned Programs Subtotals	3.251	4.358	3.886

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

N/A

Remarks

E. Acquisition Strategy

In order to achieve an innovative strategy, avoid operational and technical surprise and make best use of limited resources, the newly revamped wargame approach will require an evolutionary acquisition approach and continued senior-leadership engagement in setting the objectives and strategy for every wargame. Contract support will be required because that is where the wargame specialized expertise resides. The requirements are constantly evolving and cannot be accurately defined at the outset of the contract; therefore, a cost plus fixed fee (CPFF) contract will be used. There is currently an adequate accounting system and government monitoring in place. The Air Force is aware of the increased risk but Air Force will continue to monitor the performance and cost to ensure the contractor has efficient methods and effective cost controls.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>	

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

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>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	C/CPFF	TBD : TBD	-	3.251	Apr 2015	4.358	Mar 2016	3.886	Mar 2017	0.000		3.886	Continuing	Continuing	-
Subtotal			-	3.251		4.358		3.886		0.000		3.886	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.251	4.358	3.886	0.000	3.886	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop and Integrate M&S Tools	[REDACTED]																											
Enhance ViewPoint	[REDACTED]																											
Improve GamePoint	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Develop and Integrate M&S Tools	1	2015	4	2021
Enhance ViewPoint	1	2015	4	2021
Improve GamePoint	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	58.782	55.835	71.785	0.000	71.785	76.183	75.289	86.987	88.531	Continuing	Continuing
675302: <i>Precision Aerial Delivery Systems (PADS)</i>	0.000	4.224	7.390	7.245	0.000	7.245	8.851	3.675	5.021	5.109	0.000	41.515
675380: <i>Mission Planning Systems (MPS) Modernization</i>	0.000	54.558	48.445	60.788	0.000	60.788	67.332	71.614	81.966	83.422	Continuing	Continuing
675385: <i>MPS Increment 5</i>	0.000	0.000	0.000	3.752	0.000	3.752	0.000	0.000	0.000	0.000	Continuing	Continuing

Program MDAP/MAIS Code: 509

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

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. It 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 Mission Planning Systems (MPS) program is a collaborative program with the Navy to leverage technical solutions and business practices for all 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 the Joint Mission Planning System (JMPS). MPS will compress 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 is shared with the selected programs in the Navy. MPS will deliver 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.

MPS Increment 5 will complete the initial migration of Air Force platforms from their legacy planning systems to the new Mission Planning System (aka the Joint Mission Planning Systems (JMPS)). It will complete development of three efforts originally started as separate and individual projects with the MPS Modernization development

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>
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effort. Those projects are: 1) Mobility Air Forces Automated Flight Planning Service (MAFPS); 2) Air Mobility Command (AMC) Transition; and 3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR). These projects, and their associated platforms, are now included in the overarching MPS Major Automated Information Systems (MAIS) program as MPS Increment 5 to provide improved transparency and oversight. As such, MPS Increment 5 is not a new start but a continuation of efforts previously started under the development umbrella of the MPS Modernization project.

In addition to the above, elements of Mission Planning Systems will be utilized to continue development of a Joint Precision Airdrop System - Mission Planning (JPADS-MP) in conjunction with the Army. The JPADS capability 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. JPADS-MP enables high-altitude, precise airdrop delivery to forward ground forces, mitigating surface-to-air threats, reducing risk of Improvised Explosive Device (IED) and insurgent attack on ground convoys. JPADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, etc... to accurately deliver payloads to keep the warfighter supplied and in the fight.

FY17 funding will continue the MPS software development program. It will develop pre-, post-, and in-flight mission planning capabilities for Air Force aircraft and weapons migrating from legacy mission planning systems to the Joint Mission Planning System (JMPS), as well as, continuing to provide new capabilities and updates for Air Force platforms/weapon systems that have already migrated to JMPS. These platforms/weapon systems include, but are not limited to, the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-16, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60, and their associated weapons (e.g. Small Diameter Bomb (SDB), Joint Direct Attack Munitions (JDAM), Joint Air-to-Surface Standoff Munitions (JASSM), etc.). FY17 funding will also continue the development of the Mobility Air Force Automated Flight Planning Service (MAFPS) to realize fuel savings and other efficiencies. Additionally, it will continue the development of JPADS-MP airdrop software (and other system components) to provide a precision airdrop capability for the C-17, C-130, and other selected platforms as necessary.

The FY 2017 funding request was reduced by \$2.3 million to account for the availability of prior year execution balances.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	60.679	55.835	78.323	0.000	78.323
Current President's Budget	58.782	55.835	71.785	0.000	71.785
Total Adjustments	-1.897	0.000	-6.538	0.000	-6.538
• 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	-1.897	0.000			
• Other Adjustments	0.000	0.000	-6.538	0.000	-6.538

Change Summary Explanation

FY17 RDT&E reduced \$4.3M for higher Air Force priorities
 FY17 RDT&E reduced \$2.3M for the availability of prior year execution funds

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675302: <i>Precision Aerial Delivery Systems (PADS)</i>	0.000	4.224	7.390	7.245	0.000	7.245	8.851	3.675	5.021	5.109	0.000	41.515
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. It 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, etc., to accurately deliver payloads to combat and other friendly forces.

The 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).

In addition the Air Force Research Laboratories (AFRL) led Precision Airdrop (PAD) Flagship Capability Concept (FCC) effort will transition technology for new capabilities into various CAT software release/deliverables. The PAD FCC is also charged with updating airdrop platforms and airdrop related systems to improve accuracy across all airdrop mission types. The following capabilities are planned for development within the JPADS-MP program:

- Wireless Gate Release System (WGRS)
- Local Area Prediction System (LAPS)
- Airdrop Damage Estimate (ADE)
- Combination Airdrop

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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>

- Support of new map projections including polar stereographic
- Advanced Launch Acceptable Range (LAR)
- Drogues and Wireless Activation Device (WAD)
- Automation and Health Status/Monitoring
- Autonomous Guidance Unit (AGU) Data Transfer updates
- Bundle Tracking
- Service Oriented Architecture (SOA) to enable seamless data communication between devices
- Support for ParaNavSys, Dropsonde Optimization
- Transference of wind along a flight path
- Replacement of weather assimilation engine with Kalman Filter
- Implementation of new weather observation sources (i.e. Light Detection and Ranging (LIDAR) and RADAR sensing capabilities) for real-time weather
- Simulator and rehearsal mode for Aircraft Weapon System Trainers (WST)

FY17 funding continues CAT v5 development and testing to provide precision and conventional airdrop capabilities including, but not limited to, Airdrop Damage Estimate (ADE), Combination Airdrop, Personnel Airdrop, Unified Mission Configuration Editor, Falconview Overlays and Advanced LAR and Failure Footprints, Kalman Filter Implementation and calculation optimization, Humanitarian airdrop, and bundle tracking for AF and other services (e.g. the Army) aircraft platforms. FY17 will also begin CAT v6.x development efforts.

This program is in Budget Activity 7, Operational System Development, which 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 2015	FY 2016	FY 2017
<p>Title: JPADS-MP Phase I</p> <p>Description: Continues development of a JPADS capability for precise, high altitude delivery of material to forward ground forces.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Delivered CAT v3.0.3 which updated CAT v3.0 to include Local Area Prediction System terrain balancing - Completed development and began testing of CAT v3.2 - Introduced Service Oriented Architecture (SOA), Combination Airdrop, Air Damage Estimate, Unified View, Precision Weather for Conventional Airdrop, Guidance Failure Footprint, and completed integration of Army's Mission Planning Tool - Completed development of CAT v4.1 for initial migration of the CAT v3.2 baseline to a JMPS Framework - Began development of CAT v4.2 which expands precision airdrop capabilities for accurate calculation of established operational requirements - CAT v4.2 capabilities include, but are not limited to: Support for advanced failure footprints for guided delivery systems, assessment of airdrop damage estimates based on in-flight constraints identified by the aircrew during improved container 	4.224	7.390	7.245

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
delivery system (CDS) airdrops, new 45 foot parachute for High Speed CDS airdrops, Launch Acceptable Range calculation for Ultra-Lightweight guided delivery systems, 2K Halo, Mass CDS, and improved user workflows, Enhanced Forecast-Sonde (Non-LAPS Solution), Initial Applications for Touch Screen (Tablet) User Interface, Marine Helos, and Dropsonde footprint updates			
FY 2016 Plans: - Complete operational test of CAT v3.2 for fielding in FY16 - Complete testing of CAT v4.1 (migrates CAT v3.2 baseline to a JMPS Framework) - Complete development of CAT v4.2 (expands precision airdrop capabilities for C-130 and C-17 platforms) - Begin development of CAT v5.0 to continue evolution of CAT S/W into an automated suite of airdrop mission tools (CAT v5.0 capabilities include, but are not limited to: Initial Kalman-Filter Implementation, Guided Delivery System Updates, Mission Execution Workflow Updates, CDS HALO, Automation Enhancements, Network Automation, Humanitarian Airdrop, Calculation Optimizations and Guided Airdrop Damage Estimation (GADE))			
FY 2017 Plans: - Will complete fielding of CAT v4.1 (for C-130 and C-17) - Will complete testing and fielding (for C-130) of CAT v4.2 - Will complete development of CAT v5.0 - Will complete testing of CAT v5.0 - Will award contracts and initiate development of CAT v6.x			
Accomplishments/Planned Programs Subtotals	4.224	7.390	7.245

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA07: Line Item #	8.400	5.944	6.329	0.000	6.329	6.026	6.345	6.456	6.574	Continuing	Continuing
833170: <i>Mission Planning Systems</i>											

Remarks

D. Acquisition Strategy

The MPS PADS efforts are developed and fielded using a variety of contracting instruments. Efforts to accomplish activities such as software development, systems engineering and integration, training, and support are completed using competitively awarded contracts (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP)).

Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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>

MITRE, a Federally Funded Research and Development Center (FFRDC) contractor, provides technical support via a no fee for service contract.

Other efforts are accomplished using Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR). As an example, a portion of funding is transferred via MIPR to the Defense Information Systems Agency's Defense Information Technology Contracting Organization (DISA/DITCO) who contracts for AFLCMC/HBM at a fee.

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.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/BM) is the PEO and Milestone Decision Authority (MDA) for the PADS program.

E. Performance Metrics

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 2017 Air Force												Date: February 2016				
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 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	MIPR	Various : Various	0.000	3.197	Nov 2014	6.294	Nov 2015	5.221	Nov 2016	0.000		5.221	Continuing	Continuing	TBD	
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	0.856	Nov 2014	0.669	Nov 2015	1.586	Nov 2016	0.000		1.586	Continuing	Continuing	TBD	
Subtotal			0.000	4.053		6.963		6.807		0.000		6.807	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	Tecolote Inc : Goleta, CA	0.000	0.015	Nov 2014	0.015	Nov 2015	0.015	Nov 2016	0.000		0.015	Continuing	Continuing	TBD	
Subtotal			0.000	0.015		0.015		0.015		0.000		0.015	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Type I Training	C/FP	Spiral Solutions & Technologies : Bellevue, NE	0.000	0.074	Nov 2014	0.076	Nov 2015	0.078	Nov 2016	0.000		0.078	Continuing	Continuing	TBD	
Subtotal			0.000	0.074		0.076		0.078		0.000		0.078	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	0.000	0.082	Nov 2014	0.336	Nov 2015	0.345	Nov 2016	0.000		0.345	Continuing	Continuing	TBD	
Subtotal			0.000	0.082		0.336		0.345		0.000		0.345	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
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>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	0.000	4.224	7.390	7.245	0.000	7.245	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JPADS-MP CAT v3.2 Fielding					■																							
JPADS-MP CAT v.4.1 Fielding (C-130 and C-17)												■																
JPADS-MP CAT v4.2 Fielding												■																
JPADS-MP CAT v5.0 Fielding												■																
JPADS-MP CAT v6.xFielding																■												
JPADS-MP CAT v7.x Fielding																								■				
JPADS - MP CAT v8.x Fielding																												■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JPADS-MP CAT v3.2 Fielding	1	2016	1	2016
JPADS-MP CAT v.4.1 Fielding (C-130 and C-17)	3	2017	4	2017
JPADS-MP CAT v4.2 Fielding	4	2017	1	2018
JPADS-MP CAT v5.0 Fielding	1	2018	1	2018
JPADS-MP CAT v6.xFielding	1	2019	1	2019
JPADS-MP CAT v7.x Fielding	1	2020	1	2020
JPADS - MP CAT v8.x Fielding	1	2021	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>				Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675380: <i>Mission Planning Systems (MPS) Modernization</i>	0.000	54.558	48.445	60.788	0.000	60.788	67.332	71.614	81.966	83.422	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

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. It 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.

This project focuses on modernizing MPS to support Combat Air Forces (CAF) and Mobility Air Forces (MAF), including the development, test and sustainment of Mission Planning Environments (MPEs) to support the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-16, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60 other platforms, 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 are as follows:

a. CAF MPS Modernization: These development efforts modernize CAF MPEs. The modernization effort will provide new and improved mission planning capability for individual Operational Flight Program (OFP) requirements, such as new weapons, avionics upgrades, communications systems, etc. The OFPs requiring MPE updates under the CAF modernization effort include, but are not limited to, B-1 (Sustainment Blocks 15, 16, 16a, 17 and 18), F-15 (Suites 7, 8, 9 and 10), F-16 Block 30 (System Capability Upgrade [SCU] 8, and 9, F-16 Block 40/50 (M6.1, M6.5, M7.1, and M7.2) and F-22 (Increments 3.2B, 3.2M, and 4.0). 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). Finally, 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. CAF MPE Modernization includes, but is not limited to, the following platform efforts:

1) F-15 Modernization Phase II: This modernization program consists of multiple software development efforts driven by OFP updates for F-15 Suites 7, 8, and 9. Suite 7 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

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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<p>Link 16). It will also include enhancements to the synthetic aperture radar planning tool (SAR-PT) and the global area reference tool as well as radar modernization updates (e.g. combat identification, radar planning tool enhancements). Development efforts for F-15 Suite 8 include, but are not limited to, integration of B61 Life Extension Program (LEP), feature updates for several weapons, and the expansion of Link-16 messages sets. F-15 Suite 9 MPE will include a variety of updates and enhancements for weapons and aircraft systems to include, but are not limited to, a new Advanced Dual Core Process II (ADCP-II) computer as well as Digital Transfer Device/Modules (DTD/DTM) modernization.</p> <p>2) F-16 Block 30 Modernization Phase I: The F-16 Block 30 modernization effort will support new aircraft capabilities established in OFPs for the SCU 8 and SCU 9. The effort will also migrate the F-16 Block 30 Mission Planning Environment (MPE) to the Windows 7 operating system and the current version of the MPS Framework. SCU 8 system capabilities include, but are not limited to, the addition of Helmet Mounted Integrated Targeting (HMIT), Small Diameter Bomb (SDB), the AIM-120D missile variant and Center Display Unit (CDU) Integration. SCU 9 capabilities include, but are not limited to, finishing HMIT and CDU integrations, support of Threat Symbology/Correlation (TS/C) file import (commonality with F-16 Block 40/50), Eagle Passive/Active Warning Survivability System (EPAWSS) and the addition of the Laser JDAM.</p> <p>3) F-16 Block 40/50 Modernization Phases I&II: The F-16 Block 40/50 modernization efforts will provide the capability to plan/utilize a number of OFP-driven capabilities in the platform. The modernization efforts will support new aircraft capabilities established in OFPs for M7.1 and M7.2. These capabilities include, but are not limited to, integrating the Universal Armament Interface (UAI) with the most recent version of Weapons Planning Software (WPS) to give the platform the ability to plan missions for any type of Network Enabled Weapon (NEW). It will also provide for UAI compliance with the Small Diameter Bomb (SDB; GBU-39) and the Laser Joint Direct Attack Munition (LJDAM; GBU-54). The modernization effort will also provide for the use of the Advanced Identification Friend or Foe (AIFF) Mode 5 capability in the F-16 Blk 40/50. AIFF will allow use of enhanced authentication and verification of friendly signals through the incorporation of cryptographically secured signals. It will also introduce Automatic Dependent Surveillance-Broadcast Out (ADS-B Out) technology and facilitate compliance with standards for the Next Generation Air Transportation System (NextGen), JASSM-Extended Range (JASSM-ER), and Multifunctional Information Distribution System (MIDS) upgrades. The development effort will also migrate the F-16 Block 40/50 MPE to the Windows 7 operating environment.</p> <p>4) F-22 Modernization Phase I: The F-22 Modernization program includes OFP-driven software updates v13. These enhancements include, but are not limited to, the addition of improved capabilities for the AIM-9X and AIM-120D, the incorporation of additional electronic protection tasks, combat identification improvements, addition of an Inter-flight Data Link Gateway, and incorporation of the synthetic aperture radar planning tool. Additionally, other new and emerging OFP-generated requirements will be addressed as identified by the operational user(s). Other Common Component (CC) updates will also be completed as required.</p> <p>5) B-1 Modernization Phase I&II: The B-1 Modernization program includes OFP-driven software updates for Releases 7.0, 8.0, 9.0 and 11.0. It will incrementally update the platform MPE and provide for integration with the Reliability and Maintainability Improvement Program (RMIP)/Inertial Navigation System Replacement (INSR), Laptop Computer Targeting Pod Phase 2 (LCTP), Integrated Battle Station (IBS) elements (including Fully Integrated Data Link(FIDL)/Visual Situation Display Upgrade (VSDU)), Central Integrated Test System Upgrade (CITS), and related follow on enhancements. Additionally, it will migrate the B-1 MPE to the Windows 7 operating system and convert the B-1 Unit Planning Component (UPC) Visual Basic (VB) code to C# .NET.</p>		

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<p>b. MAF MPS Modernization: These development efforts modernize MAF MPEs. The modernization effort will provide new and improved mission planning capability for individual Operational Flight Program (OFP), Global C2, and AMC fuel efficiency requirements.</p> <p>1. Special Missions Air Combat Command (SMACC) Modernization Phase I: This effort includes two programs: the SMACC Phase I Modernization Program and the SMACC Combat Search and Rescue (CSAR) Program. 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. The SMACC CSAR MPE program will transition the HH-60 and HC/MC-130P/N/J CSAR mission planning functionality, tools, and plug-ins from the legacy Portable Flight Planning Software (PFPS) to the Mission Planning Systems (MPS) environment. This SMACC CSAR effort will be completed in MPS Increment 5, Project 675385, described elsewhere in this document.</p> <p>2. MAF Modernization: This effort builds upon the fielded E-8 MPE to provide new and improved mission planning capabilities for the MAF fleet (e.g. C-5, C-130, KC-10, etc.) as required to meet OFP, fuel efficiency, and global planning net-centric requirements. It includes, but is not limited to, enhanced capabilities to accommodate avionics upgrades, improved communications systems, interfaces with command and control systems, new parachutes, etc. for various MAF platforms. Development efforts also include, but are not limited to, integrating improvements to MAF related Common Components (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. The AMC Transition efforts will be completed in the MPS Increment 5 described in the final section of this document.</p> <p>3. Mobility Air Forces Automated Flight Planning Service (MAFPS): This effort includes development of a centralized/net-centric global mobility flight planning capability, which will provide significant fuel savings through automated flight route, airspeed, and altitude optimization utilizing aircraft performance, air traffic management, weather, and other data.</p> <p>c. Test, Training, and Certification: Continues all MPS-related integration, test, and certification activities for all CAF and MAF platforms.</p> <p>d. 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.</p> <p>FY17 funding will continue the development and modernization of Mission Planning Environments (MPEs) and related planning capabilities for a variety of Air Force aircraft and weapons platforms for the CAF, MAF, and other operational users. The modernization programs will be closely aligned and compatible with the capabilities being developed for the platforms within their respective and regularly scheduled Operational Flight Programs (OFPs).</p> <p>The FY 2017 funding request was reduced by \$2.3 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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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Title: F-15 Modernization Phase II&III</p> <p>Description: Continues the modernization of previously fielded F-15 Mission Planning Environments (MPEs) to enable efficient use of new and improved capabilities being developed in platform Operational Flight Programs (OFPs).</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed Operational Testing (OT) and fielding of v3.2 in Q1 - Finished initial development of v4.0 - Completed Final Qualification Testing (FQT) and entered in Development Testing (DT) of v4.0 - Fielded a v4.0 mid-DT release to address risks with SDB-II implementation - Development efforts for v4.0 included, but were not limited to: Integration of B61 Life Extension Program (LEP), feature updates for several weapons, and the expansion of Link-16 messages sets - Began MPE v5.0 development that includes Digital Transfer Device/Modules (DTD/DTM) modernization, MIDS-JTRS, and radar library updates <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete Developmental Testing (DT) and Operational Testing (OT) of MPE v4.0. Development efforts include, but are not limited to, -- Integration of B61 Life Extension Program (LEP) -- Feature updates for several weapons, SDB II mission planning, and the expansion of Link-16 messages sets - Continue development of MPE v5.0 which includes: -- Digital Transfer Device/Modules (DTD/DTM) modernization -- Radar library updates - Initiate follow-on efforts for F-15 MPE v6.0 with focus on requirements definition of systems interfacing with aircraft program - Initiate content definition for v6.0 (consider Eagle Passive/Active Warning Survivability System (EPAWSS), MIDS-JTRS, RWR Test & Integration, and Delta 0+/PASS) <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will complete FQT and DT on MPE v5.0 - Will continue requirements definition and development of v6.0 		11.138	9.184	10.787
<p>Title: F-16 Block 30 Modernization Phase I</p> <p>Description: Continues the modernization of previously fielded F-16 Block 30 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs.</p> <p>FY 2015 Accomplishments:</p>		1.218	0.209	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Completed Development Evaluation 2 Testing of SCU 9</p> <p>FY 2016 Plans:</p> <p>- Complete Development Testing, Operational Testing and field SCU 9</p> <p>- Complete development and full qualification testing (FQT)</p> <p>FY 2017 Plans:</p> <p>No RDT&E funding requested in FY17.</p>				
<p>Title: F-16 Block 40/50 Modernization Phases I and II</p> <p>Description: Continues the modernization of previously fielded F-16 Block 40/50 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs.</p> <p>FY 2015 Accomplishments:</p> <p>- Completed Development Evaluation 2 Testing of M7.1</p> <p>FY 2016 Plans:</p> <p>- Complete development testing, operational testing, and fielding of M7.1+</p> <p>- Complete design and begin coding MPS M7.2 for first Operational Flight Plan (OFP) ground testing</p> <p>- Capabilities for M7.2+ include Automatic Dependent Surveillance-Broadcast (ADS-B) Out, JASSM-ER, UAI Compliance for SDB II, and MIDS upgrades</p> <p>FY 2017 Plans:</p> <p>- Will complete coding and two software development builds for MPS M7.2 for first and second OFP ground and flight test (FTR1 and FTR2)</p>		3.646	1.109	0.748
<p>Title: F-22 Modernization Phase I</p> <p>Description: Continues the modernization of previously fielded F-22 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs.</p> <p>FY 2015 Accomplishments:</p> <p>- Fielded v12.1 Mission Planning Environment (MPE)</p> <p>- v12.1 capabilities include AIM-9x Basic Update, Intra-Flight Data Link (IFDL) Gateway, Candidates I6 and M3, and the Radar Prediction Tool</p> <p>- Continued development of v13.0</p>		4.061	4.025	9.575

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Capabilities for v13.0 include, but are not limited to: Addition of AIM-9X and AIM-120D, incorporation of additional Electronic Protection Tasks, Combat Identification improvements, and the Synthetic Aperture Radar Planning Tool</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete MPE v13.0 FQT - Complete DT and enter OT - Capabilities for v13.0 include, but are not limited to: Addition of AIM-9X and AIM-120D, incorporation of additional Electronic Protection Tasks, Combat Identification improvements, and the Synthetic Aperture Radar Planning Tool - Begin MPE v.14.0 requirements definition interfacing with the aircraft program - Award delivery order for v.14.0 <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will field MPE v13.0 - Will continue development for MPE v14.0 - MPE v14.0 will be built from the v13.1 baseline and will integrate with requirement established through OFP Inc 3.2M - New Inc 3.2M capabilities are planned to include: Mark XIIA System with Joint Requirements Oversight Council (JROC) mandated Mode 5/S Identification Friend or Foe (IFF, Communication Navigation Surveillance (CNS)/Air Traffic Management (ATM) upgrade designated as Tactical Mandates (TACMAN) and Link 16 transmit capabilities, Electronic Protection updates, Combat ID updates, and incorporation of OFP Update 7 				
<p>Title: B-1 Modernization Phase I&II</p> <p>Description: 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>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Conducted Delta Full Qualification Testing (DFQT) for Rel 8.0 (which updated de-clutter configuration tool and defensive threat rings - Completed DT/OT to support SB-16A requirements <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Field Rel 8.0 - Incorporate FIDL Editor and Draw File into Rel 8.0 - Continue development of Rel 9.0 that will update the migration to Framework v. 1.5.3xx, SDC 3.5 and operation in WoW64 environment - Accomplish Rel 9.0 Initial Design Review (IDR) 1 - Release Rel 9.0 Beta 1 		5.021	5.858	9.182

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Complete the transition to Universal Armament Interface (UAI) Mission Planner 2 version with Fully Integrated Data Link (FIDL) updates, Integrated Battle Station (IBS) replacement, Long Range Air to Surface Missile (LRASM), and replacement of Redundant Power Supply (RPS) Super microcomputer for SB-17 - Continue development of LRASM - Accomplish System Integration Lab (SIL) test - Incorporate FIDL Editor and Draw File into Rel 9.0 - Release Rel 9.0 Beta 2 and finalize detailed design - Release Rel 9.0 Beta 3 and finalize MPE integration prior to FQT for SB-17 - Prepare Delivery Order (DO) for Rel 11.0 - Accomplish Rel 11.0 Configuration Control Board (CCB) - Release Rel 11.0 Request For Proposal (RFP) <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will award new Delivery Order (DO) for Rel 11.0 - Will continued development of Rel 9.0 - Will accomplish Technical Requirements Review (TRR) - Will perform Final Quality Test (FQT) - Will complete a 63-119 review - Will formalize Developmental Test (DT) and scenario testing 				
<p>Title: MAF Modernization</p> <p>Description: Migrates Airlift (C-5), Tanker (KC-135 and KC-10), and Air Drop (C-17, C-130) platforms from their legacy mission planning systems to the Joint Mission Planning Systems (JMPS). Develops KC-46 JMPS Mission Planning Environment (MPE). Also, once fielded, the program will keep MPEs current via modernization upgrades to account for changes in aircraft operational flight profiles (OFPs) and Global Command and Control Changes.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed preliminary qualification testing of Global Mobility (GM) Release 1.1 (for airlift function via the C-5) - Completed preliminary qualification testing of GM 1.2 for the KC-10 and KC-135 (for the air refueling capability) - Finalized preparation to complete the final formal qualification testing of GM Release 1.1 and 1.2 - Continued development GM Release 1.3 to account for the airdrop capability (C-17 and C-130 aircraft) <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete all activities for successful GM releases 1.1 and 1.2 fielding, to include all necessary equipment delivery and training 		17.354	11.200	16.334

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Continue development for GM release 1.3, the development will be completed and the effort moved into formal Government testing, with preparations being made for entry into the Initial Operational Test and Evaluation (IOT&E) - Begin development for GM release 1.4 (KC-46 aircraft) - Begin the fielding of GM 1.1 and GM 1.2 to incorporate changes to the platform operational flight profiles and global command and control changes <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will complete the GM 1.4 development, formal qualification testing, and initiate formal Government developmental testing - Will continue with engineering releases of the new capabilities leading towards a formal qualification test <p>Note: Activities for GM releases 1.1 and 1.3, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.</p>				
<p>Title: Special Mission ACC (SMACC)</p> <p>Description: Continues the modernization of previously fielded mission planning software environments for the E-3, E-8, E-4, EC-130, and RC-135. This also includes the SMACC CSAR MPS program which transitions the PFPS-based HH-60 and HC/MC-130 CSAR mission planning functionality, tools, and plug-ins to Joint Mission Planning Systems (JMPS) environment.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed testing of the EC-130 Version 1 MPE and RC-135 Version 3 and fielded per schedule - Began development of the MPE for HH-60 and HC/MC-130s within the SMACC CSAR program - Developed two CSAR tools: the Search Pattern Tool and the Survivor Overlay Broadcast Tool <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Deliver E-3/E8 v2.1. Complete development and testing of EC-130H v2.0 - Complete development of the E-3 DRAGON and enter formal government developmental test - Continue development of the SMACC CSAR MPE - Complete and integrate the Search Pattern Tool into the SMACC CSAR MPE - Five SMACC CSAR Intermediate Design Reviews are scheduled for this year <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will complete development and field: E-3 DRAGON v3.0 and EC-130 v2.0 - Will develop follow-on MPEs for E-3 DRAGON v3.2 and EC-130 v2.1 - Will complete development and enter formal government developmental test 		6.823	10.576	9.684

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Note: Activities for SMACC CSAR, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.			
Title: MAF Automated Flight Planning Service (MAFPS)	5.297	6.284	4.478
Description: Develops a centralized/net-centric global mobility flight planning capability, which will provide significant fuel savings through automated flight route, airspeed, and altitude optimization utilizing aircraft performance, air traffic management, weather, and other data.			
FY 2015 Accomplishments: - Developed and delivered engineering Releases 3 and 4 which enabled integration with the AMC C2 enclave at Scott AFB			
FY 2016 Plans: - Complete software development and formal qualification testing for Release 1 and enter formal Government developmental test - Begin planning and initial development activities for Release 2 to include a System Requirements Review and Integrated Baseline Review for completion of the second wave capabilities			
FY 2017 Plans: - Will continue Release 2 development			
Note: Activities for Release 1, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.			
Accomplishments/Planned Programs Subtotals	54.558	48.445	60.788

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA07: Line Item #	7.249	8.512	9.539	0.000	9.539	9.314	9.254	9.417	9.586	Continuing	Continuing
833170: <i>Mission Planning Systems</i>											

Remarks

D. Acquisition Strategy

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 ID/IQ (Indefinite Delivery/Indefinite Quantities) 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.

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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 (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP), Fixed Price Incentive Fee (FPIF)).

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.

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 program management, contracts, legal, and financial management support.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/HB) is the PEO and Milestone Decision Authority (MDA) for all MPS Modernization projects (with the exception of those efforts that make up MPS Increment 5 for which the Under Secretary of Defense, Acquisition, Technology, and Logistics is the MDA).

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mission Planning Software Development (MPEC II)	C/Various	Various : Various	0.000	23.588	Nov 2014	16.192	Nov 2015	23.311	Nov 2016	0.000		23.311	Continuing	Continuing	TBD
F-16 Modernization	PO	Organic : Hill AFB, UT	0.000	0.752	Nov 2014	0.110	Nov 2015	0.000		0.000		0.000	0.000	0.862	1.412
EC-130H Modernization	PO	Organic : Robins AFB, GA	0.000	0.993	Nov 2014	1.010	Nov 2015	1.019	Nov 2016	0.000		1.019	Continuing	Continuing	TBD
HH-60G/HC-130	PO	Organic : Robins AFB, GA	0.000	2.221	Nov 2014	1.636	Nov 2015	0.323	Nov 2016	0.000		0.323	0.000	4.180	4.180
F-22 MilCloud SIL	MIPR	GSA : Washington, DC	0.000	0.062	Sep 2015	0.000		0.000		0.000		0.000	0.000	0.062	0.062
MAF AMC Transition Tools	MIPR	AMCOM : Redstone Arsenal, AL	0.000	2.082	Jan 2015	0.000		0.000		0.000		0.000	0.000	2.082	2.082
SMACC CSAR Tools	MIPR	Various : Various	0.000	0.000		0.753	Jan 2016	0.912	Jan 2017	0.000		0.912	0.000	1.665	1.665
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	6.576	Nov 2014	7.661	Nov 2015	5.346	Nov 2016	0.000		5.346	Continuing	Continuing	TBD
Framework	C/FPIF	Northrop Grumman : Herndon, VA	0.000	1.060	Jan 2016	2.935	Mar 2016	8.951	Jan 2017	0.000		8.951	Continuing	Continuing	TBD
Common Components	C/Various	Various : Various	0.000	4.321	Nov 2014	4.844	Nov 2015	6.795	Nov 2016	0.000		6.795	Continuing	Continuing	TBD
Subtotal			0.000	41.655		35.141		46.657		0.000		46.657	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	0.080	Nov 2014	0.117	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	0.000	0.287	Nov 2014	0.352	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			0.000	0.367		0.469		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	0.000	2.415	Dec 2014	2.860	Dec 2015	3.885	Dec 2016	0.000		3.885	0.000	9.160	TBD
Certification and Accreditation	MIPR	JITC : Fort Huachuca, AZ	0.000	0.108	Feb 2015	0.100	Feb 2016	0.111	Feb 2017	0.000		0.111	0.000	0.319	TBD
Type I Training	C/FP	Spiral Solutions & Technologies, Inc. : Bellevue, NE	0.000	1.126	Jul 2015	0.609	Jul 2016	1.171	Jul 2017	0.000		1.171	0.000	2.906	TBD
Field Representative Hardware	C/Various	Various : Various	0.000	0.194	Nov 2014	0.410	Nov 2015	0.449	Nov 2016	0.000		0.449	0.000	1.053	TBD
Subtotal			0.000	3.843		3.979		5.616		0.000		5.616	0.000	13.438	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	0.000	3.419	Oct 2014	3.287	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Program Management Administration	Various	Various : Various	0.000	5.274	Nov 2014	5.569	Nov 2015	8.515	Nov 2016	0.000		8.515	Continuing	Continuing	TBD
Subtotal			0.000	8.693		8.856		8.515		0.000		8.515	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	54.558	48.445	60.788	0.000	60.788	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
F-15 v3.2 Fielding	■																											
F-15 v4.0 Fielding					■																							
F-15 v5.0 Fielding															■													
F-15 v6.0 Fielding																										■		
F-16 Blk 30 SCU 9 Fielding								■																				
F-16 Blk 40/50 M7.1 Fielding					■	■																						
F-16 Blk 40/50 M7.2 First										■																		
F-16 Blk 40/50 M7.2 Fielding															■													
F-22 v13.0 Fielding										■																		
F-22 v14.0 Fielding																										■		
B-1 Release 8 Fielding				■																								
B-1 Release 9 Fielding													■															
B-1 Release 11 Fielding																										■		
SMACC E-3/ E-8 Release 2.1 Fielding							■																					
SMACC E-3/E8 Release 2.4 Fielding														■														
SMACC E-3/E8 Release 2.5 Fielding																										■		
SMACC EC-130H Release 2.0												■																
SMACC EC-130H Release 2.1 Fielding															■													
SMACC EC-130H Release 2.2 Fielding																										■		
SMACC EC-130H Release 2.3 Fielding																										■		
SMACC EC-130H Release 2.4 Fielding																											■	
SMACC E-3 DRAGON Release 3 Fielding													■															
SMACC E-3 DRAGON Release 3.1 Fielding															■													
SMACC E-3 DRAGON Release 3.2 Fielding																■												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-15 v3.2 Fielding	1	2015	1	2015
F-15 v4.0 Fielding	2	2016	2	2016
F-15 v5.0 Fielding	2	2019	2	2019
F-15 v6.0 Fielding	4	2020	4	2020
F-16 Blk 30 SCU 9 Fielding	4	2016	4	2016
F-16 Blk 40/50 M7.1 Fielding	3	2016	4	2016
F-16 Blk 40/50 M7.2 First	2	2017	2	2017
F-16 Blk 40/50 M7.2 Fielding	1	2019	1	2019
F-22 v13.0 Fielding	1	2017	1	2017
F-22 v14.0 Fielding	3	2020	3	2020
B-1 Release 8 Fielding	1	2016	1	2016
B-1 Release 9 Fielding	1	2018	1	2018
B-1 Release 11 Fielding	4	2019	4	2019
SMACC E-3/ E-8 Release 2.1 Fielding	3	2016	3	2016
SMACC E-3/E8 Release 2.4 Fielding	3	2018	3	2018
SMACC E-3/E8 Release 2.5 Fielding	4	2019	4	2019
SMACC EC-130H Release 2.0	2	2017	2	2017
SMACC EC-130H Release 2.1 Fielding	4	2018	4	2018
SMACC EC-130H Release 2.2 Fielding	4	2019	4	2019
SMACC EC-130H Release 2.3 Fielding	4	2020	4	2020
SMACC EC-130H Release 2.4 Fielding	4	2021	4	2021
SMACC E-3 DRAGON Release 3 Fielding	2	2017	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
SMACC E-3 DRAGON Release 3.1 Fielding	3	2017	3	2017
SMACC E-3 DRAGON Release 3.2 Fielding	2	2018	2	2018
SMACC E-3 DRAGON Release 3.3 Fielding	3	2019	3	2019
SMACC E-3 DRAGON Release 3.4 Fielding	3	2020	3	2020
SMACC E-3 DRAGON Release 3.5 Fielding	3	2021	3	2021
SMACC RC-135 Release 3.4 Fielding	3	2018	3	2018
SMACC RC-135 Release 3.5 Fielding	4	2019	4	2019
SMACC RC-135 Release 3.6 Fielding	4	2020	4	2020
SMACC CSAR Tools CC Release 1 FQT	3	2015	3	2015
MAFPS Release 2 Fielding	4	2017	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>				Project (Number/Name) 675385 / <i>MPS Increment 5</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675385: <i>MPS Increment 5</i>	0.000	0.000	0.000	3.752	0.000	3.752	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

A. Mission Description and Budget Item Justification

MPS Increment 5 will complete the initial migration of Air Force platforms from their legacy planning systems to the new Mission Planning System (aka the Joint Mission Planning Systems (JMPS)). It will complete development of three efforts originally started as separate and individual projects within the MPS Modernization development effort. Those projects are:

- 1) Mobility Air Forces Automated Flight Planning Service (MAFPS);
- 2) Air Mobility Command (AMC) Transition; and
- 3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR)

These projects, and their associated platforms, are now included in the overarching MPS Major Automated Information Systems (MAIS) program as MPS Increment 5 to provide improved transparency and oversight. As such, MPS Increment 5 is not a new start but a continuation of efforts previously started under the development umbrella of the MPS Modernization project.

FY17 funding will continue software development activities for the three efforts (MAFPS, AMC Transition, and SMACC CSAR) that are being transferred from the MPS Modernization project beginning in FY17. Specific capabilities include but are not limited to the following:

A. Mobility Air Forces Automated Flight Planning Service (MAFPS): The MAFPS component to MPS Increment 5 provides modern flight planning service compliant with current and emerging airspace and air traffic control constraints. Central to the program is an improved route and fuel optimizer. MAFPS replaces the legacy Advanced Computer Flight Planning (ACFP) system. Warfighter benefits include:

- Flight planning calculations for Tanker Airlift Control Center (TACC)-managed missions and AMC aircraft
- Generate, validate, and file valid ATS flight plans and meet all CNS/ATM and RVSM standards
- Produce and graphically display optimum mission routes, fuel calculations, and aerial refueling activity
- Calculate optimized fuel loads to include Cost Indexing
- Graphical user interface and capability to dynamically re-compute flight plans

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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B. AMC Transition: The AMC Transition to MPS component will migrate selected Airlift (C-5), Tanker (KC-135, KC-10) and Air Drop (C-17, C-130) platforms from their legacy PFPS mission planning systems which is sun setting in August 2018. Additional warfighter benefits include:

- Color moving map (Digimap) Common Component
- Enhanced Air Refueling Common Component
- Aircraft FPM/TOLD/VIP Development
- CNS/ATM certified navigation avionics images

C. Special Missions Air Combat Command (SMACC) Combat Search and Rescue (CSAR): This development effort will migrate the CSAR community (HH-60, HC/MC-130 aircraft) from PFPS to the MPS environment. Warfighter benefits include:

- Ability to support a spectrum of missions ranging from simple day-to-day training and proficiency flying to peacetime operational/exercise sorties
- Rapid mission planning
- Mission data transfer to the aircraft via DTD
- In flight situational awareness

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

	FY 2015	FY 2016	FY 2017
Title: MPS Increment 5	0.000	0.000	3.752
<p>Description: MPS Increment 5 continues and completes the development of: 1) Mobility Air Forces Automated Planning Service (MAFPS) system; 2) AMC Transition; and 3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR). All three efforts were previously initiated as part of the MPS Modernization effort (Project 675380). All will be transferred into MPS Increment 5 (beginning in FY17) to provide improved transparency and oversight of MPS MAIS programs.</p> <p>FY 2015 Accomplishments: Effort previously reported in MPS Modernization, Project 675380</p> <p>FY 2016 Plans: Effort previously reported in MPS Modernization, Project 675380</p> <p>FY 2017 Plans: MAFPS: - Will complete the development of MAFPS Release 1 and conduct developmental and operational testing with the AMC enclaves</p> <p>AMC Transition: - Will complete the integration of the Global Mobility 1.2 MPE, (FW, UPC, and CC)and complete operational testing and fielding for the C-130, C-5, KC-10 and KC-135</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
SMACC CSAR: - Will complete the development and integration of the CSAR tools and of the MPE and begin developmental testing for the HH-60 and HC/MC-130.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.752

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks
No other program funding is specifically identified for MPS Increment 5. WSC 833170, Mission Planning Systems provides financial resources to efficiently and economically procure Commercial Off-The-Shelf (COTS) hardware for all MPS operational users (no matter which MPS software increment they are using to complete the mission planning function). Funding for the MPS Hardware Program is identified in the Other Program Funding section of Project 675380, MPS Modernization and is not being duplicated here because it would be redundant.

D. Acquisition Strategy
MPS Increment 5 consists of multiple capability upgrades across multiple platforms that are developed and fielded using a variety of contracting instruments. It leverages strategies and efforts originally established under MPS Increment IV and MPS Modernization. The Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) competitively awarded multiple ID/IQ (Indefinite Delivery/Indefinite Quantities) contracts for software development. Currently there are 5 qualified contractors, one of which is Small Business set aside, and each Delivery Order (DO) is competed among the 5 contractors.

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 (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP), Fixed Price Incentive Fee (FPIF)).

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.

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 program management, contracting, legal, and financial management support.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mission Planning Software Development (MPEC II)	C/CPIF	DCS Corporation : Alexandria, VA	0.000	0.000		0.000		0.010	Nov 2016	0.000		0.010	Continuing	Continuing	TBD
HH-60/HC-130J/N/P Release 1	PO	Organic : Robins AFB, GA	0.000	0.000		0.000		1.043	Nov 2016	0.000		1.043	0.068	1.111	-
SM-ACC CSAR Tools	MIPR	Various : Various	0.000	0.000		0.000		0.432	Dec 2016	0.000		0.432	0.000	0.432	-
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	0.000		0.000		0.932	Nov 2016	0.000		0.932	0.000	0.932	-
Subtotal			0.000	0.000		0.000		2.417		0.000		2.417	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cost Estimating	C/T&M	Tecolote Inc. : Goleta, CA	0.000	0.000		0.000		0.028	Nov 2016	0.000		0.028	Continuing	Continuing	-
Subtotal			0.000	0.000		0.000		0.028		0.000		0.028	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	0.000	0.000		0.000		0.301	Dec 2016	0.000		0.301	0.000	0.301	-
Type I Training	C/FP	Spiral solutions & Technologies, Inc. : Bellevue, NE	0.000	0.000		0.000		0.300	Jan 2017	0.000		0.300	0.000	0.300	-
Subtotal			0.000	0.000		0.000		0.601		0.000		0.601	0.000	0.601	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MAFPS Release 1 Fielding	1	2017	2	2017
AMC Transition C-5 AMP Release 1 Fielding	1	2017	2	2017
AMC Transition Tankers Release 1 Fielding	1	2017	2	2017
AMC Transition Airdrop Release 1 Fielding	3	2017	4	2017
SMACC CSAR MPS v1 Release 1 Fielding	4	2017	1	2018
SMACC CSAR MPS v2 Release 1 Fielding	3	2019	3	2019
SMACC CSAR MPS v3 Release 1 Fielding	3	2021	3	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0208059F I Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	64.751	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	64.751
676002: Cyber Systems Modernization	-	64.751	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	64.751
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note
 In FY 2016, PE 0208059F, Cyber Command Activities, Project 676002, Cyber Systems Modernization, efforts were transferred to PE 0306250F, Cyber Operations Technology Development, 646008, US CYBER COMMAND Technology Development, to align all USCYBERCOM investment funding into one Program Element and WSC. O&M will remain the only appropriated funding in this PE.

A. Mission Description and Budget Item Justification

US Cyber Command (USCYBERCOM) plans, coordinates, integrates, synchronizes, and conducts activities to: direct the operations and defense of specified Department of Defense information networks; and prepare to, and when directed, conduct full-spectrum military cyberspace operations in order to enable actions in all domains, ensure US/Allied freedom of action in cyberspace, and deny the same to our adversaries.

USCYBERCOM develops defensive cyber strategies and capabilities to ensure force flow during campaign operations and to expand DoD OCO capabilities. USCYBERCOM researches, develops, and tests technologies and capabilities that enable cyber forces to conduct future offensive and defensive cyber operations in support of COCOMs, to include title 10 infrastructures and cross-cutting technologies. USCYBERCOM will also provide the resources for other COCOMs to conduct Offensive Cyber Operations/Defensive Cyber Operations (OCO/DCO) planning. An in-house integration team (Special Projects Vulnerability Assessment Team) performs research, small scale prototyping, and integration as required to support the mission. Further detail is classified and can be provided upon request. Additionally, this team will re-tool existing offensive and defensive capabilities to satisfy immediate USCYBERCOM operational needs. Finally, USCYBERCOM will delegate resources to the Army, Navy, and Air Force Cyber Service components to develop deconflicted offensive cyber capabilities.

Activities also include studies and analysis to support current program planning and execution.

This program is in Budget Activity 7, Operational System Development because this budget activity funds various 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 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208059F / <i>Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	67.057	0.000	0.000	0.000	0.000
Current President's Budget	64.751	0.000	0.000	0.000	0.000
Total Adjustments	-2.306	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	-2.306	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

In FY 2016, 676002, Cyber Systems Modernization, efforts were transferred to PE 0306250F, Cyber Operations Technology Development, 646008, US CYBER COMMAND Technology Development, to align all USCYBERCOM investment funding into one Program Element and WSC.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Combatant Command Support</p> <p>Description: Funding supported development and testing of various tools critical to achieve COCOM military objectives. Development efforts included research, studies, integration, analysis, access development, and operational assessment of cyberspace capabilities, methodologies, and tactics in support of COCOM objectives.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Supported studies, analysis, testing and development of cyber operations capabilities and tools in support of Combatant Command military objectives - Supported advanced reverse engineering efforts, development of Electronic Warfare (EW) and cyberspace targeting efforts, a framework to underpin analytic and targeting efforts and seed funding for cyber capabilities and tools in support of cyber operations requirements 	22.409	-	-
<p>Title: Defend the Nation Capabilities</p> <p>Description: Supported the development of a diverse cyber capability portfolio to enable SEE, BLOCK, and MANEUVER efforts in order to defeat a wide variety of cyber attacks. Efforts included research, integration, analysis, access development, training, testing, and assessments for offensive, defensive, and situational awareness capabilities.</p>	22.216	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208059F / <i>Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Supported development, prototyping, and testing of tools to support Defend the Nation requirements and cyber operations - Supported technology research for critical infrastructure protection, and advanced development, transition and technology assessment of a joint cyber operations infrastructure - Provided technical and subject matter expertise for systems engineering and technical assurance, cyber capability strategy, guidance, and requirements 			
<p><i>Title:</i> Operate and Defend the DoDIN and CYBER Situational Awareness</p> <p><i>Description:</i> Funding supported engineering and development of tools, data strategy, and management of a common operating picture support operations focused on cyber key terrain at the global and national level and for cyber situational awareness for the services and COCOMs to support operations focused on cyber key terrain at the global and national level.</p> <p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Supported cyber operations tools development, engineering, data strategy, and development of a common operating picture that enables USCYBERCOM to conduct operations in defense of specified Department of Defense information networks - Supported tool development for Joint Cyber Centers with an event detection capability and engineering support to ensure smooth integration and development - Supported efforts to solve operational limitations, vulnerabilities and requirements 	20.126	-	-
Accomplishments/Planned Programs Subtotals	64.751	-	-

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• O&M: BA07: PE 0208059F: <i>Operation & Maintenance</i>	98.367	166.533	149.893	0.000	149.893	141.661	121.354	121.991	124.140	Continuing	Continuing
• OPAF: BA03: Line Item # 837300: <i>Base Comm Infrastructure</i>	0.000	3.439	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
• OPAF: BA03: Line Item # 833140: <i>Strategic Command & Control</i>	0.975	7.948	7.872	0.000	7.872	5.905	0.000	0.000	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208059F / <i>Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

E. Acquisition Strategy

Contracts will be awarded under full and open competition whenever possible. Variations of both Fixed Price (FP) and Cost Plus (CP) contracting vehicles will be used and managed by various Service Components

F. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208059F / <i>Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combatant Command Support	Various	Service Partners : Various	-	21.573	Nov 2014	0.000		0.000		0.000		0.000	0.000	21.573	-
Defend the Nation	Various	Other partners : Various	-	22.216	Dec 2014	0.000		0.000		0.000		0.000	0.000	22.216	-
Operate and Defend the DoDIN and Cyber Situational Awareness	Various	Other partners : Various	-	14.146	Nov 2014	0.000		0.000		0.000		0.000	0.000	14.146	-
Subtotal			-	57.935		0.000		0.000		0.000		0.000	0.000	57.935	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA - FFRDC	C/CPAF	Various : Ft Meade, Md	-	6.816	Oct 2014	0.000		0.000		0.000		0.000	0.000	6.816	-
Subtotal			-	6.816		0.000		0.000		0.000		0.000	0.000	6.816	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208059F / <i>Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Combat Command Support	1	2015	4	2015
Defend the Nation Support	1	2015	4	2015
GIG Ops and Defense and Situational Awareness	1	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208087F / <i>AF Offensive Cyberspace Operations</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	12.928	12.874	25.025	0.000	25.025	26.092	26.762	27.259	27.744	Continuing	Continuing
670375: <i>Network Warfare Systems and Support</i>	-	12.928	12.874	25.025	0.000	25.025	26.092	26.762	27.259	27.744	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF Offensive Cyberspace Operations (OCO) program rapidly develops operations-ready cyberspace superiority capabilities from laboratory, industry, and academia via studies, rapid prototyping, technology demonstrations, and other Research, Development, Testing and Evaluation (RDT&E) efforts. This program consists of a portfolio of small programs and projects called the Offensive Cyber Product Line (OCPL) that contribute to an overall Distributed Cyber Weapons Operations (DCWO) architecture. The OCPL establishes a flexible and balanced approach to the rapid acquisition of cyber operational capabilities. OCPL effectiveness comes from balancing funding into three capability areas required for effective operations: Platforms, Access and Capabilities.

OCPL provides cyber warfare capabilities to the 24th Air Force in direct support of US Cyber Command (USCYBERCOM), AF Major Commands (MAJCOMs), unified commands, and national agencies. In accordance with AF Policy, the program office develops capabilities in the cyberspace superiority core areas. OCPL efforts also directly support the Joint Network Attack Initial Capabilities Document (ICD), the National Military Strategy for Cyberspace Operations (NMS-CO), the USCYBERCOM operational directives, the latest AF Space Command (AFSPC) Offensive Cyberspace Operations System Flight Plan, and other formal requirements documents. Planned areas of development, prototyping, and technology demonstration will be used to provide warfighters access, platforms, and tools. This includes mission planning, intelligence, and Command and Control/Situational Awareness (C2SA) tools needed to attack enemy networks, telephony, Integrated Air Defense Systems (IADS), electronic warfare operations and Command and Control systems. These advancements will be used to develop and deliver cutting-edge technologies to the warfighter. This capability area leverages cyber technology investments by the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Air Force Research Labs (AFRL), DOD national laboratories, and other sources. Many program activities are protected under AF Network Warfare Special Access Programs.

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208087F / <i>AF Offensive Cyberspace Operations</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	13.355	12.874	25.274	0.000	25.274
Current President's Budget	12.928	12.874	25.025	0.000	25.025
Total Adjustments	-0.427	0.000	-0.249	0.000	-0.249
• 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	-0.427	0.000			
• Other Adjustments	0.000	0.000	-0.249	0.000	-0.249

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Cyber SA (Platforms)</p> <p>Description: The Cyber Mission Platform (CMP) provides the hardware/software host for offensive cyber operations, i.e., architecture that enables mission execution</p> <ul style="list-style-type: none"> - CMP integrates the Offensive Cyber Production Line (OCPL) developed capabilities into a common framework - Network Attack System sustainment to include key upgrades and modifications <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Developed platforms via necessary upgrades, modifications, equipment modernization and integration - Developed the core service oriented architecture for CMP (Spiral 2) - Initiated CMP Spiral 3 to integrate cyber services into CMP service oriented architecture - Some aspects of the effort are classified and will be provided on an need-to-know basis <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Develop platforms via necessary upgrades, modifications, equipment modernization, and integration - Deliver the end- to-end CMP Spiral 3 system ready for operational testing and acceptance 	5.057	8.093	14.060

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0208087F / <i>AF Offensive Cyberspace Operations</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Some aspects of the effort are classified and will be provided on an need-to-know basis FY 2017 Plans: - Will develop platforms via necessary upgrades, modifications, equipment modernization, and integration leveraging industry and AFRL-developed applications - Complete fielding of CMP Spiral 3 - Begin developing additional services (Spiral 4) for CMP framework required to execute and enhance OCO mission - Begin developing CMP based Telephony Network Attack applications and services - Some aspects of the effort are classified and will be provided on an need-to-know basis 				
<p>Title: Cyber Tech Projects (Access)</p> <p>Description: Access provides operators with the means to enable offensive cyber operations. Specific details are classified and available upon request</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Provided access programs via necessary upgrades, modifications, equipment modernization and integration - Some aspects of the effort are classified and will be provided on an need-to-know basis <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Provide access programs via necessary upgrades, modifications, equipment modernization, integration - Some aspects of the effort are classified and will be provided on an need-to-know basis <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will provide access programs via necessary upgrades, modifications, equipment modernization and integration - Some aspects of the effort are classified and will be provided on an need-to-know basis 		0.500	0.942	1.033
<p>Title: Cyber Tech Projects (Capabilities)</p>		6.439	2.540	8.631

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0208087F / <i>AF Offensive Cyberspace Operations</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Description: The cyber capability area delivers desired effects to the target. Specific details are classified and available upon request</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Developed solutions supporting USCENTCOM, USCYBERCOM, Weapons System modernization, AFSPC Cyber Need Forms in the area of OCO capabilities - Identified and transitioned Offensive Cyber Operations technologies to meet capability gaps - Some aspects of the effort are classified and will be provided on an need-to-know basis <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Develop solutions as required to support Combatant Commanders, Weapons System modernization, and MAJCOM Cyber Needs in the area of OCO capabilities - Some aspects of the effort are classified and will be provided on an need-to-know basis <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will develop solutions as required to support Combatant Commanders, Weapons System modernization, and MAJCOM Cyber Needs in the area of OCO capabilities - Some aspects of the effort are classified and will be provided on an need-to-know basis 				
<p>Title: Cyber SA (Test & Evaluation)</p> <p>Description: Test and Evaluation provides both developmental testing of new tool development and a secure network environment for such testing.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Provided the required developmental testing for new platform, access, and capability products prior to fielding - Provided the secure network environment for all tests <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Provide the required developmental testing for new platform, access, and capability products prior to fielding 		0.932	1.299	1.301

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208087F / <i>AF Offensive Cyberspace Operations</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Provide the secure network environment for all tests			
<i>FY 2017 Plans:</i>			
- Will provide the required developmental testing for new platform, access, and capability products prior to fielding			
- Provide the secure network environment for all tests			
Accomplishments/Planned Programs Subtotals	12.928	12.874	25.025

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834320: <i>C3 Countermeasures</i>	9.894	6.332	12.140	0.000	12.140	12.033	10.631	10.819	11.014	Continuing	Continuing
• OPAF: BA03: Line Item # 834010: <i>General Information Technology</i>	1.705	1.329	1.805	0.000	1.805	1.777	1.691	1.722	1.753	Continuing	Continuing

Remarks

E. Acquisition Strategy
 The Offensive Cyberspace Operations 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. Offensive Cyberspace 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 new Cyber 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) and require that Offensive Cyber Operations provide a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.

F. Performance Metrics
 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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / AF Offensive Cyberspace Operations	Project (Number/Name) 670375 / Network Warfare Systems and Support
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HNCY Cyber SA (Platforms)	C/CPPF	Northrup Grumman : Dayton, OH	-	5.221	Dec 2014	5.151	Jan 2016	11.561	Nov 2016	0.000		11.561	Continuing	Continuing	-
Cyber Tech Projects (Access)	Various	Army : Ft Belvoir, VA	-	0.489	Apr 2015	0.600	Jan 2016	0.850	Jun 2017	0.000		0.850	Continuing	Continuing	-
Cyber Tech Projects (Capabilities)	C/Various	Various : Various	-	2.100	Feb 2015	1.616	Jan 2016	5.980	Feb 2017	0.000		5.980	Continuing	Continuing	-
Subtotal			-	7.810		7.367		18.391		0.000		18.391	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HNCY Cyber SA (Test & Evaluation)	MIPR	TASC : San Antonio, TX	-	0.932	Dec 2014	1.299	Dec 2015	1.300	Dec 2016	0.000		1.300	Continuing	Continuing	-
Subtotal			-	0.932		1.299		1.300		0.000		1.300	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA - Engineering & Technical Assistance Support Services (ETASS & FFRDC)	C/FFP	Various : San Antonio, TX	-	2.814	Dec 2014	2.894	Oct 2015	3.992	Oct 2016	0.000		3.992	Continuing	Continuing	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / AF Offensive Cyberspace Operations	Project (Number/Name) 670375 / Network Warfare Systems and Support

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Platforms CMP Sp II Development	1	2015	3	2015
Platforms CMP Sp III Development	3	2015	3	2016
Platforms CMP Sp III DT and OT Events	4	2016	1	2017
Platforms CMP Sp III OA/Fielding	1	2017	2	2017
Platforms CMP Sp IV Development	1	2017	4	2017
Platforms CMP Sp IV DT and OT Events (Jun 2017)	3	2017	3	2017
Platforms CMP Sp IV Fielding	4	2017	1	2018
Platforms CMP Sp V Development	1	2018	4	2018
Platforms CMP Sp V DT and OT Events (Sep 2018)	4	2018	4	2018
Platforms CMP Sp V OA/Fielding	4	2018	1	2019
Platforms CMP Sp VI Development	1	2019	4	2019
Platforms CMP Sp VI DT and OT Events (Dec 2019))	1	2020	1	2020
Platforms CMP SpVI OA/Fielding	2	2020	3	2020
Access	1	2015	4	2021
Capabilities	1	2015	4	2021
Test & Evaluation - 46TS Det 2	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208088F / <i>AF Defensive Cyberspace Operations</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	5.436	7.681	29.439	0.000	29.439	35.094	22.076	14.310	14.403	Continuing	Continuing
677820: <i>Computer Security RDTE: Firestarter</i>	-	5.436	6.064	5.555	0.000	5.555	6.234	6.352	6.469	6.584	Continuing	Continuing
677821: <i>Cyberspace Vulnerability Assessment</i>	-	0.000	0.143	22.378	0.000	22.378	27.320	14.148	6.230	6.179	Continuing	Continuing
677822: <i>Cyber Defense Analysis</i>	-	0.000	0.252	0.258	0.000	0.258	0.264	0.270	0.276	0.281	Continuing	Continuing
677823: <i>AFCERT</i>	-	0.000	1.222	1.248	0.000	1.248	1.276	1.306	1.335	1.359	Continuing	Continuing

A. Mission Description and Budget Item Justification

AF Defensive Cyberspace Operations (AF DCO) provides 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), and the Department of Homeland Security (DHS) to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Space Commands Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 24th AF, as AF component to Cyber Command (CYBERCOM), 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 & 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.

Cyberspace Vulnerability Assessment/ Hunter Team (CVA/H) weapon system develops 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 vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and 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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208088F / <i>AF Defensive Cyberspace Operations</i>
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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.

Cyberspace Defense Analysis (CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications, E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

AF Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense (ACD) weapons system and is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. 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.

Activities include studies and analysis to support both current program planning and execution and future program planning.

These programs are 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.576	7.681	30.181	0.000	30.181
Current President's Budget	5.436	7.681	29.439	0.000	29.439
Total Adjustments	-0.140	0.000	-0.742	0.000	-0.742
• 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	-0.140	0.000	-0.742	0.000	-0.742

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
677820: Computer Security RDTE: Firestarter	-	5.436	6.064	5.555	0.000	5.555	6.234	6.352	6.469	6.584	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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) to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Space Commands Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 24th AF, as AF component to Cyber Command (CYBERCOM), 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.

This requirement is to support 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 vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and 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 expand the capability of the current weapon system to meet scope and scale of the USCYBERCOM directed Cyber Protection Teams.

Cyberspace Defense Analysis (CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications,

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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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
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E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

AF Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense (ACD) weapon system is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. 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.

Activities include studies and analysis to support both current program planning and execution and future program planning.

These programs are 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 2015	FY 2016	FY 2017
<p>Title: Cyber Forensic Tools & Methodologies</p> <p>Description: Cyber forensic tools & methodologies. Includes: Initial metrics for reliable info assurance; secure coalition cyber data management, collaboration and visualization; analysis of cyber security bots.</p> <p>FY 2015 Accomplishments: Continued the development of methods and technologies to enhance "real time" cyber network forensic analysis.</p> <p>FY 2016 Plans: Continue development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries.</p> <p>FY 2017 Plans: - Integrate memory forensics analysis techniques with real time network forensic capabilities and transition to the "Air Force Cyber Defense" Weapon system</p>	1.515	1.742	1.427
<p>Title: Cyber Threat Recognition</p> <p>Description: Enhancing cyber platform technology to identify zero-day threats in real time.</p> <p>FY 2015 Accomplishments:</p>	1.375	1.508	1.313

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
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 2015	FY 2016	FY 2017
Continued development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries. FY 2016 Plans: Continue development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries. FY 2017 Plans: - Implement advanced techniques to correlate cyber intelligence data with real time network feeds to detect potential cyber intrusion and data exfiltration.				
Title: Cyber Threat Attribution & Mitigation Description: Includes: risk mitigation techniques for wireless networks and systems; active response, dynamic policy enforcement and computer/net attack attribution efforts. FY 2015 Accomplishments: Continued development of technologies to detect and attribute distributed computer network attacks, over time and distance, to specific adversaries. FY 2016 Plans: Continue development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries. FY 2017 Plans: - Integrate technologies to detect and attribute distributed computer network attacks with appropriate USAF cyber weapon systems and pursue certification, accreditation, and authority to operate on USAF data networks.		1.482	1.615	1.710
Title: Transition of Cyber and Information Assurance Technologies Description: Transition cyber defense technologies that support AFSPC's Defense architecture. Includes: space systems cyber solutions; terrestrial net defense technology development; airborne IP network cyber and IA tools; IA / cyber modeling & sim; secure interoperable distributed agent computing, and others that relate to defending the AF networks. FY 2015 Accomplishments: Continued enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation provided by AFSPC. FY 2016 Plans:		1.064	1.199	1.105

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

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
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Continue enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation provided by AFSPC.			
FY 2017 Plans: - Will continue enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation provided by AFSPC.			
Accomplishments/Planned Programs Subtotals	5.436	6.064	5.555

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

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.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

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
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Testing	C/CPFF	Various : Various	-	0.824	Jan 2015	0.849	Jan 2016	0.873	Jan 2017	0.000		0.873	Continuing	Continuing	-
Development	C/CPFF	Various : Various	-	3.163	Jan 2015	3.624	Jan 2016	3.106	Jan 2017	0.000		3.106	Continuing	Continuing	-
Integration	C/CPFF	Various : Various	-	1.037	Jan 2015	1.167	Jan 2016	1.140	Jan 2017	0.000		1.140	Continuing	Continuing	-
Subtotal			-	5.024		5.640		5.119		0.000		5.119	-	-	-

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.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	C/CPFF	Various : Various	-	0.412	Jan 2015	0.424	Jan 2016	0.436	Jan 2017	0.000		0.436	Continuing	Continuing	-
Subtotal			-	0.412		0.424		0.436		0.000		0.436	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cyber Forensic Tools & Methodologies																												
Cyber Threat Recognition																												
Cyber Threat Attribution & Mitigation																												
Transition of Cyber/IA Technologies																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Cyber Forensic Tools & Methodologies	4	2015	4	2021
Cyber Threat Recognition	4	2015	4	2021
Cyber Threat Attribution & Mitigation	4	2015	4	2021
Transition of Cyber/IA Technologies	4	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
677821: <i>Cyberspace Vulnerability Assessment</i>	-	0.000	0.143	22.378	0.000	22.378	27.320	14.148	6.230	6.179	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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 vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and 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.

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

	FY 2015	FY 2016	FY 2017
Title: Cyber Threat Mitigation	0.000	0.143	15.319
Description: Cyber Threat Mitigation includes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and supports Cyberspace Vulnerability Assessment/Hunter (CVH/H) missions in support of Air Force Cyber Command and Combatant Commanders.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Development of technologies to identify, pursue and mitigate cyberspace threats and focuses on the capability to find, fix, track, target, engage, and assess(F2T2EA) the advanced persistent threat (APT).			
FY 2017 Plans: - Will modernize CVA/H weapon system with emerging technologies to keep pace with an evolving cyber threat. Continue development of technologies to conduct vulnerability assessments, network intrusion analysis and systems vulnerability analysis (i.e, malware analysis capability, forensic analysis, visual analysis environment, distributed source code control vault and mission oriented mapping).			
Title: Defensive Next Generation Development	0.000	0.000	6.639

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017
<p>Description: Development 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.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Will develop new solutions to support modernization of DCO capabilities and technologies to support Cyber Protection Teams (CPTs). Includes multiple efforts (i.e., Data and Analysis and Traffic Inspection of SSL).</p>			
<p>Title: Test & Evaluation</p> <p>Description: Test and Evaluation provides both developmental testing of new development capabilities and a network environment for testing.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: - Will provide required developmental testing support for new defensive capabilities and provides for network environment for such testing.</p>	0.000	0.000	0.420
Accomplishments/Planned Programs Subtotals	0.000	0.143	22.378

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: 831010: COMSEC EQUIP	0.619	18.698	19.878	0.000	19.878	20.508	25.250	21.172	21.555	-	-

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / <i>AF Defensive Cyberspace Operations</i>	Project (Number/Name) 677821 / <i>Cyberspace Vulnerability Assessment</i>

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 (i.e, Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules, Network-Centric Solutions (NETCENTs).

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cyber Threat Mitigation-Malware Analysis	C/FFP	Various : Various	-	0.000		0.000		0.639	Dec 2016	0.000		0.639	Continuing	Continuing	-
Cyber Threat Mitigation - Forensic Analysis	C/FFP	Various : Various	-	0.000		0.000		1.617	Jun 2017	0.000		1.617	Continuing	Continuing	-
Cyber Threat Mitigation - Visual Analysis Environment	C/FFP	Various : Various	-	0.000		0.000		2.615	Jun 2017	0.000		2.615	Continuing	Continuing	-
Cyber Threat Mitigation - Distributed Source Code Control Vault	C/FFP	Various : Various	-	0.000		0.000		0.177	Dec 2016	0.000		0.177	Continuing	Continuing	-
Cyber Threat Mitigation - Mission Oriented Mapping	C/CPFF	Various : Various	-	0.000		0.000		10.271	Jun 2017	0.000		10.271	Continuing	Continuing	-
Defensive Next Gen - Data & Analysis	C/CPFF	Various : Various	-	0.000		0.000		5.039	Dec 2016	0.000		5.039	Continuing	Continuing	-
Defensive Next Gen - Traffic Inspection of SSL	C/CPAF	Not specified. : TBD	-	0.000		0.000		1.000	Mar 2017	0.000		1.000	Continuing	Continuing	-
Subtotal			-	0.000		0.000		21.358		0.000		21.358	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	MIPR	46 Test Squadron : Eglin, FL	-	0.000		0.000		0.420	Oct 2016	0.000		0.420	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.420		0.000		0.420	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA - Engineering & Technical Assistance Support Services (ETASS & FFRDC)	Various	AFLCMC/PZ : Bedford, MA	-	0.000		0.143	Oct 2015	0.600	Oct 2016	0.000		0.600	Continuing	Continuing	-
Subtotal			-	0.000		0.143		0.600		0.000		0.600	-	-	-

Remarks
Provides program engineering continuity, technical maturation and expertise, and access to an extensive professional network for future capabilities.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.000	0.143	22.378	0.000	22.378	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cyber Threat Mitigation (Malware Analysis)																												
Cyber Threat Mitigation (Forensic Analysis)																												
Cyber Threat (Visual Analysis Environment)																												
Cyber Threat Mitigation (Distributed Source Code Control Vault)																												
Cyber Threat Mitigation (Mission Oriented Mapping)																												
Defensive Next Generation Development (Data & Analysis)																												
Defensive Next Generation Development (Traffic Inspection of SSL/TLS)																												
Testing Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cyber Threat Mitigation (Malware Analysis)	1	2017	1	2018
Cyber Threat Mitigation (Forensic Analysis)	3	2017	3	2018
Cyber Threat (Visual Analysis Environment)	3	2017	3	2018
Cyber Threat Mitigation (Distributed Source Code Control Vault)	1	2017	1	2018
Cyber Threat Mitigation (Mission Oriented Mapping)	3	2017	3	2019
Defensive Next Generation Development (Data & Analysis)	1	2017	4	2021
Defensive Next Generation Development (Traffic Inspection of SSL/TLS)	1	2017	4	2021
Testing Support	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677822 / Cyber Defense Analysis
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
677822: Cyber Defense Analysis	-	0.000	0.252	0.258	0.000	0.258	0.264	0.270	0.276	0.281	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Cyberspace Defense Analysis (CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications, E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

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

	FY 2015	FY 2016	FY 2017
Title: Cyber Defense Assessments	0.000	0.252	0.258
Description: Engineering support to conduct Cyberspace Defense Analysis (CDA) assessment of non-secure telecommunications during peace time and contingency operations.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Effort supports CDA technical maturation and development of technologies to prevent disclosure of sensitive and/or classified information to adversaries.			
FY 2017 Plans: - Will continue to support CDA technical maturation and development of technologies to prevent disclosure of sensitive and/or classified information to adversaries that attempt to penetrate our networks.			
Accomplishments/Planned Programs Subtotals	0.000	0.252	0.258

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03:831010:: COMSEC EQUIP	0.000	2.136	0.244	0.000	0.244	2.903	0.256	0.266	0.266	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677822 / Cyber Defense Analysis

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Cyberspace Defense Analysis (CDA) weapon system development of new capabilities to provide additional OPSEC protection capabilities to monitor, collect, analyze, and report cyberspace threats. The CDA program will utilize various contractual vehicles when necessary (i.e., 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) (mandatory for all IT services and supplies) 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.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677822 / Cyber Defense Analysis
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Specialized Engineering Support	C/FFP	AFCLCMC/PZ : Bedford, MA	-	0.000		0.252	Oct 2015	0.258	Oct 2016	0.000		0.258	Continuing	Continuing	-
Subtotal			-	0.000		0.252		0.258		0.000		0.258	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.252	0.258	0.000	0.258	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Cyber Defense Assessments																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Cyber Defense Assessments	1	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677823 / AFCERT
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
677823: AFCERT	-	0.000	1.222	1.248	0.000	1.248	1.276	1.306	1.335	1.359	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air Force Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense weapon system and is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. 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.

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

	FY 2015	FY 2016	FY 2017
Title: Computer Threat Response	0.000	1.222	1.248
Description: Air Force Computer Emergency Response Team (AFCERT) prevention, detection, and response to adversarial penetration into AF unclassified and classified networks.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Development for AF Cyberspace Defensive (ACD) weapon system technologies to prevent, detect, and respond to adversarial penetration in AF networks			
FY 2017 Plans: - Will continue development and testing of technologies for the AF Cyberspace Defensive (ACD) weapon system to prevent, detect, and respond adversarial penetration in AF networks.			
Accomplishments/Planned Programs Subtotals	0.000	1.222	1.248

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF BA03: 831010: COMSEC EQUIP	0.000	0.238	0.242	0.000	0.242	9.098	9.305	0.247	0.245	Continuing	Continuing
• OPAF BA03:835080: AFNET	0.000	0.000	7.736	0.000	7.736	21.533	21.931	23.330	22.731	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677823 / AFCERT

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The AF Computer Emergency Response Team (AFCERT) office will utilize 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. 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 AFCERT.

E. Performance Metrics

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 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677823 / AFCERT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Computer Threat Response	Various	Various : Various	-	0.000		1.222	Dec 2015	1.248	Jan 2017	0.000		1.248	Continuing	Continuing	-
Subtotal			-	0.000		1.222		1.248		0.000		1.248	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	1.222	1.248	0.000	1.248	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677823 / AFCERT

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop Threat Response Technology					██████████																							
Test and Evaluation									██████████																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Develop Threat Response Technology	1	2016	4	2016
Test and Evaluation	2	2017	4	2017

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