Department of Defense
Fiscal Year (FY) 2016 President's Budget Submission

February 2015

Air Force

Justification Book Volume 3a of 3

Research, Development, Test & Evaluation, Air Force

Vol−III Part 1

THIS PAGE INTENTIONALLY LEFT BLANK

Volume 3a Table of Contents

Comptroller Exhibit R-1..... Volume 3a - iii

Master Program Element Table of Contents (by Budget Activity then Line Item Number)..... Volume 3a - xix

Master Program Element Table of Contents (Alphabetically by Program Element Title)..... Volume 3a - xxxv

Program Element Table of Contents (by Budget Activity then Line Item Number).....Volume 3a - xlix

Program Element Table of Contents (Alphabetically by Program Element Title).....Volume 3a - liii

Intro and Explanation of Contents..... Volume 3a - lvii

Book Split Statement..... Volume 3a - lix

Classified PEs.....Volume 3a - lxi

FY16 PB Crosswalk Report.....Volume 3a - lxiii

Exhibit R-2's.....Volume 3a - 1

THIS PAGE INTENTIONALLY LEFT BLANK

Department of Defense
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

Appropriation	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Research, Development, Test & Eval, AF	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769
Total Research, Development, Test & Evaluation	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of Defense
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

Summary Recap of Budget Activities	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Basic Research	510,830	551,008		551,008	485,253		485,253
Applied Research	1,124,358	1,100,790		1,100,790	1,217,342		1,217,342
Advanced Technology Development	624,332	629,912		629,912	675,785		675,785
Advanced Component Development & Prototypes	936,496	1,407,354		1,407,354	2,062,575		2,062,575
System Development & Demonstration	4,344,992	3,617,103		3,617,103	3,847,791		3,847,791
Management Support	1,418,396	1,178,699		1,178,699	1,174,584		1,174,584
Operational Systems Development	14,864,106	15,145,608	14,706	15,160,314	17,010,339	17,100	17,027,439
Total Research, Development, Test & Evaluation	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769

Summary Recap of FYDP Programs							
Strategic Forces	181,376	514,726		514,726	618,422		618,422
General Purpose Forces	1,475,225	1,541,794		1,541,794	1,687,905	300	1,688,205
Intelligence and Communications	1,362,446	1,640,102		1,640,102	1,635,920		1,635,920
Mobility Forces	311,274	241,643		241,643	366,856		366,856
Research and Development	9,095,792	8,343,388		8,343,388	9,105,003		9,105,003
Central Supply and Maintenance	91,235	98,657		98,657	156,778		156,778
Training Medical and Other	1,716	2,538		2,538	3,272		3,272
Administration and Associated Activities	119,003	116,625		116,625	117,056		117,056
Support of Other Nations	3,785	3,790		3,790	2,315		2,315
Classified Programs	11,181,658	11,127,211	14,706	11,141,917	12,780,142	16,800	12,796,942
Total Research, Development, Test & Evaluation	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

Summary Recap of Budget Activities	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Basic Research	510,830	551,008		551,008	485,253		485,253
Applied Research	1,124,358	1,100,790		1,100,790	1,217,342		1,217,342
Advanced Technology Development	624,332	629,912		629,912	675,785		675,785
Advanced Component Development & Prototypes	936,496	1,407,354		1,407,354	2,062,575		2,062,575
System Development & Demonstration	4,344,992	3,617,103		3,617,103	3,847,791		3,847,791
Management Support	1,418,396	1,178,699		1,178,699	1,174,584		1,174,584
Operational Systems Development	14,864,106	15,145,608	14,706	15,160,314	17,010,339	17,100	17,027,439
Total Research, Development, Test & Evaluation	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769
Summary Recap of FYDP Programs							
Strategic Forces	181,376	514,726		514,726	618,422		618,422
General Purpose Forces	1,475,225	1,541,794		1,541,794	1,687,905	300	1,688,205
Intelligence and Communications	1,362,446	1,640,102		1,640,102	1,635,920		1,635,920
Mobility Forces	311,274	241,643		241,643	366,856		366,856
Research and Development	9,095,792	8,343,388		8,343,388	9,105,003		9,105,003
Central Supply and Maintenance	91,235	98,657		98,657	156,778		156,778
Training Medical and Other	1,716	2,538		2,538	3,272		3,272
Administration and Associated Activities	119,003	116,625		116,625	117,056		117,056
Support of Other Nations	3,785	3,790		3,790	2,315		2,315
Classified Programs	11,181,658	11,127,211	14,706	11,141,917	12,780,142	16,800	12,796,942
Total Research, Development, Test & Evaluation	23,823,510	23,630,474	14,706	23,645,180	26,473,669	17,100	26,490,769

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
1	0601102F	Defense Research Sciences	01	364,195	389,979		389,979	329,721		329,721	U
2	0601103F	University Research Initiatives	01	133,798	147,079		147,079	141,754		141,754	U
3	0601108F	High Energy Laser Research Initiatives	01	12,837	13,950		13,950	13,778		13,778	U
	Basic Research			510,830	551,008		551,008	485,253		485,253	
4	0602102F	Materials	02	118,951	110,680		110,680	125,234		125,234	U
5	0602201F	Aerospace Vehicle Technologies	02	117,724	105,673		105,673	123,438		123,438	U
6	0602202F	Human Effectiveness Applied Research	02	101,157	96,894		96,894	100,530		100,530	U
7	0602203F	Aerospace Propulsion	02	193,204	172,550		172,550	182,326		182,326	U
8	0602204F	Aerospace Sensors	02	125,989	118,321		118,321	147,291		147,291	U
9	0602601F	Space Technology	02	100,066	98,229		98,229	116,122		116,122	U
10	0602602F	Conventional Munitions	02	80,804	87,387		87,387	99,851		99,851	U
11	0602605F	Directed Energy Technology	02	110,725	125,866		125,866	115,604		115,604	U
12	0602788F	Dominant Information Sciences and Methods	02	136,885	147,749		147,749	164,909		164,909	U
13	0602890F	High Energy Laser Research	02	38,853	37,441		37,441	42,037		42,037	U
	Applied Research			1,124,358	1,100,790		1,100,790	1,217,342		1,217,342	
14	0603112F	Advanced Materials for Weapon Systems	03	53,593	40,177		40,177	37,665		37,665	U
15	0603199F	Sustainment Science and Technology (S&T)	03	12,380	15,800		15,800	18,378		18,378	U
16	0603203F	Advanced Aerospace Sensors	03	31,968	34,334		34,334	42,183		42,183	U
17	0603211F	Aerospace Technology Dev/Demo	03	75,029	91,037		91,037	100,733		100,733	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
18	0603216F	Aerospace Propulsion and Power Technology	03	160,765	132,681		132,681	168,821		168,821	U
19	0603270F	Electronic Combat Technology	03	42,516	47,508		47,508	47,032		47,032	U
20	0603401F	Advanced Spacecraft Technology	03	57,787	68,907		68,907	54,897		54,897	U
21	0603444F	Maui Space Surveillance System (MSSS)	03	25,535	14,031		14,031	12,853		12,853	U
22	0603456F	Human Effectiveness Advanced Technology Development	03	24,508	21,788		21,788	25,448		25,448	U
23	0603601F	Conventional Weapons Technology	03	33,410	42,046		42,046	48,536		48,536	U
24	0603605F	Advanced Weapons Technology	03	18,519	33,542		33,542	30,195		30,195	U
25	0603680F	Manufacturing Technology Program	03	40,221	52,772		52,772	42,630		42,630	U
26	0603788F	Battlespace Knowledge Development and Demonstration	03	48,101	35,289		35,289	46,414		46,414	U
		Advanced Technology Development		624,332	629,912		629,912	675,785		675,785	
27	0603260F	Intelligence Advanced Development	04	3,983	5,408		5,408	5,032		5,032	U
28	0603287F	Physical Security Equipment	04	3,874							U
29	0603438F	Space Control Technology	04	22,862	6,075		6,075	4,070		4,070	U
30	0603742F	Combat Identification Technology	04	12,938	10,980		10,980	21,790		21,790	U
31	0603790F	NATO Research and Development	04	4,561	2,392		2,392	4,736		4,736	U
32	0603791F	International Space Cooperative R&D	04	379	833		833				U
33	0603830F	Space Security and Defense Program	04	23,986	31,613		31,613	30,771		30,771	U
34	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	72,696	30,885		30,885	39,765		39,765	U
35	0603859F	Pollution Prevention - Dem/Val	04	953	998		998				U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
36	0604015F	Long Range Strike	04	348,625	913,728		913,728	1,246,228		1,246,228	U
37	0604317F	Technology Transfer	04	2,531	4,769		4,769	3,512		3,512	U
38	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	109,602				54,637		54,637	U
39	0604337F	Requirements Analysis and Maturation	04	11,486							U
40	0604422F	Weather System Follow-on	04		39,901		39,901	76,108		76,108	U
41	0604458F	Air & Space Ops Center	04	60,971							U
42	0604618F	Joint Direct Attack Munition	04	2,417							U
43	0604635F	Ground Attack Weapons Fuze Development	04	17,271							U
44	0604857F	Operationally Responsive Space	04	10,000	20,000		20,000	6,457		6,457	U
45	0604858F	Tech Transition Program	04	48,194	79,004		79,004	246,514		246,514	U
46	0605230F	Ground Based Strategic Deterrent	04					75,166		75,166	U
47	0105921F	Service Support to STRATCOM - Space Activities	04	2,685							U
48	0201184F	Counter Narco-Terrorism Program Office	04	510							U
49	0207110F	Next Generation Air Dominance	04		15,722		15,722	8,830		8,830	U
50	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	52,891	88,825		88,825	14,939		14,939	U
51	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	04	123,081	156,221		156,221	142,288		142,288	U
52	0306250F	Cyber Operations Technology Development	04					81,732		81,732	U
		Advanced Component Development & Prototypes		936,496	1,407,354		1,407,354	2,062,575		2,062,575	

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
53	0603260F	Intelligence Advanced Development	05	977							U
54	0604233F	Specialized Undergraduate Flight Training	05	3,601	13,324		13,324				U
55	0604270F	Electronic Warfare Development	05	1,971	7,815		7,815	929		929	U
56	0604281F	Tactical Data Networks Enterprise	05	41,388	39,059		39,059	60,256		60,256	U
57	0604287F	Physical Security Equipment	05		3,926		3,926	5,973		5,973	U
58	0604329F	Small Diameter Bomb (SDB) - EMD	05	109,580	68,738		68,738	32,624		32,624	U
59	0604421F	Counterspace Systems	05	22,655	23,424		23,424	24,208		24,208	U
60	0604425F	Space Situation Awareness Systems	05	304,380	9,462		9,462	32,374		32,374	U
61	0604426F	Space Fence	05		200,082		200,082	243,909		243,909	U
62	0604429F	Airborne Electronic Attack	05	4,422	30,687		30,687	8,358		8,358	U
63	0604441F	Space Based Infrared System (SBIRS) High EMD	05	322,399	308,788		308,788	292,235		292,235	U
64	0604602F	Armament/Ordnance Development	05	13,661	29,112		29,112	40,154		40,154	U
65	0604604F	Submunitions	05	2,564	2,543		2,543	2,506		2,506	U
66	0604617F	Agile Combat Support	05	16,747	42,840		42,840	57,678		57,678	U
67	0604706F	Life Support Systems	05	7,069	14,854		14,854	8,187		8,187	U
68	0604735F	Combat Training Ranges	05	19,649	10,129		10,129	15,795		15,795	U
69	0604800F	F-35 - EMD	05	616,560	567,889		567,889	589,441		589,441	U
70	0604851F	Intercontinental Ballistic Missile - EMD	05	118,504							U
71	0604853F	Evolved Expendable Launch Vehicle Program (SPACE) - EMD	05	19,431	225,600		225,600	84,438		84,438	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
72	0604932F	Long Range Standoff Weapon	05	5,000	3,438		3,438	36,643		36,643	U
73	0604933F	ICBM Fuze Modernization	05	76,553	59,826		59,826	142,551		142,551	U
74	0605213F	F-22 Modernization Increment 3.2B	05	88,268	173,647		173,647	140,640		140,640	U
75	0605214F	Ground Attack Weapons Fuze Development	05		5,332		5,332	3,598		3,598	U
76	0605221F	KC-46	05	1,505,476	786,437		786,437	602,364		602,364	U
77	0605223F	Advanced Pilot Training	05		8,201		8,201	11,395		11,395	U
78	0605229F	CSAR HH-60 Recapitalization	05	333,558	100,000		100,000	156,085		156,085	U
79	0605278F	HC/MC-130 Recap RDT&E	05	2,611	4,497		4,497				U
80	0605431F	Advanced EHF MILSATCOM (SPACE)	05	261,554	307,898		307,898	228,230		228,230	U
81	0605432F	Polar MILSATCOM (SPACE)	05	101,401	103,245		103,245	72,084		72,084	U
82	0605433F	Wideband Global SATCOM (SPACE)	05	11,674	31,328		31,328	56,343		56,343	U
83	0605458F	Air & Space Ops Center 10.2 RDT&E	05		85,938		85,938	47,629		47,629	U
84	0605931F	B-2 Defensive Management System	05	248,971	98,768		98,768	271,961		271,961	U
85	0101125F	Nuclear Weapons Modernization	05	33,000	168,357		168,357	212,121		212,121	U
86	0207171F	F-15 EPAWSS	05					186,481		186,481	U
87	0207701F	Full Combat Mission Training	05	4,663	8,831		8,831	18,082		18,082	U
88	0305176F	Combat Survivor Evader Locator	05					993		993	U
89	0307581F	NextGen JSTARS	05		73,088		73,088	44,343		44,343	U
90	0401318F	CV-22	05	46,705							U
91	0401319F	Presidential Aircraft Replacement (PAR)	05					102,620		102,620	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
92	0701212F	Automated Test Systems	05					14,563		14,563	U
		System Development & Demonstration		4,344,992	3,617,103		3,617,103	3,847,791		3,847,791	
93	0604256F	Threat Simulator Development	06	14,786	24,418		24,418	23,844		23,844	U
94	0604759F	Major T&E Investment	06	31,423	47,232		47,232	68,302		68,302	U
95	0605101F	RAND Project Air Force	06	32,956	30,443		30,443	34,918		34,918	U
96	0605502F	Small Business Innovation Research	06	304,921							U
97	0605712F	Initial Operational Test & Evaluation	06	6,972	10,266		10,266	10,476		10,476	U
98	0605807F	Test and Evaluation Support	06	724,958	689,509		689,509	673,908		673,908	U
99	0605860F	Rocket Systems Launch Program (SPACE)	06	12,755	34,364		34,364	21,858		21,858	U
100	0605864F	Space Test Program (STP)	06	11,642	21,161		21,161	28,228		28,228	U
101	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	44,160	46,955		46,955	40,518		40,518	U
102	0605978F	Facilities Sustainment - Test and Evaluation Support	06	29,743	32,965		32,965	27,895		27,895	U
103	0606017F	Requirements Analysis and Maturation	06		16,350		16,350	16,507		16,507	U
104	0606116F	Space Test and Training Range Development	06		19,512		19,512	18,997		18,997	U
105	0606323F	Multi-Service Systems Engineering Initiative	06	6,682							U
106	0606392F	Space and Missile Center (SMC) Civilian Workforce	06	172,257	176,727		176,727	185,305		185,305	U
107	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06		4,938		4,938	4,841		4,841	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
108	0702806F	Acquisition and Management Support	06	20,525	18,644		18,644	15,357		15,357	U
109	0804731F	General Skill Training	06	304	1,425		1,425	1,315		1,315	U
110	0909999F	Financing for Cancelled Account Adjustments	06	527							U
111	1001004F	International Activities	06	3,785	3,790		3,790	2,315		2,315	U
		Management Support		1,418,396	1,178,699		1,178,699	1,174,584		1,174,584	
112	0603423F	Global Positioning System III - Operational Control Segment	07	361,381	299,060		299,060	350,232		350,232	U
113	0604233F	Specialized Undergraduate Flight Training	07					10,465		10,465	U
114	0604445F	Wide Area Surveillance	07	4,836	2,000		2,000	24,577		24,577	U
116	0604618F	Joint Direct Attack Munition	07		2,469		2,469				U
117	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	33,114	60,019		60,019	69,694		69,694	U
118	0605024F	Anti-Tamper Technology Executive Agency	07	25,733	34,815		34,815	26,718		26,718	U
119	0605278F	HC/MC-130 Recap RDT&E	07					10,807		10,807	U
121	0101113F	B-52 Squadrons	07	16,481	49,457		49,457	74,520		74,520	U
122	0101122F	Air-Launched Cruise Missile (ALCM)	07	983	450		450	451		451	U
123	0101126F	B-1B Squadrons	07	14,355	4,353		4,353	2,245		2,245	U
124	0101127F	B-2 Squadrons	07	80,225	116,580		116,580	108,183		108,183	U
125	0101213F	Minuteman Squadrons	07		139,109		139,109	178,929		178,929	U
126	0101313F	Strat War Planning System - USSTRATCOM	07	32,077	32,014		32,014	28,481		28,481	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
127	0101314F	Night Fist - USSTRATCOM	07					87		87	U
128	0101316F	Worldwide Joint Strategic Communications	07					5,315		5,315	U
130	0102326F	Region/Sector Operation Control Center Modernization Program	07	1,570	1,272		1,272				U
131	0105921F	Service Support to STRATCOM - Space Activities	07		3,134		3,134	8,090		8,090	U
132	0205219F	MQ-9 UAV	07	104,000	148,598		148,598	123,439		123,439	U
133	0205671F	Joint Counter RCIED Electronic Warfare	07						300	300	U
134	0207131F	A-10 Squadrons	07	11,435							U
135	0207133F	F-16 Squadrons	07	109,887	133,105		133,105	148,297		148,297	U
136	0207134F	F-15E Squadrons	07	227,098	241,969		241,969	179,283		179,283	U
137	0207136F	Manned Destructive Suppression	07	10,724	14,831		14,831	14,860		14,860	U
138	0207138F	F-22A Squadrons	07	266,431	146,299		146,299	262,552		262,552	U
139	0207142F	F-35 Squadrons	07	3,000	40,092		40,092	115,395		115,395	U
140	0207161F	Tactical AIM Missiles	07	12,376	29,739		29,739	43,360		43,360	U
141	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	68,564	82,195		82,195	46,160		46,160	U
142	0207171F	F-15 EPAWSS	07		38,944		38,944				U
143	0207224F	Combat Rescue and Recovery	07	2,582	5,095		5,095	412		412	U
144	0207227F	Combat Rescue - Pararescue	07	350	883		883	657		657	U
145	0207247F	AF TENCAP	07	114,816	5,812		5,812	31,428		31,428	U
146	0207249F	Precision Attack Systems Procurement	07	2,000	1,081		1,081	1,105		1,105	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
147	0207253F	Compass Call	07	10,745	14,315		14,315	14,249		14,249	U
148	0207268F	Aircraft Engine Component Improvement Program	07	86,467	94,177		94,177	103,942		103,942	U
149	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	6,202	12,897		12,897	12,793		12,793	U
150	0207410F	Air & Space Operations Center (AOC)	07	18,332	25,662		25,662	21,193		21,193	U
151	0207412F	Control and Reporting Center (CRC)	07	6,435				559		559	U
152	0207417F	Airborne Warning and Control System (AWACS)	07	143,404	180,804		180,804	161,812		161,812	U
153	0207418F	Tactical Airborne Control Systems	07	719	3,754		3,754	6,001		6,001	U
155	0207431F	Combat Air Intelligence System Activities	07	5,780	7,891		7,891	7,793		7,793	U
156	0207444F	Tactical Air Control Party-Mod	07	8,816	5,850		5,850	12,465		12,465	U
157	0207448F	C2ISR Tactical Data Link	07	1,373	1,744		1,744	1,681		1,681	U
158	0207449F	Command and Control (C2) Constellation	07	7,418							U
159	0207452F	DCAPES	07	9,769	821		821	16,796		16,796	U
160	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	27,308							U
161	0207590F	Seek Eagle	07	22,046	23,844		23,844	21,564		21,564	U
162	0207601F	USAF Modeling and Simulation	07	8,439	12,034		12,034	24,994		24,994	U
163	0207605F	Wargaming and Simulation Centers	07	5,326	5,956		5,956	6,035		6,035	U
164	0207697F	Distributed Training and Exercises	07	3,600	3,357		3,357	4,358		4,358	U
165	0208006F	Mission Planning Systems	07	55,432	60,679		60,679	55,835		55,835	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
166	0208059F	Cyber Command Activities	07	36,824	67,057		67,057				U
167	0208087F	AF Offensive Cyberspace Operations	07	13,610	13,355		13,355	12,874		12,874	U
168	0208088F	AF Defensive Cyberspace Operations	07	5,853	5,576		5,576	7,681		7,681	U
171	0301017F	Global Sensor Integrated on Network (GSIN)	07					5,974		5,974	U
177	0301400F	Space Superiority Intelligence	07	10,697	10,697		10,697	13,815		13,815	U
178	0302015F	E-4B National Airborne Operations Center (NAOC)	07	12,816	25,852		25,852	80,360		80,360	U
179	0303001F	Family of Advanced BLoS Terminals (FAB-T)	07					3,907		3,907	U
180	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	18,981	80,882		80,882	75,062		75,062	U
181	0303140F	Information Systems Security Program	07	61,687	69,727		69,727	46,599		46,599	U
182	0303141F	Global Combat Support System	07	725	692		692				U
183	0303142F	Global Force Management - Data Initiative	07					2,470		2,470	U
184	0303601F	MILSATCOM Terminals	07	125,924	54,678		54,678				U
186	0304260F	Airborne SIGINT Enterprise	07	83,972	74,072		74,072	112,775		112,775	U
189	0305099F	Global Air Traffic Management (GATM)	07	4,027	4,157		4,157	4,235		4,235	U
190	0305103F	Cyber Security Initiative	07	1,979							U
191	0305105F	DoD Cyber Crime Center	07	279							U
192	0305110F	Satellite Control Network (SPACE)	07	34,488	20,806		20,806	7,879		7,879	U
193	0305111F	Weather Service	07	19,950	20,102		20,102	29,955		29,955	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
194	0305114F	Air Traffic Control, Approach, and Landing System (ATCALS)	07	31,920	26,087		26,087	21,485		21,485	U
195	0305116F	Aerial Targets	07	10,616	8,639		8,639	2,515		2,515	U
198	0305128F	Security and Investigative Activities	07	189				472		472	U
199	0305145F	Arms Control Implementation	07	1,430	13,222		13,222	12,137		12,137	U
200	0305146F	Defense Joint Counterintelligence Activities	07	10	40		40	361		361	U
203	0305173F	Space and Missile Test and Evaluation Center	07	3,584	3,674		3,674	3,162		3,162	U
204	0305174F	Space Innovation, Integration and Rapid Technology Development	07	2,409	2,071		2,071	1,543		1,543	U
205	0305179F	Integrated Broadcast Service (IBS)	07	6,954	8,592		8,592	7,860		7,860	U
206	0305182F	Spacelift Range System (SPACE)	07	11,909	13,318		13,318	6,902		6,902	U
207	0305202F	Dragon U-2	07	13,700	5,511		5,511	34,471		34,471	U
208	0305205F	Endurance Unmanned Aerial Vehicles	07	1,000	20,000		20,000				U
209	0305206F	Airborne Reconnaissance Systems	07	47,059	37,652		37,652	50,154		50,154	U
210	0305207F	Manned Reconnaissance Systems	07	13,491	13,516		13,516	13,245		13,245	U
211	0305208F	Distributed Common Ground/Surface Systems	07	6,321	26,994		26,994	22,784		22,784	U
212	0305219F	MQ-1 Predator A UAV	07	760				716		716	U
213	0305220F	RQ-4 UAV	07	120,180	241,828		241,828	208,053		208,053	U
214	0305221F	Network-Centric Collaborative Targeting	07	7,413	11,096		11,096	21,587		21,587	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
215	0305236F	Common Data Link Executive Agent (CDL EA)	07	33,896	32,015		32,015	43,986		43,986	U
216	0305238F	NATO AGS	07	221,589	232,851		232,851	197,486		197,486	U
217	0305240F	Support to DCGS Enterprise	07	19,309	17,118		17,118	28,434		28,434	U
218	0305265F	GPS III Space Segment	07	195,950	211,907		211,907	180,902		180,902	U
219	0305600F	International Intelligence Technology and Architectures	07		2,270		2,270				U
220	0305614F	JSPOC Mission System	07	56,523	73,779		73,779	81,911		81,911	U
221	0305881F	Rapid Cyber Acquisition	07	2,151	4,102		4,102	3,149		3,149	U
222	0305913F	NUDET Detection System (SPACE)	07	42,506	20,405		20,405	14,447		14,447	U
223	0305940F	Space Situation Awareness Operations	07	11,911	11,408		11,408	20,077		20,077	U
224	0306250F	Cyber Operations Technology Development	07		4,938		4,938				U
225	0308699F	Shared Early Warning (SEW)	07	1,060	1,157		1,157	853		853	U
226	0401115F	C-130 Airlift Squadron	07	47,700				33,962		33,962	U
227	0401119F	C-5 Airlift Squadrons (IF)	07	48,617	38,773		38,773	42,864		42,864	U
228	0401130F	C-17 Aircraft (IF)	07	97,134	82,948		82,948	54,807		54,807	U
229	0401132F	C-130J Program	07	22,443	26,715		26,715	31,010		31,010	U
230	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	4,116	4,672		4,672	6,802		6,802	U
231	0401219F	KC-10s	07		2,714		2,714	1,799		1,799	U
232	0401314F	Operational Support Airlift	07	38,538	27,784		27,784	48,453		48,453	U
233	0401318F	CV-22	07		38,719		38,719	36,576		36,576	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

Department of the Air Force
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

28 Jan 2015

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

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
234	0401319F	Presidential Aircraft Replacement (PAR)	07		11,006		11,006				U
235	0408011F	Special Tactics / Combat Control	07	6,021	8,312		8,312	7,963		7,963	U
236	0702207F	Depot Maintenance (Non-IF)	07	1,605	1,407		1,407	1,525		1,525	U
237	0708610F	Logistics Information Technology (LOGIT)	07	58,532	62,894		62,894	112,676		112,676	U
238	0708611F	Support Systems Development	07	10,573	15,712		15,712	12,657		12,657	U
239	0804743F	Other Flight Training	07	1,347	987		987	1,836		1,836	U
240	0808716F	Other Personnel Activities	07	65	126		126	121		121	U
241	0901202F	Joint Personnel Recovery Agency	07	1,046	2,603		2,603	5,911		5,911	U
242	0901218F	Civilian Compensation Program	07	2,296	1,589		1,589	3,604		3,604	U
243	0901220F	Personnel Administration	07	8,322	5,026		5,026	4,598		4,598	U
244	0901226F	Air Force Studies and Analysis Agency	07	760	1,394		1,394	1,103		1,103	U
245	0901279F	Facilities Operation - Administrative	07	632	3,798		3,798				U
246	0901538F	Financial Management Information Systems Development	07	105,420	102,215		102,215	101,840		101,840	U
9999	9999999999	Classified Programs		11,181,658	11,127,211	14,706	11,141,917	12,780,142	16,800	12,796,942	U
		Operational Systems Development		14,864,106	15,145,608		15,160,314	17,010,339	17,100	17,027,439	
Total Research, Development, Test & Eval, AF				23,823,510	23,630,474		23,645,180	26,473,669	17,100	26,490,769	

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 28, 2015 at 07:27:29

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

Budget Activity 01: Basic Research
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
1	01	0601102F	Defense Research Sciences	Volume 1 - 1
2	01	0601103F	University Research Initiatives	Volume 1 - 17
3	01	0601108F	High Energy Laser Research Initiatives	Volume 1 - 21

Budget Activity 02: Applied Research
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
4	02	0602102F	Materials	Volume 1 - 25
5	02	0602201F	Aerospace Vehicle Technologies	Volume 1 - 41
6	02	0602202F	Human Effectiveness Applied Research	Volume 1 - 57
7	02	0602203F	Aerospace Propulsion	Volume 1 - 73
8	02	0602204F	Aerospace Sensors	Volume 1 - 97
9	02	0602601F	Space Technology	Volume 1 - 117

Budget Activity 02: Applied Research
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
10	02	0602602F	Conventional Munitions	Volume 1 - 135
11	02	0602605F	Directed Energy Technology	Volume 1 - 143
12	02	0602788F	Dominant Information Sciences and Methods	Volume 1 - 151
13	02	0602890F	High Energy Laser Research	Volume 1 - 173

Budget Activity 03: Advanced Technology Development (ATD)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
14	03	0603112F	Advanced Materials for Weapon Systems	Volume 1 - 179
15	03	0603199F	Sustainment Science and Technology (S&T)	Volume 1 - 191
16	03	0603203F	Advanced Aerospace Sensors	Volume 1 - 195
17	03	0603211F	Aerospace Technology Dev/Demo	Volume 1 - 205
18	03	0603216F	Aerospace Propulsion and Power Technology	Volume 1 - 215
19	03	0603270F	Electronic Combat Technology	Volume 1 - 233
20	03	0603401F	Advanced Spacecraft Technology	Volume 1 - 243
21	03	0603444F	Maui Space Surveillance System (MSSS)	Volume 1 - 263

Budget Activity 03: Advanced Technology Development (ATD)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
22	03	0603456F	Human Effectiveness Advanced Technology Development	Volume 1 - 267
23	03	0603601F	Conventional Weapons Technology	Volume 1 - 281
24	03	0603605F	Advanced Weapons Technology	Volume 1 - 285
25	03	0603680F	Manufacturing Technology Program	Volume 1 - 291
26	03	0603788F	Battlespace Knowledge Development and Demonstration	Volume 1 - 295

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
27	04	0603260F	Intelligence Advanced Development	Volume 2 - 1
28	04	0603287F	Physical Security Equipment	Volume 2 - 43
29	04	0603438F	Space Control Technology	Volume 2 - 51
30	04	0603742F	Combat Identification Technology	Volume 2 - 67
31	04	0603790F	NATO Research and Development	Volume 2 - 89
32	04	0603791F	International Space Cooperative R&D	Volume 2 - 95
33	04	0603830F	Space Security and Defense Program	Volume 2 - 101

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
34	04	0603851F	Intercontinental Ballistic Missile - Dem/Val	Volume 2 - 115
35	04	0603859F	Pollution Prevention - Dem/Val	Volume 2 - 155
36	04	0604015F	Long Range Strike	Volume 2 - 163
37	04	0604317F	Technology Transfer	Volume 2 - 169
38	04	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	Volume 2 - 175
39	04	0604337F	Requirements Analysis and Maturation	Volume 2 - 183
40	04	0604422F	Weather System Follow-on	Volume 2 - 191
41	04	0604458F	Air & Space Ops Center	Volume 2 - 201
42	04	0604618F	Joint Direct Attack Munition	Volume 2 - 209
43	04	0604635F	Ground Attack Weapons Fuze Development	Volume 2 - 215
44	04	0604857F	Operationally Responsive Space	Volume 2 - 223
45	04	0604858F	Tech Transition Program	Volume 2 - 233
46	04	0605230F	Ground Based Strategic Deterrent	Volume 2 - 241
47	04	0105921F	Service Support to STRATCOM - Space Activities	Volume 2 - 249
48	04	0201184F	Counter Narco-Terrorism Program Office	Volume 2 - 257
49	04	0207110F	Next Generation Air Dominance	Volume 2 - 263
50	04	0207455F	Three Dimensional Long-Range Radar (3DELRR)	Volume 2 - 271
51	04	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	Volume 2 - 279

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
52	04	0306250F	Cyber Operations Technology Development	Volume 2 - 289

Budget Activity 05: System Development & Demonstration (SDD)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
53	05	0603260F	Intelligence Advanced Development	Volume 2 - 299
54	05	0604233F	Specialized Undergraduate Flight Training	Volume 2 - 307
55	05	0604270F	Electronic Warfare Development	Volume 2 - 331
56	05	0604281F	Tactical Data Networks Enterprise	Volume 2 - 339
57	05	0604287F	Physical Security Equipment	Volume 2 - 359
58	05	0604329F	Small Diameter Bomb (SDB) - EMD	Volume 2 - 369
59	05	0604421F	Counterspace Systems	Volume 2 - 379
60	05	0604425F	Space Situation Awareness Systems	Volume 2 - 397
61	05	0604426F	Space Fence	Volume 2 - 425
62	05	0604429F	Airborne Electronic Attack	Volume 2 - 433
63	05	0604441F	Space Based Infrared System (SBIRS) High EMD	Volume 2 - 441

Budget Activity 05: System Development & Demonstration (SDD)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
64	05	0604602F	Armament/Ordnance Development	Volume 2 - 467
65	05	0604604F	Submunitions	Volume 2 - 491
66	05	0604617F	Agile Combat Support	Volume 2 - 501
67	05	0604706F	Life Support Systems	Volume 2 - 515
68	05	0604735F	Combat Training Ranges	Volume 2 - 525
69	05	0604800F	F-35 - EMD	Volume 2 - 535
70	05	0604851F	Intercontinental Ballistic Missile - EMD	Volume 2 - 565
71	05	0604853F	Evolved Expendable Launch Vehicle Program (SPACE) - EMD	Volume 2 - 585
72	05	0604932F	Long Range Standoff Weapon	Volume 2 - 599
73	05	0604933F	ICBM Fuze Modernization	Volume 2 - 607
74	05	0605213F	F-22 Modernization Increment 3.2B	Volume 2 - 617
75	05	0605214F	Ground Attack Weapons Fuze Development	Volume 2 - 627
76	05	0605221F	KC-46	Volume 2 - 635
77	05	0605223F	Advanced Pilot Training	Volume 2 - 647
78	05	0605229F	CSAR HH-60 Recapitalization	Volume 2 - 661
79	05	0605278F	HC/MC-130 Recap RDT&E	Volume 2 - 669
80	05	0605431F	Advanced EHF MILSATCOM (SPACE)	Volume 2 - 677
81	05	0605432F	Polar MILSATCOM (SPACE)	Volume 2 - 695

Budget Activity 05: System Development & Demonstration (SDD)
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
82	05	0605433F	WIDEBAND GLOBAL SATCOM (SPACE)	Volume 2 - 703
83	05	0605458F	Air & Space Ops Center 10.2 RDT&E	Volume 2 - 717
84	05	0605931F	B-2 Defensive Management System	Volume 2 - 725
85	05	0101125F	Nuclear Weapons Modernization	Volume 2 - 733
86	05	0207171F	F-15 EPAWSS	Volume 2 - 743
87	05	0207701F	Full Combat Mission Training	Volume 2 - 751
88	05	0305176F	Combat Survivor Evader Locator	Volume 2 - 765
89	05	0307581F	NextGen JSTARS	Volume 2 - 771
90	05	0401318F	CV-22	Volume 2 - 779
91	05	0401319F	Presidential Aircraft Replacement (PAR)	Volume 2 - 787
92	05	0701212F	Automated Test Systems	Volume 2 - 795

Budget Activity 06: RDT&E Management Support
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
93	06	0604256F	Threat Simulator Development	Volume 2 - 803

Budget Activity 06: RDT&E Management Support
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
94	06	0604759F	Major T&E Investment	Volume 2 - 813
95	06	0605101F	RAND Project Air Force	Volume 2 - 825
96	06	0605502F	Small Business Innovation Research	Volume 2 - 831
97	06	0605712F	Initial Operational Test & Evaluation	Volume 2 - 833
98	06	0605807F	Test and Evaluation Support	Volume 2 - 841
99	06	0605860F	Rocket Systems Launch Program (SPACE)	Volume 2 - 847
100	06	0605864F	Space Test Program (STP)	Volume 2 - 851
101	06	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	Volume 2 - 855
102	06	0605978F	Facilities Sustainment - Test and Evaluation Support	Volume 2 - 861
103	06	0606017F	Requirements Analysis and Maturation	Volume 2 - 865
104	06	0606116F	Space Test and Training Range Development	Volume 2 - 873
105	06	0606323F	Multi-Service Systems Engineering Initiative	Volume 2 - 877
106	06	0606392F	Space and Missile Center (SMC) Civilian Workforce	Volume 2 - 881
107	06	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	Volume 2 - 883
108	06	0702806F	Acquisition and Management Support	Volume 2 - 889
109	06	0804731F	General Skill Training	Volume 2 - 899
110	06	0909999F	Financing for Cancelled Account Adjustments	Volume 2 - 901
111	06	1001004F	International Activities	Volume 2 - 903

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
112	07	0603423F	Global Positioning System III - Operational Control Segment	Volume 3a - 1
113	07	0604233F	Specialized Undergraduate Flight Training	Volume 3a - 19
114	07	0604445F	Wide Area Surveillance	Volume 3a - 47
116	07	0604618F	Joint Direct Attack Munition	Volume 3a - 53
117	07	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	Volume 3a - 61
118	07	0605024F	Anti-Tamper Technology Executive Agency	Volume 3a - 69
119	07	0605278F	HC/MC-130 Recap RDT&E	Volume 3a - 77
121	07	0101113F	B-52 SQUADRONS	Volume 3a - 85
122	07	0101122F	Air-Launched Cruise Missile (ALCM)	Volume 3a - 115
123	07	0101126F	B-1B Squadrons	Volume 3a - 123
124	07	0101127F	B-2 SQUADRONS	Volume 3a - 131
125	07	0101213F	Minuteman Squadrons	Volume 3a - 149
126	07	0101313F	Strat War Planning System - USSTRATCOM	Volume 3a - 205
127	07	0101314F	Night Fist - USSTRATCOM	Volume 3a - 221
128	07	0101316F	Worldwide Joint Strategic Communications	Volume 3a - 227
130	07	0102326F	Region/Sector Operation Control Center Modernization Program	Volume 3a - 235

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
131	07	0105921F	Service Support to STRATCOM - Space Activities	Volume 3a - 243
132	07	0205219F	MQ-9 UAV	Volume 3a - 263
133	07	0205671F	Joint Counter RCIED Electronic Warfare	Volume 3a - 281
134	07	0207131F	A-10 Squadrons	Volume 3a - 287
135	07	0207133F	F-16 Squadrons	Volume 3a - 293
136	07	0207134F	F-15E Squadrons	Volume 3a - 305
137	07	0207136F	Manned Destructive Suppression	Volume 3a - 323
138	07	0207138F	F-22A Squadrons	Volume 3a - 331
139	07	0207142F	F-35 Squadrons	Volume 3a - 353
140	07	0207161F	Tactical AIM Missiles	Volume 3a - 373
141	07	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	Volume 3a - 383
142	07	0207171F	F-15 EPAWSS	Volume 3a - 393
143	07	0207224F	Combat Rescue and Recovery	Volume 3a - 401
144	07	0207227F	Combat Rescue - Pararescue	Volume 3a - 407
145	07	0207247F	AF TENCAP	Volume 3a - 413
146	07	0207249F	Precision Attack Systems Procurement	Volume 3a - 423
147	07	0207253F	Compass Call	Volume 3a - 429
148	07	0207268F	Aircraft Engine Component Improvement Program	Volume 3a - 435

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
149	07	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	Volume 3a - 451
150	07	0207410F	Air & Space Operations Center (AOC)	Volume 3a - 467
151	07	0207412F	Control and Reporting Center (CRC)	Volume 3a - 493
152	07	0207417F	Airborne Warning and Control System (AWACS)	Volume 3a - 501
153	07	0207418F	Tactical Airborne Control Systems	Volume 3a - 519
155	07	0207431F	Combat Air Intelligence System Activities	Volume 3a - 527
156	07	0207444F	Tactical Air Control Party-Mod	Volume 3a - 541
157	07	0207448F	C2ISR Tactical Data Link	Volume 3a - 549
158	07	0207449F	Command and Control (C2) Constellation	Volume 3a - 559
159	07	0207452F	DCAPES	Volume 3a - 569
160	07	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	Volume 3a - 579
161	07	0207590F	Seek Eagle	Volume 3a - 587
162	07	0207601F	USAF Modeling and Simulation	Volume 3a - 597
163	07	0207605F	Wargaming and Simulation Centers	Volume 3a - 611
164	07	0207697F	Distributed Training and Exercises	Volume 3a - 621
165	07	0208006F	Mission Planning Systems	Volume 3a - 629
166	07	0208059F	CYBER COMMAND ACTIVITIES	Volume 3a - 653
167	07	0208087F	AF Offensive Cyberspace Operations	Volume 3a - 661

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
168	07	0208088F	AF Defensive Cyberspace Operations	Volume 3a - 671
171	07	0301017F	Global Sensor Integrated on Network (GSIN)	Volume 3b - 1
177	07	0301400F	Space Superiority Intelligence	Volume 3b - 9
178	07	0302015F	E-4B National Airborne Operations Center (NAOC)	Volume 3b - 17
179	07	0303001F	Family of Advanced BLoS Terminals (FAB-T)	Volume 3b - 27
180	07	0303131F	Minimum Essential Emergency Communications Network (MEECN)	Volume 3b - 35
181	07	0303140F	Information Systems Security Program	Volume 3b - 49
182	07	0303141F	Global Combat Support System	Volume 3b - 77
183	07	0303142F	Global Force Management - Data Initiative	Volume 3b - 89
184	07	0303601F	MILSATCOM Terminals	Volume 3b - 95
186	07	0304260F	Airborne SIGINT Enterprise	Volume 3b - 103
189	07	0305099F	Global Air Traffic Management (GATM)	Volume 3b - 137
190	07	0305103F	Cyber Security Initiative	Volume 3b - 147
191	07	0305105F	DoD Cyber Crime Center	Volume 3b - 153
192	07	0305110F	Satellite Control Network (SPACE)	Volume 3b - 159
193	07	0305111F	Weather Service	Volume 3b - 167
194	07	0305114F	Air Traffic Control, Approach, and Landing System (ATCALS)	Volume 3b - 179
195	07	0305116F	Aerial Targets	Volume 3b - 193

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
198	07	0305128F	Security and Investigative Activities	Volume 3b - 209
199	07	0305145F	Arms Control Implementation	Volume 3b - 217
200	07	0305146F	Defense Joint Counterintelligence Activities	Volume 3b - 225
203	07	0305173F	Space and Missile Test and Evaluation Center	Volume 3b - 231
204	07	0305174F	Space Innovation, Integration and Rapid Technology Development	Volume 3b - 239
205	07	0305179F	Integrated Broadcast Service (IBS)	Volume 3b - 247
206	07	0305182F	Spacelift Range System (SPACE)	Volume 3b - 255
207	07	0305202F	Dragon U-2	Volume 3b - 263
208	07	0305205F	Endurance Unmanned Aerial Vehicles	Volume 3b - 271
209	07	0305206F	Airborne Reconnaissance Systems	Volume 3b - 283
210	07	0305207F	Manned Reconnaissance Systems	Volume 3b - 331
211	07	0305208F	Distributed Common Ground/Surface Systems	Volume 3b - 339
212	07	0305219F	MQ-1 Predator A UAV	Volume 3b - 355
213	07	0305220F	RQ-4 UAV	Volume 3b - 363
214	07	0305221F	Network-Centric Collaborative Targeting	Volume 3b - 403
215	07	0305236F	Common Data Link Executive Agent (CDL EA)	Volume 3b - 419
216	07	0305238F	NATO AGS	Volume 3b - 429
217	07	0305240F	Support to DCGS Enterprise	Volume 3b - 439

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
218	07	0305265F	GPS III Space Segment	Volume 3b - 453
219	07	0305600F	International Intelligence Technology and Architectures	Volume 3b - 467
220	07	0305614F	JSPOC Mission System	Volume 3b - 473
221	07	0305881F	Rapid Cyber Acquisition	Volume 3b - 493
222	07	0305913F	NUDET Detection System (SPACE)	Volume 3b - 501
223	07	0305940F	Space Situation Awareness Operations	Volume 3b - 509
224	07	0306250F	Cyber Operations Technology Development	Volume 3b - 517
225	07	0308699F	Shared Early Warning (SEW)	Volume 3b - 523
226	07	0401115F	C-130 Airlift Squadron	Volume 3b - 533
227	07	0401119F	C-5 Airlift Squadrons (IF)	Volume 3b - 547
228	07	0401130F	C-17 Aircraft (IF)	Volume 3b - 563
229	07	0401132F	C-130J Program	Volume 3b - 575
230	07	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	Volume 3b - 591
231	07	0401219F	KC-10s	Volume 3b - 601
232	07	0401314F	Operational Support Airlift	Volume 3b - 607
233	07	0401318F	CV-22	Volume 3b - 621
234	07	0401319F	Presidential Aircraft Replacement (PAR)	Volume 3b - 633
235	07	0408011F	Special Tactics / Combat Control	Volume 3b - 641

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
236	07	0702207F	Depot Maintenance (Non-IF)	Volume 3b - 651
237	07	0708610F	Logistics Information Technology (LOGIT)	Volume 3b - 661
238	07	0708611F	Support Systems Development	Volume 3b - 709
239	07	0804743F	Other Flight Training	Volume 3b - 723
240	07	0808716F	Other Personnel Activities	Volume 3b - 735
241	07	0901202F	Joint Personnel Recovery Agency	Volume 3b - 741
242	07	0901218F	Civilian Compensation Program	Volume 3b - 749
243	07	0901220F	Personnel Administration	Volume 3b - 755
244	07	0901226F	Air Force Studies and Analysis Agency	Volume 3b - 763
245	07	0901279F	Facilities Operation - Administrative	Volume 3b - 769
246	07	0901538F	Financial Management Information Systems Development	Volume 3b - 775

THIS PAGE INTENTIONALLY LEFT BLANK

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

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
A-10 Squadrons	0207131F	134	07	Volume 3a - 287
AF Defensive Cyberspace Operations	0208088F	168	07	Volume 3a - 671
AF Integrated Personnel and Pay System (AF-IPPS)	0605018F	117	07	Volume 3a - 61
AF Offensive Cyberspace Operations	0208087F	167	07	Volume 3a - 661
AF TENCAP	0207247F	145	07	Volume 3a - 413
Acquisition and Management Support	0702806F	108	06	Volume 2 - 889
Advanced Aerospace Sensors	0603203F	16	03	Volume 1 - 195
Advanced EHF MILSATCOM (SPACE)	0605431F	80	05	Volume 2 - 677
Advanced Materials for Weapon Systems	0603112F	14	03	Volume 1 - 179
Advanced Medium Range Air-to-Air Missile (AMRAAM)	0207163F	141	07	Volume 3a - 383
Advanced Pilot Training	0605223F	77	05	Volume 2 - 647
Advanced Spacecraft Technology	0603401F	20	03	Volume 1 - 243
Advanced Weapons Technology	0603605F	24	03	Volume 1 - 285
Aerial Targets	0305116F	195	07	Volume 3b - 193
Aerospace Propulsion	0602203F	7	02	Volume 1 - 73
Aerospace Propulsion and Power Technology	0603216F	18	03	Volume 1 - 215
Aerospace Sensors	0602204F	8	02	Volume 1 - 97

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Aerospace Technology Dev/Demo	0603211F	17	03	Volume 1 - 205
Aerospace Vehicle Technologies	0602201F	5	02	Volume 1 - 41
Agile Combat Support	0604617F	66	05	Volume 2 - 501
Air & Space Operations Center (AOC)	0207410F	150	07	Volume 3a - 467
Air & Space Ops Center	0604458F	41	04	Volume 2 - 201
Air & Space Ops Center 10.2 RDT&E	0605458F	83	05	Volume 2 - 717
Air Force Studies and Analysis Agency	0901226F	244	07	Volume 3b - 763
Air Traffic Control, Approach, and Landing System (ATCALS)	0305114F	194	07	Volume 3b - 179
Air-Launched Cruise Missile (ALCM)	0101122F	122	07	Volume 3a - 115
Airborne Electronic Attack	0604429F	62	05	Volume 2 - 433
Airborne Reconnaissance Systems	0305206F	209	07	Volume 3b - 283
Airborne SIGINT Enterprise	0304260F	186	07	Volume 3b - 103
Airborne Warning and Control System (AWACS)	0207417F	152	07	Volume 3a - 501
Aircraft Engine Component Improvement Program	0207268F	148	07	Volume 3a - 435
Anti-Tamper Technology Executive Agency	0605024F	118	07	Volume 3a - 69
Armament/Ordnance Development	0604602F	64	05	Volume 2 - 467
Arms Control Implementation	0305145F	199	07	Volume 3b - 217
Automated Test Systems	0701212F	92	05	Volume 2 - 795
B-1B Squadrons	0101126F	123	07	Volume 3a - 123

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
B-2 Defensive Management System	0605931F	84	05	Volume 2 - 725
B-2 SQUADRONS	0101127F	124	07	Volume 3a - 131
B-52 SQUADRONS	0101113F	121	07	Volume 3a - 85
Battlespace Knowledge Development and Demonstration	0603788F	26	03	Volume 1 - 295
C-130 Airlift Squadron	0401115F	226	07	Volume 3b - 533
C-130J Program	0401132F	229	07	Volume 3b - 575
C-17 Aircraft (IF)	0401130F	228	07	Volume 3b - 563
C-5 Airlift Squadrons (IF)	0401119F	227	07	Volume 3b - 547
C2ISR Tactical Data Link	0207448F	157	07	Volume 3a - 549
CSAR HH-60 Recapitalization	0605229F	78	05	Volume 2 - 661
CV-22	0401318F	90	05	Volume 2 - 779
CV-22	0401318F	233	07	Volume 3b - 621
CYBER COMMAND ACTIVITIES	0208059F	166	07	Volume 3a - 653
Civilian Compensation Program	0901218F	242	07	Volume 3b - 749
Combat Air Intelligence System Activities	0207431F	155	07	Volume 3a - 527
Combat Identification Technology	0603742F	30	04	Volume 2 - 67
Combat Rescue - Pararescue	0207227F	144	07	Volume 3a - 407
Combat Rescue and Recovery	0207224F	143	07	Volume 3a - 401
Combat Survivor Evader Locator	0305176F	88	05	Volume 2 - 765

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Combat Training Ranges	0604735F	68	05	Volume 2 - 525
Command and Control (C2) Constellation	0207449F	158	07	Volume 3a - 559
Common Data Link Executive Agent (CDL EA)	0305236F	215	07	Volume 3b - 419
Compass Call	0207253F	147	07	Volume 3a - 429
Control and Reporting Center (CRC)	0207412F	151	07	Volume 3a - 493
Conventional Munitions	0602602F	10	02	Volume 1 - 135
Conventional Weapons Technology	0603601F	23	03	Volume 1 - 281
Counter Narco-Terrorism Program Office	0201184F	48	04	Volume 2 - 257
Counterspace Systems	0604421F	59	05	Volume 2 - 379
Cyber Operations Technology Development	0306250F	52	04	Volume 2 - 289
Cyber Operations Technology Development	0306250F	224	07	Volume 3b - 517
Cyber Security Initiative	0305103F	190	07	Volume 3b - 147
DCAPES	0207452F	159	07	Volume 3a - 569
Defense Joint Counterintelligence Activities	0305146F	200	07	Volume 3b - 225
Defense Research Sciences	0601102F	1	01	Volume 1 - 1
Depot Maintenance (Non-IF)	0702207F	236	07	Volume 3b - 651
Directed Energy Technology	0602605F	11	02	Volume 1 - 143
Distributed Common Ground/Surface Systems	0305208F	211	07	Volume 3b - 339
Distributed Training and Exercises	0207697F	164	07	Volume 3a - 621

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
DoD Cyber Crime Center	0305105F	191	07	Volume 3b - 153
Dominant Information Sciences and Methods	0602788F	12	02	Volume 1 - 151
Dragon U-2	0305202F	207	07	Volume 3b - 263
E-4B National Airborne Operations Center (NAOC)	0302015F	178	07	Volume 3b - 17
ENTEPRISE INFORMATION SERVICES (EIS)	0308602F	107	06	Volume 2 - 883
Electronic Combat Technology	0603270F	19	03	Volume 1 - 233
Electronic Warfare Development	0604270F	55	05	Volume 2 - 331
Endurance Unmanned Aerial Vehicles	0305205F	208	07	Volume 3b - 271
Evolved Expendable Launch Vehicle Program (SPACE) - EMD	0604853F	71	05	Volume 2 - 585
F-15 EPAWSS	0207171F	86	05	Volume 2 - 743
F-15 EPAWSS	0207171F	142	07	Volume 3a - 393
F-15E Squadrons	0207134F	136	07	Volume 3a - 305
F-16 Squadrons	0207133F	135	07	Volume 3a - 293
F-22 Modernization Increment 3.2B	0605213F	74	05	Volume 2 - 617
F-22A Squadrons	0207138F	138	07	Volume 3a - 331
F-35 - EMD	0604800F	69	05	Volume 2 - 535
F-35 Squadrons	0207142F	139	07	Volume 3a - 353
Facilities Operation - Administrative	0901279F	245	07	Volume 3b - 769
Facilities Restoration and Modernization - Test and Evaluation Support	0605976F	101	06	Volume 2 - 855

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Facilities Sustainment - Test and Evaluation Support	0605978F	102	06	Volume 2 - 861
Family of Advanced BLoS Terminals (FAB-T)	0303001F	179	07	Volume 3b - 27
Financial Management Information Systems Development	0901538F	246	07	Volume 3b - 775
Financing for Cancelled Account Adjustments	0909999F	110	06	Volume 2 - 901
Full Combat Mission Training	0207701F	87	05	Volume 2 - 751
GPS III Space Segment	0305265F	218	07	Volume 3b - 453
General Skill Training	0804731F	109	06	Volume 2 - 899
Global Air Traffic Management (GATM)	0305099F	189	07	Volume 3b - 137
Global Combat Support System	0303141F	182	07	Volume 3b - 77
Global Force Management - Data Initiative	0303142F	183	07	Volume 3b - 89
Global Positioning System III - Operational Control Segment	0603423F	112	07	Volume 3a - 1
Global Sensor Integrated on Network (GSIN)	0301017F	171	07	Volume 3b - 1
Ground Attack Weapons Fuze Development	0604635F	43	04	Volume 2 - 215
Ground Attack Weapons Fuze Development	0605214F	75	05	Volume 2 - 627
Ground Based Strategic Deterrent	0605230F	46	04	Volume 2 - 241
HC/MC-130 Recap RDT&E	0605278F	79	05	Volume 2 - 669
HC/MC-130 Recap RDT&E	0605278F	119	07	Volume 3a - 77
Hard and Deeply Buried Target Defeat System (HDBTDS) Program	0604327F	38	04	Volume 2 - 175
High Energy Laser Research	0602890F	13	02	Volume 1 - 173

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
High Energy Laser Research Initiatives	0601108F	3	01	Volume 1 - 21
Human Effectiveness Advanced Technology Development	0603456F	22	03	Volume 1 - 267
Human Effectiveness Applied Research	0602202F	6	02	Volume 1 - 57
ICBM Fuze Modernization	0604933F	73	05	Volume 2 - 607
Information Systems Security Program	0303140F	181	07	Volume 3b - 49
Initial Operational Test & Evaluation	0605712F	97	06	Volume 2 - 833
Integrated Broadcast Service (IBS)	0305179F	205	07	Volume 3b - 247
Intelligence Advanced Development	0603260F	27	04	Volume 2 - 1
Intelligence Advanced Development	0603260F	53	05	Volume 2 - 299
Intercontinental Ballistic Missile - Dem/Val	0603851F	34	04	Volume 2 - 115
Intercontinental Ballistic Missile - EMD	0604851F	70	05	Volume 2 - 565
International Activities	1001004F	111	06	Volume 2 - 903
International Intelligence Technology and Architectures	0305600F	219	07	Volume 3b - 467
International Space Cooperative R&D	0603791F	32	04	Volume 2 - 95
JSPOC Mission System	0305614F	220	07	Volume 3b - 473
Joint Air-to-Surface Standoff Missile (JASSM)	0207325F	149	07	Volume 3a - 451
Joint Counter RCIED Electronic Warfare	0205671F	133	07	Volume 3a - 281
Joint Direct Attack Munition	0604618F	42	04	Volume 2 - 209
Joint Direct Attack Munition	0604618F	116	07	Volume 3a - 53

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Joint Personnel Recovery Agency	0901202F	241	07	Volume 3b - 741
Joint Surveillance/Target Attack Radar System (JSTARS)	0207581F	160	07	Volume 3a - 579
KC-10s	0401219F	231	07	Volume 3b - 601
KC-46	0605221F	76	05	Volume 2 - 635
Large Aircraft IR Countermeasures (LAIRCM)	0401134F	230	07	Volume 3b - 591
Life Support Systems	0604706F	67	05	Volume 2 - 515
Logistics Information Technology (LOGIT)	0708610F	237	07	Volume 3b - 661
Long Range Standoff Weapon	0604932F	72	05	Volume 2 - 599
Long Range Strike	0604015F	36	04	Volume 2 - 163
MILSATCOM Terminals	0303601F	184	07	Volume 3b - 95
MQ-1 Predator A UAV	0305219F	212	07	Volume 3b - 355
MQ-9 UAV	0205219F	132	07	Volume 3a - 263
Major T&E Investment	0604759F	94	06	Volume 2 - 813
Manned Destructive Suppression	0207136F	137	07	Volume 3a - 323
Manned Reconnaissance Systems	0305207F	210	07	Volume 3b - 331
Manufacturing Technology Program	0603680F	25	03	Volume 1 - 291
Materials	0602102F	4	02	Volume 1 - 25
Maui Space Surveillance System (MSSS)	0603444F	21	03	Volume 1 - 263
Minimum Essential Emergency Communications Network (MEECN)	0303131F	180	07	Volume 3b - 35

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Minuteman Squadrons	0101213F	125	07	Volume 3a - 149
Mission Planning Systems	0208006F	165	07	Volume 3a - 629
Multi-Service Systems Engineering Initiative	0606323F	105	06	Volume 2 - 877
NATO AGS	0305238F	216	07	Volume 3b - 429
NATO Research and Development	0603790F	31	04	Volume 2 - 89
NAVSTAR Global Positioning System (User Equipment) (SPACE)	0305164F	51	04	Volume 2 - 279
NUDET Detection System (SPACE)	0305913F	222	07	Volume 3b - 501
Network-Centric Collaborative Targeting	0305221F	214	07	Volume 3b - 403
Next Generation Air Dominance	0207110F	49	04	Volume 2 - 263
NextGen JSTARS	0307581F	89	05	Volume 2 - 771
Night Fist - USSTRATCOM	0101314F	127	07	Volume 3a - 221
Nuclear Weapons Modernization	0101125F	85	05	Volume 2 - 733
Operational Support Airlift	0401314F	232	07	Volume 3b - 607
Operationally Responsive Space	0604857F	44	04	Volume 2 - 223
Other Flight Training	0804743F	239	07	Volume 3b - 723
Other Personnel Activities	0808716F	240	07	Volume 3b - 735
Personnel Administration	0901220F	243	07	Volume 3b - 755
Physical Security Equipment	0603287F	28	04	Volume 2 - 43
Physical Security Equipment	0604287F	57	05	Volume 2 - 359

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Polar MILSATCOM (SPACE)	0605432F	81	05	Volume 2 - 695
Pollution Prevention - Dem/Val	0603859F	35	04	Volume 2 - 155
Precision Attack Systems Procurement	0207249F	146	07	Volume 3a - 423
Presidential Aircraft Replacement (PAR)	0401319F	91	05	Volume 2 - 787
Presidential Aircraft Replacement (PAR)	0401319F	234	07	Volume 3b - 633
RAND Project Air Force	0605101F	95	06	Volume 2 - 825
RQ-4 UAV	0305220F	213	07	Volume 3b - 363
Rapid Cyber Acquisition	0305881F	221	07	Volume 3b - 493
Region/Sector Operation Control Center Modernization Program	0102326F	130	07	Volume 3a - 235
Requirements Analysis and Maturation	0604337F	39	04	Volume 2 - 183
Requirements Analysis and Maturation	0606017F	103	06	Volume 2 - 865
Rocket Systems Launch Program (SPACE)	0605860F	99	06	Volume 2 - 847
Satellite Control Network (SPACE)	0305110F	192	07	Volume 3b - 159
Security and Investigative Activities	0305128F	198	07	Volume 3b - 209
Seek Eagle	0207590F	161	07	Volume 3a - 587
Service Support to STRATCOM - Space Activities	0105921F	47	04	Volume 2 - 249
Service Support to STRATCOM - Space Activities	0105921F	131	07	Volume 3a - 243
Shared Early Warning (SEW)	0308699F	225	07	Volume 3b - 523
Small Business Innovation Research	0605502F	96	06	Volume 2 - 831

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Small Diameter Bomb (SDB) - EMD	0604329F	58	05	Volume 2 - 369
Space Based Infrared System (SBIRS) High EMD	0604441F	63	05	Volume 2 - 441
Space Control Technology	0603438F	29	04	Volume 2 - 51
Space Fence	0604426F	61	05	Volume 2 - 425
Space Innovation, Integration and Rapid Technology Development	0305174F	204	07	Volume 3b - 239
Space Security and Defense Program	0603830F	33	04	Volume 2 - 101
Space Situation Awareness Operations	0305940F	223	07	Volume 3b - 509
Space Situation Awareness Systems	0604425F	60	05	Volume 2 - 397
Space Superiority Intelligence	0301400F	177	07	Volume 3b - 9
Space Technology	0602601F	9	02	Volume 1 - 117
Space Test Program (STP)	0605864F	100	06	Volume 2 - 851
Space Test and Training Range Development	0606116F	104	06	Volume 2 - 873
Space and Missile Center (SMC) Civilian Workforce	0606392F	106	06	Volume 2 - 881
Space and Missile Test and Evaluation Center	0305173F	203	07	Volume 3b - 231
Spacelift Range System (SPACE)	0305182F	206	07	Volume 3b - 255
Special Tactics / Combat Control	0408011F	235	07	Volume 3b - 641
Specialized Undergraduate Flight Training	0604233F	54	05	Volume 2 - 307
Specialized Undergraduate Flight Training	0604233F	113	07	Volume 3a - 19
Strat War Planning System - USSTRATCOM	0101313F	126	07	Volume 3a - 205

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Submunitions	0604604F	65	05	Volume 2 - 491
Support Systems Development	0708611F	238	07	Volume 3b - 709
Support to DCGS Enterprise	0305240F	217	07	Volume 3b - 439
Sustainment Science and Technology (S&T)	0603199F	15	03	Volume 1 - 191
Tactical AIM Missiles	0207161F	140	07	Volume 3a - 373
Tactical Air Control Party-Mod	0207444F	156	07	Volume 3a - 541
Tactical Airborne Control Systems	0207418F	153	07	Volume 3a - 519
Tactical Data Networks Enterprise	0604281F	56	05	Volume 2 - 339
Tech Transition Program	0604858F	45	04	Volume 2 - 233
Technology Transfer	0604317F	37	04	Volume 2 - 169
Test and Evaluation Support	0605807F	98	06	Volume 2 - 841
Threat Simulator Development	0604256F	93	06	Volume 2 - 803
Three Dimensional Long-Range Radar (3DELRR)	0207455F	50	04	Volume 2 - 271
USAF Modeling and Simulation	0207601F	162	07	Volume 3a - 597
University Research Initiatives	0601103F	2	01	Volume 1 - 17
WIDEBAND GLOBAL SATCOM (SPACE)	0605433F	82	05	Volume 2 - 703
Wargaming and Simulation Centers	0207605F	163	07	Volume 3a - 611
Weather Service	0305111F	193	07	Volume 3b - 167
Weather System Follow-on	0604422F	40	04	Volume 2 - 191

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Wide Area Surveillance	0604445F	114	07	Volume 3a - 47
Worldwide Joint Strategic Communications	0101316F	128	07	Volume 3a - 227

THIS PAGE INTENTIONALLY LEFT BLANK

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

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
112	07	0603423F	Global Positioning System III - Operational Control Segment	Volume 3a - 1
113	07	0604233F	Specialized Undergraduate Flight Training	Volume 3a - 19
114	07	0604445F	Wide Area Surveillance	Volume 3a - 47
116	07	0604618F	Joint Direct Attack Munition	Volume 3a - 53
117	07	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	Volume 3a - 61
118	07	0605024F	Anti-Tamper Technology Executive Agency	Volume 3a - 69
119	07	0605278F	HC/MC-130 Recap RDT&E	Volume 3a - 77
121	07	0101113F	B-52 SQUADRONS	Volume 3a - 85
122	07	0101122F	Air-Launched Cruise Missile (ALCM)	Volume 3a - 115
123	07	0101126F	B-1B Squadrons	Volume 3a - 123
124	07	0101127F	B-2 SQUADRONS	Volume 3a - 131
125	07	0101213F	Minuteman Squadrons	Volume 3a - 149
126	07	0101313F	Strat War Planning System - USSTRATCOM	Volume 3a - 205
127	07	0101314F	Night Fist - USSTRATCOM	Volume 3a - 221
128	07	0101316F	Worldwide Joint Strategic Communications	Volume 3a - 227

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
130	07	0102326F	Region/Sector Operation Control Center Modernization Program	Volume 3a - 235
131	07	0105921F	Service Support to STRATCOM - Space Activities	Volume 3a - 243
132	07	0205219F	MQ-9 UAV	Volume 3a - 263
133	07	0205671F	Joint Counter RCIED Electronic Warfare	Volume 3a - 281
134	07	0207131F	A-10 Squadrons	Volume 3a - 287
135	07	0207133F	F-16 Squadrons	Volume 3a - 293
136	07	0207134F	F-15E Squadrons	Volume 3a - 305
137	07	0207136F	Manned Destructive Suppression	Volume 3a - 323
138	07	0207138F	F-22A Squadrons	Volume 3a - 331
139	07	0207142F	F-35 Squadrons	Volume 3a - 353
140	07	0207161F	Tactical AIM Missiles	Volume 3a - 373
141	07	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	Volume 3a - 383
142	07	0207171F	F-15 EPAWSS	Volume 3a - 393
143	07	0207224F	Combat Rescue and Recovery	Volume 3a - 401
144	07	0207227F	Combat Rescue - Pararescue	Volume 3a - 407
145	07	0207247F	AF TENCAP	Volume 3a - 413
146	07	0207249F	Precision Attack Systems Procurement	Volume 3a - 423
147	07	0207253F	Compass Call	Volume 3a - 429

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
148	07	0207268F	Aircraft Engine Component Improvement Program	Volume 3a - 435
149	07	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	Volume 3a - 451
150	07	0207410F	Air & Space Operations Center (AOC)	Volume 3a - 467
151	07	0207412F	Control and Reporting Center (CRC)	Volume 3a - 493
152	07	0207417F	Airborne Warning and Control System (AWACS)	Volume 3a - 501
153	07	0207418F	Tactical Airborne Control Systems	Volume 3a - 519
155	07	0207431F	Combat Air Intelligence System Activities	Volume 3a - 527
156	07	0207444F	Tactical Air Control Party-Mod	Volume 3a - 541
157	07	0207448F	C2ISR Tactical Data Link	Volume 3a - 549
158	07	0207449F	Command and Control (C2) Constellation	Volume 3a - 559
159	07	0207452F	DCAPES	Volume 3a - 569
160	07	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	Volume 3a - 579
161	07	0207590F	Seek Eagle	Volume 3a - 587
162	07	0207601F	USAF Modeling and Simulation	Volume 3a - 597
163	07	0207605F	Wargaming and Simulation Centers	Volume 3a - 611
164	07	0207697F	Distributed Training and Exercises	Volume 3a - 621
165	07	0208006F	Mission Planning Systems	Volume 3a - 629
166	07	0208059F	CYBER COMMAND ACTIVITIES	Volume 3a - 653

Budget Activity 07: Operational Systems Development
Appropriation 3600: Research, Development, Test & Evaluation, Air Force

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
167	07	0208087F	AF Offensive Cyberspace Operations	Volume 3a - 661
168	07	0208088F	AF Defensive Cyberspace Operations	Volume 3a - 671

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

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
A-10 Squadrons	0207131F	134	07	Volume 3a - 287
AF Defensive Cyberspace Operations	0208088F	168	07	Volume 3a - 671
AF Integrated Personnel and Pay System (AF-IPPS)	0605018F	117	07	Volume 3a - 61
AF Offensive Cyberspace Operations	0208087F	167	07	Volume 3a - 661
AF TENCAP	0207247F	145	07	Volume 3a - 413
Advanced Medium Range Air-to-Air Missile (AMRAAM)	0207163F	141	07	Volume 3a - 383
Air & Space Operations Center (AOC)	0207410F	150	07	Volume 3a - 467
Air-Launched Cruise Missile (ALCM)	0101122F	122	07	Volume 3a - 115
Airborne Warning and Control System (AWACS)	0207417F	152	07	Volume 3a - 501
Aircraft Engine Component Improvement Program	0207268F	148	07	Volume 3a - 435
Anti-Tamper Technology Executive Agency	0605024F	118	07	Volume 3a - 69
B-1B Squadrons	0101126F	123	07	Volume 3a - 123
B-2 SQUADRONS	0101127F	124	07	Volume 3a - 131
B-52 SQUADRONS	0101113F	121	07	Volume 3a - 85
C2ISR Tactical Data Link	0207448F	157	07	Volume 3a - 549
CYBER COMMAND ACTIVITIES	0208059F	166	07	Volume 3a - 653
Combat Air Intelligence System Activities	0207431F	155	07	Volume 3a - 527

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Combat Rescue - Pararescue	0207227F	144	07	Volume 3a - 407
Combat Rescue and Recovery	0207224F	143	07	Volume 3a - 401
Command and Control (C2) Constellation	0207449F	158	07	Volume 3a - 559
Compass Call	0207253F	147	07	Volume 3a - 429
Control and Reporting Center (CRC)	0207412F	151	07	Volume 3a - 493
DCAPES	0207452F	159	07	Volume 3a - 569
Distributed Training and Exercises	0207697F	164	07	Volume 3a - 621
F-15 EPAWSS	0207171F	142	07	Volume 3a - 393
F-15E Squadrons	0207134F	136	07	Volume 3a - 305
F-16 Squadrons	0207133F	135	07	Volume 3a - 293
F-22A Squadrons	0207138F	138	07	Volume 3a - 331
F-35 Squadrons	0207142F	139	07	Volume 3a - 353
Global Positioning System III - Operational Control Segment	0603423F	112	07	Volume 3a - 1
HC/MC-130 Recap RDT&E	0605278F	119	07	Volume 3a - 77
Joint Air-to-Surface Standoff Missile (JASSM)	0207325F	149	07	Volume 3a - 451
Joint Counter RCIED Electronic Warfare	0205671F	133	07	Volume 3a - 281
Joint Direct Attack Munition	0604618F	116	07	Volume 3a - 53
Joint Surveillance/Target Attack Radar System (JSTARS)	0207581F	160	07	Volume 3a - 579
MQ-9 UAV	0205219F	132	07	Volume 3a - 263

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Manned Destructive Suppression	0207136F	137	07	Volume 3a - 323
Minuteman Squadrons	0101213F	125	07	Volume 3a - 149
Mission Planning Systems	0208006F	165	07	Volume 3a - 629
Night Fist - USSTRATCOM	0101314F	127	07	Volume 3a - 221
Precision Attack Systems Procurement	0207249F	146	07	Volume 3a - 423
Region/Sector Operation Control Center Modernization Program	0102326F	130	07	Volume 3a - 235
Seek Eagle	0207590F	161	07	Volume 3a - 587
Service Support to STRATCOM - Space Activities	0105921F	131	07	Volume 3a - 243
Specialized Undergraduate Flight Training	0604233F	113	07	Volume 3a - 19
Strat War Planning System - USSTRATCOM	0101313F	126	07	Volume 3a - 205
Tactical AIM Missiles	0207161F	140	07	Volume 3a - 373
Tactical Air Control Party-Mod	0207444F	156	07	Volume 3a - 541
Tactical Airborne Control Systems	0207418F	153	07	Volume 3a - 519
USAF Modeling and Simulation	0207601F	162	07	Volume 3a - 597
Wargaming and Simulation Centers	0207605F	163	07	Volume 3a - 611
Wide Area Surveillance	0604445F	114	07	Volume 3a - 47
Worldwide Joint Strategic Communications	0101316F	128	07	Volume 3a - 227

THIS PAGE INTENTIONALLY LEFT BLANK

Fiscal Year (FY) 2016 President's Budget Submission
RDT&E Descriptive Summaries
Budget Activities
February 2015

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 2016 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 2015 RDT&E program with the exception of classified program elements. The format sand 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 RDTE& funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.

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.

THIS PAGE INTENTIONALLY LEFT BLANK

In the Fiscal Year (FY) 2016 President's Budget Submission

RDT&E Exhibits in Budget Activity 7

are split into two books:

Vol-III Part 1

Vol-III Part 2

THIS PAGE INTENTIONALLY LEFT BLANK

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
0301324F	FOREST GREEN
0301386F	GDIP COLLECTION MANAGEMENT
0304111F	SPECIAL ACTIVITES
0304311F	SELECTED ACTIVITIES
0304348F	ADVANCED GEOSPATIAL INTELLIGENCE (AGI)
0305124F	SPECIAL APPLICATIONS PROGRAM
0305127F	FOREIGN COUNTERINTELLIGENCE ACTIVITES
0305159F	DEFENSE RECONNAISSANCE SUPPORT ACTIVITIES
0305172F	COMBINED ADVANCED APPLICATIONS
0605798F	ANALYSIS SUPPORT GROUP

THIS PAGE INTENTIONALLY LEFT BLANK

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

Remarks

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

None

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

None

BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume 1)

None

BUDGET ACTIVITY #4: ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPE (Volume 2)

0306250F	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	In FY 2016, funding in PECs 0208059F and 0306250F, Project 676002 Cyber Systems Modernization, BA 07, was transferred to PE 0306250F, Cyber Operations Technology Development, Project 646008, US Cyber Command Technology Development, BA 04 in order to align efforts.
0603742F	COMBAT IDENTIFICATION TECHNOLOGY	In FY 2016, Project 642597 Non-cooperative Identification Subsystems includes new start efforts for Radio ID (RID).
0603790F	NATO RESEARCH AND DEVELOPMENT	In FY 2016, PE 0603791F, International Space Cooperative Research & Development, Project 645035, International Space Coop R&D, efforts were transferred to PE 0603790, NATO Research and Development, Project 64NATO, NATO Coop R&D, in order to consolidate international cooperative research and development activities.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0603791F	INTERNATIONAL SPACE COOPERATIVE R&D	In FY 2016, PE 0603791F, International Space Cooperative Research & Development, Project 645035, International Space Coop R&D, efforts were transferred to PE 0603790, NATO Research and Development, Project 64NATO, NATO Coop R&D, in order to consolidate international cooperative research and development activities.
0603859F	POLLUTION PREVENTION - DEM/VAL	In FY 2016, Project Number 644852 Pollution Prevention was terminated.
0605230F	GROUND BASED STRATEGIC DETERRENT	In FY 2016, PE 0605230F, Project 641025, Ground Based Strategic Deterrent (GBSD), efforts were transferred from the Solid Rocket Motor Modernization (SRMM) and Guidance Modernization Program (GMP)efforts in PE 0101213F, Project 672987, MM Ops Equipment

BUDGET ACTIVITY #5: SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD) (Volume 2)

0207171F	F-15 EPAWSS	In FY 2016, PE 0207171F, F-15 EPAWSS, Project 676038 was transferred to PE 0207171F, F-15 EPAWSS, Project 657108 BA05 to align BA with stage of development.
0305176F	COMBAT SURVIVOR EVADER LOCATOR	In FY 2016, Project 654522 CSAR EMD, includes new start efforts for CSEL Crypto.
0401319F	PRESIDENTIAL AIRCRAFT REPLACEMENT (PAR)	In the FY 2016, PE 0401319 Presidential Aircraft Recap (PAR), Project 655250 Presidential Aircraft Recapitalization, was transferred to PE 0401319 Presidential Aircraft Recap (PAR), Project 655250 Presidential Aircraft Recapitalization, BA07 to align BA with stage of development.
0604233F	SPECIALIZED UNDERGRADUATE FLIGHT TRAINING	In FY 2016 PE 0604233F Specialized Undergraduate Flight Training, Project 654102 JPATS was transferred to BA07 to align activities for upgrades to fielded weapon system.
0604421F	COUNTERSPACE SYSTEMS	In FY 2016, Project 65A013 Bounty Hunter is a new start effort.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0604706F	LIFE SUPPORT SYSTEMS	In FY 2016 project 65412A Life Support Systems New Start projects for Personal Radio Communications (PRC) and Aircrew Safety Improvements.
0604853F	EELVP (SPACE) - EMD	In FY 2016, Project 650006, Next Generation Rocket Engine, includes new start efforts for the Evolved Expendable Launch Vehicle program.
0605278F	HC/MC-130 RECAP RDT&E	In FY 2016, PE 0605278F, HC/MC-130 Recap RDTE, Project 655249 HC-130Recap, efforts were transferred to PE 0605278F, HC/MC-130 Recap RDTE, Project 655249, HC/MC-130 Recap, BA 07 as the program achieved full rate production.
0701212F	AUTOMATED TEST SYSTEMS	In FY 2016, Project 6506TE, Test and Evaluation Support Budget Authority, includes a new start effort for Automated Bomber Test Systems.

BUDGET ACTIVITY #6: RDT&E MANAGEMENT SUPPORT (Volume 2)

0606017F	REQUIREMENTS ANALYSIS AND MATURATION	In FY 2016, Project 666158, Integrated Simulation and Analysis includes new start efforts to improve organic Air Force analysis and assessment capabilities.

BUDGET ACTIVITY #7: OPERATIONAL SYSTEMS DEVELOPMENT (Volume 3)

0101113F	B-52 SQUADRONS	In FY 2016, Project 675055, GPS-IU, includes new start effort for Global Positioning System (GPS)-Interface Unit (IU) Replacement. In FY 2016, Project 675039, B-52 System Improvements, includes new start effort(s) for potential engineering studies & analysis and test & evaluation.
0101127F	B-2 SQUADRONS	In FY 2016 Project 675345, B-2 Modernization, includes new start effort for B-2 strategic communication.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0101213F	MINUTEMAN SQUADRONS	In FY 2016, Project 672984, MM III Baseline Support, includes new start efforts for LGM-30G Cadmium Replacement Program (CaDRP) and LGM-30G Squadron Data Simulator (SDS). In FY 2016, Project 672985, MM Support Equip, the LGM-30G Payload Transporter Replacement (PTR) program was re-established and transferred from PE 0604851F, ICBM - EMD, Project 655037, Support Equipment, in order to consolidate ICBM efforts. In FY 2016, Project 672987, MM Ops Equipment, the two ongoing efforts will be transferred into PE 0605230F, Ground Based Strategic Deterrent (GBSD), Project 641025. The efforts being transferred are Guidance Modernization Program (GMP) and Solid Rocket Motor Modernization (SRMM). In FY 2016, Project 672985, MM Support Equip, includes a new start effort for LGM-30G Performance Assessment Data Systems Communications Equipment Interface Unit (PADS CEIU).
0101313F	STRAT WAR PLANNING SYSTEM - USSTRATCOM	In FY 2016, PE 0101313F, Strategic War Planning System, Project 675368, Global Sensor Integrated on Network, efforts were transferred to PE 0301017F, Global Sensor Integrated on Network, Project 675368, Global Sensor Integrated on Network, in order to provide improved transparency.
0101316F	WORLDWIDE JOINT STRATEGIC COMMUNICATIONS	In FY 2016, Project 671820, Strategic Automated Command and Control System (SACCS), includes a new start effort for SACCS Replacement.
0105921F	SVC SPT TO STRATCOM - SPACE ACTIVITIES	In FY 2016 Project 670373 DCIP and Project 67A011 Space Analysis and Application Development are new starts
0207171F	F-15 EPAWSS	In FY 2016, PE 0207171F, F-15 EPAWSS, Project 676038 was transferred to PE 0207171F, F-15 EPAWSS, Project 657108 BA05 to align BA with stage of development.
0207224F	COMBAT RESCUE AND RECOVERY	In FY 2016, Project 676016, Avionics Development and Integration will complete.
0207412F	CONTROL AND REPORTING CENTER (CRC)	In FY 2016, Project 67485L, Theater Air Control Sys Imp (TACSI), includes new start effort for JTIDS LINK 16 Terminal replacement.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0207601F	USAF MODELING AND SIMULATION	In FY 2016, Project Number 674567, M&S Foundations includes new start efforts for simulations for systems engineering and test activities.
0208059F	CYBER COMMAND ACTIVITIES	In FY 2016, PE 0208059F, Cyber Command Activities, Project 676002, Cyber Systems Modernization, efforts were transferred to PE 0306250F, Cyber Operations Technology Development, Project 646008, US Cyber Command Technology Development, to consolidate all USCYBERCOM programs
0208088F	AF DEFENSIVE CYBERSPACE OPERATIONS	In FY 2016, this program element includes new start efforts for Cyberspace Vulnerability Assessment, Cyber Defense Analysis, and AFCERT activities.
0301017F	GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN)	In FY 2016, PE 0101313F, (Strategic War Planning System), Project 675368, (Global Sensor Integrated on Network) efforts were transferred to PE 0301017F, (Global Sensor Integrated on Network), Project 675368, (Global Sensor Integrated on Network), in order to provide improved transparency.
0302015F	E-4B NAT AIRBORNE OPS CTR (NAOC)	In FY 2016, Project E-4B Recapitalization includes new start efforts for E-4B Aircraft Modernization.
0303001F	FAMILY OF ADVANCED BLOS TERMINALS (FAB-T)	In FY 2016, PE 0303001F Family of Advanced BLoS Terminals (FAB-T), Project 672490, Family of Advanced BLoS Terminals (FAB-T) efforts were transferred to PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced BLoS Terminals (FAB-T) in order to provide improved visibility.
0303131F	MIN ESSENT EMGNCY COMM NETWORK (MEECN)	In FY 2016, Project 676029, Global ASNT, includes a new start effort for Global ASNT Increment 2.
0303141F	GLOBAL COMBAT SUPPORT SYSTEM	In FY 2016, components of project number 675046, Systems Engineering & Integration, efforts were transferred from PE 0303141F, Global Combat Support Systems (GCSS) to PE 0303142F, Global Force Management - Data Initiative (GFM-DI) in order to provide better visibility.
0303142F	GLOBAL FORCE MGMT - DATA INITIATIVE	In FY 2016, components of project number 675046, Systems Engineering & Integration, efforts were transferred from PE 0303141F, Global Combat Support Systems (GCSS) to PE 0303142F, Global Force Management - Data Initiative (GFM-DI) in order to provide better visibility.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0303601F	MILSATCOM TERMINALS	In FY 2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) was transferred to PE 0303001F, FAB-T, Project 672490 FAB-T for improved visibility of ACAT I programs.
0304260F	AIRBORNE SIGINT ENTERPRISE	In FY 2016, PE 0304260F, Airborne SIGINT Enterprise, Project 675181, High Altitude SIGINT Development - High Altitude efforts are transferred to PE 0304260F, Airborne SIGINT Enterprise, Project 675183, Common Development (Airborne SIGINT Development - Common Development) to better align efforts.
0305206F	AIRBORNE RECONNAISSANCE SYSTEMS	In FY 2016, PE 0305220F, RQ-4, Project 675148, Common Airborne Sense and Avoid (C-ABSAA), efforts transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 675148, Common Airborne Sense and Avoid (C-ABSAA), in order to provide greater visibility into this capability and prepare for expanded applications. In FY 2016, PE 0305208F, Distributed Common Ground Station (DCGS), Project 676025, Data Compression, efforts transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 676025, Data Compression, in order to provide greater visibility into this capability.
0305208F	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	In FY 2016, PE 0305208F, Distributed Common Ground Station (DCGS), Project 676025, Data Compression, efforts transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 676025, Data Compression, in order to provide greater visibility into this capability.
0305220F	RQ-4 UAV	In FY 2016, PE 0305220F, RQ-4, Project 675148, Common-Airborne Sense & Avoid (C-ABSAA), transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 675148. This transfer will provide greater visibility into this capability and prepares for expanded applications by making the capability program and platform agnostic.
0305614F	JSPOC MISSION SYSTEM	In FY 2016, Project 65A035, (Increment 3), includes new start efforts for JMS Increment 3.
0305940F	SPACE SITUATION AWARENESS OPERATIONS	In FY 2016, Project 67A017, Sensor Service Life Extension Program, includes a new start effort for Space Situational Awareness (SSA) Ops Demo.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0306250F	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	In FY 2016, PE 0208059F, Cyber Command Activities, Project 676002, Cyber Systems Modernization, efforts were transferred to PE 0306250F, Cyber Operations Technology Development, Project 646008, US Cyber Command Technology Development, to consolidate all USCYBERCOM programs.
0401115F	C-130 AIRLIFT SQUADRON	C-130 CNS/ATM program has been updated and renamed C-130H VAAP Increment 1.
0401119F	C-5 AIRLIFT SQUADRONS (IF)	In FY 2016, Project 675359, C-5 Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM), is a new start effort.
0401318F	CV-22	In FY 2016, Project 676033 includes new start effort for Aircraft Electrical Power upgrade.
0401319F	PRESIDENTIAL AIRCRAFT REPLACEMENT (PAR)	In the FY 2016, PE 0401319 Presidential Aircraft Replacement, Project 655250 Presidential Aircraft Recap (PAR), was transferred to PE 0401319 Presidential Aircraft Replacement, Project 655250 Presidential Aircraft Recap (PAR), BA07 to realign budget activity for execution.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (BY BUDGET ACTIVITY)

0604233F	SPECIALIZED UNDERGRADUATE FLIGHT TRAINING	In FY 2016 PE 0604233F Specialized Undergraduate Flight Training, Project 654102 JPATS, was transferred from BA05 as the program achieved full-rate production. In FY 2016 Project 674101 Undergraduate Remotely Piloted Aircraft Training includes a new start effort for Remotely Piloted Aircraft (RPA) Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS). In FY 2016 Project 676034 Joint Primary Aircraft Training System (JPATS) was completed. In FY 2016 Project 676035 T-6 Operational System Development includes new start efforts for studies & development efforts to support future ACAT III Engineering Change Proposals(ECPs) to the T-6 Aircraft. This includes development for the FAA mandated ACAT III program for ADS-B Out and associated upgrades. In FY 2016 Project 676037 T-38 Operational Systems Development includes a new start effort for Block upgrades to incorporate software and/or hardware improvements to comply with new requirements 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).
0605278F	HC/MC-130 RECAP RDT&E	In FY 2016, PE 0605278F, HC/MC-130 Recap RDTE, Project 655249 HC-130Recap, efforts were transferred from PE 0605278F, HC/MC-130 Recap RDTE, Project 655249, HC/MC-130 Recap, BA 05 as the program achieved full rate production.
0708611F	SUPPORT SYSTEMS DEVELOPMENT	In FY 2016, PE 0708611 Support Systems Development, Project 673318, Product Data Systems Modernization efforts transferred to PE 0708610F, Logistics Information Technology (Log IT), Project 675207 to align with the Enhanced Technical Information Management System (ETIMS) modification efforts funded within the Log IT PE. In FY 2016, PE 0708611 Support Systems Development, Project Number 675042, Logistics Application Logistics Integration (LALI), the F-35 User Identification Data Exchange System (UIDES) effort was transferred to PE 0604800F, F-35 Lightning II Joint Strike Fighter, in order to align the activity under the F-35 RDT&E Program Element.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,962.237	361.381	299.060	350.232	-	350.232	222.288	136.475	139.029	87.982	380.153	3,938.837
67A021: *OCX*	1,918.400	302.865	236.064	288.992	-	288.992	159.765	72.751	74.103	37.122	376.238	3,466.300
67A025: *GPS Enterprise Integrator*	43.837	58.516	62.996	61.240	-	61.240	62.523	63.724	64.926	50.860	3.915	472.537
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 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.

GPS benefits both military and civil users in air, space, sea and land operations. 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*

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, 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)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	373.062	299.760	282.138	-	282.138
Current President's Budget	361.381	299.060	350.232	-	350.232
Total Adjustments	-11.681	-0.700	68.094	-	68.094
• Congressional General Reductions	-	-0.700			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-11.681	-			
• Other Adjustments	-	-	68.094	-	68.094

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*

Change Summary Explanation

FY16: +$68.094M to fund OCX development to current cost estimate.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*	Project (Number/Name) 67A021 / *OCX*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
67A021: *OCX*	1,918.400	302.865	236.064	288.992	-	288.992	159.765	72.751	74.103	37.122	376.238	3,466.300
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 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 (Iterations 1.4 and 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 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 modernized signals (L1M and L2M (M-Code)).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: OCX Development	297.165	215.964	265.692
Description: Development of the GPS next generation operational control system to launch and operate GPS II and GPS III constellation and provide a robust Information Assurance system.			
FY 2014 Accomplishments: Completed testing of the information assurance controls required for OCX Block 0 and OCX Block 1 (Interation 1.4a)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Continued to develop GPS III launch and checkout capability (Block 0). Continued systems engineering and development of command and control for GPS II satellites, legacy signals, and modernized signals. Revalidated the systems engineering baseline for Blocks 0 and 1. ***FY 2015 Plans:*** Conduct qualification testing for OCX Block 0. Complete Iteration 1.6, 1.7, and 2.1 systems engineering (remainder of OCX Block 1) for the command and control for GPS II satellites, legacy signals, and modernized signals. Conduct Iteration 1.6 CDR. Continue systems engineering and development of remaining military modernized signals (M-code) for OCX Block 2 (Iteration 2.2). ***FY 2016 Plans:*** Conduct site acceptance testing, receive approval to operate and connect, and certify & accept OCX Block 0 for launch and checkout operations of GPS III satellites. Conduct Iteration 1.7 and 2.1 CDRs, and finalize qualification testing for OCX Monitor Station Receiver Equipment (OMSRE). Continue development of the remaining modernized civil and military signals.			
Title: Technical Support ***Description:*** Development of the Standardized Space Trainer (SST), Enterprise Mission Planning Systems to provide GPS III operator training. Automation study to examine the feasibility of implementing control segment automation to increase command and control efficiencies. Facilities upgrades for Control Stations and associated equipment and servers. ***FY 2014 Accomplishments:*** Continued work on the facility upgrades and hardware installation to prepare for OCX testing and transition to include the Master Control Station (MCS) and Alternate Master Control Station (AMCS). ***FY 2015 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. ***FY 2016 Plans:*** Continue efforts on operation and maintenance training, technical orders development, and Enterprise Mission Planning development. Plan and prepare to conduct Block 1 testing leading to Block 1 DD250.	5.700	20.100	23.300
Accomplishments/Planned Programs Subtotals	302.865	236.064	288.992

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA07: PE 0305265F: *GPS III Space Segment*	195.950	211.907	180.902	-	180.902	154.630	76.731	78.176	79.575	170.134	1,148.005
• MPAF: BA05: Line Item # GPSIII: *GPS III TOA*	450.238	315.398	199.218	-	199.218	257.697	767.498	906.239	902.397	3,872.270	7,670.955
• DOT: *DOT (FAA) Civil Funding*	4.300	23.000	10.100	-	10.100	-	-	-	-	-	37.400

Remarks

DOT (FAA) funding in FY 2015 - 2018 is TBD. $33.1M is required.

D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition strategy approach follows the "Back to Basics" space program acquisition philosophy which focuses on mission success and on-time delivery. Additionally, 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX Phase B OCX Block 1 & 2 Development	C/CPAF	Raytheon : Aurora, CO	1,349.172	267.665	Dec 2013	181.564	Dec 2014	231.202	Dec 2015	-		231.202	565.179	2,594.782	-
GPS OCX Enterprise Studies	C/CPAF	Leidos : Huntington Beach, CA	35.549	3.800	Dec 2013	5.700	Dec 2014	4.400	Dec 2015	-		4.400	7.800	57.249	-
GPS OCX Modernization/ SE & Technical Support	Various	Various : Various,	52.228	0.800	Jan 2014	5.800	Jan 2015	0.800	Jan 2016	-		0.800	3.200	62.828	-
AMCS Facility Dev	Various	Various : Various,	0.000	0.300	Mar 2014	2.900	Mar 2015	5.300	Mar 2016	-		5.300	13.800	22.300	-
GPS OCX Standard Space Trainer (SST)	C/CPAF	Sonalyst, Inc : Waterford, CT	3.500	3.000	Jan 2014	5.000	Jan 2015	5.000	Jan 2016	-		5.000	-	16.500	-
GPS OCX Enterprise Mission Planning	C/CPIF	Booz Allen Hamilton Eng Services : El Segundo, CA	7.000	-		3.000	Jan 2015	8.000	Jan 2016	-		8.000	25.200	43.200	-
GPS OCX Completed Activities	Various	Various : ,	289.000	-		-		-		-		-	-	289.000	-
		Subtotal	1,736.449	275.565		203.964		254.702		-		254.702	615.179	3,085.859	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T&E	C/CPAF	Various : Various,	0.000	1.600	Mar 2014	3.400	Mar 2015	4.200	Mar 2016	-		4.200	20.400	29.600	-
		Subtotal	0.000	1.600		3.400		4.200		-		4.200	20.400	29.600	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*	Project (Number/Name) 67A021 / *OCX*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX FFRDC 1	RO	Aerospace : El Segundo, CA	91.575	10.400	Jan 2014	12.700	Jan 2015	13.500	Jan 2016	-		13.500	53.100	181.275	-
GPS OCX FFRDC 2	C/CPFF	MITRE : Bedford, MA	5.390	3.300	Jan 2014	3.200	Jan 2015	3.400	Jan 2016	-		3.400	11.289	26.579	-
GPS OCX FFRDC 3	C/CPFF	SEI : Pittsburgh, PA	1.030	-		-		-		-		-	-	1.030	-
GPS OCX Program Management Administration (PMA)	Various	Various : ,	83.956	12.000	Feb 2014	12.800	Feb 2015	13.190	Feb 2016	-		13.190	20.011	141.957	-
		Subtotal	181.951	25.700		28.700		30.090		-		30.090	84.400	350.841	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,918.400	302.865		236.064		288.992		-		288.992	719.979	3,466.300	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

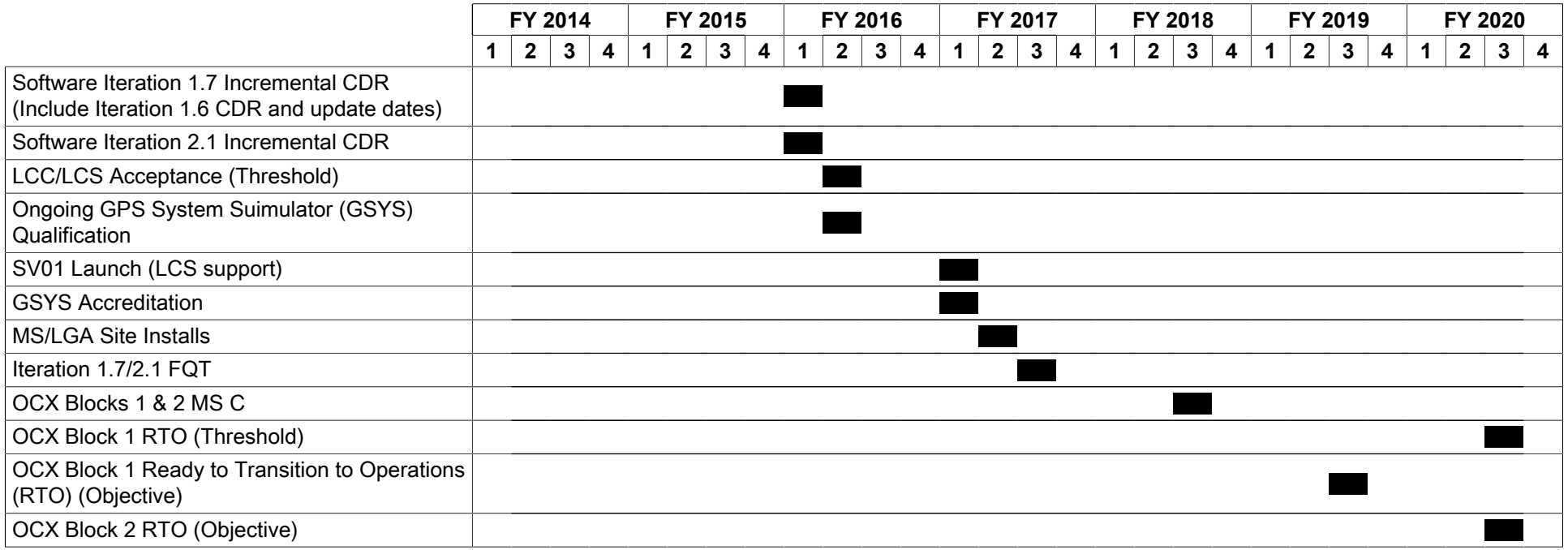

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Software Iteration 1.7 Incremental CDR (Include Iteration 1.6 CDR and update dates)	1	2016	1	2016
Software Iteration 2.1 Incremental CDR	1	2016	1	2016
LCC/LCS Acceptance (Threshold)	2	2016	2	2016
Ongoing GPS System Suimulator (GSYS) Qualification	2	2016	2	2016
SV01 Launch (LCS support)	1	2017	1	2017
GSYS Accreditation	1	2017	1	2017
MS/LGA Site Installs	2	2017	2	2017
Iteration 1.7/2.1 FQT	3	2017	3	2017
OCX Blocks 1 & 2 MS C	3	2018	3	2018
OCX Block 1 RTO (Threshold)	3	2020	3	2020
OCX Block 1 Ready to Transition to Operations (RTO) (Objective)	3	2019	3	2019
OCX Block 2 RTO (Objective)	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*	Project (Number/Name) 67A025 / *GPS Enterprise Integrator*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
67A025: *GPS Enterprise Integrator*	43.837	58.516	62.996	61.240	-	61.240	62.523	63.724	64.926	50.860	3.915	472.537
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 4B 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, inter-operable 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.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

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 2014	FY 2015	FY 2016
Title: GPS Enterprise Integrator	58.516	62.996	61.240
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. ***FY 2014 Accomplishments:*** Conducted fourth integration exercise and begin planning for a series of mini integration exercise events, during which LCS software iteration 1.5 will be in use. Conducted system integration demos to simulate key aspects of launch and on orbit operations. Oversaw multiple Mission Readiness testing activities. ***FY 2015 Plans:*** Conduct a series of mini integration exercise events, which will conclude the 'exercise' portion of readiness for launch. Perform SV01 verification tests and begin LCC/LCS Enterprise Assessments. Conduct multiple systems integration risk reduction demos. Initiate Integrated System Test (IST) 3-3 testing (Phases 0-2) for MGUE verification. Develop GPS Enterprise End-to-End Validation (GENEVA) model. ***FY 2016 Plans:*** Continue IST 3-3 Phase 3 MGUE verification tests. 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 GENEVA model.			
Accomplishments/Planned Programs Subtotals	58.516	62.996	61.240

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA04: PE 0305164F: *NAVSTAR Global Positioning System (User Equipment) (Space)*	123.081	156.221	142.288	-	142.288	219.043	221.884	189.800	171.827	55.700	1,279.844
• RDTE: BA07: PE 0305265F: *GPS III Space Segment*	193.367	210.473	179.612	-	179.612	153.322	75.398	76.819	78.194	50.884	1,018.069

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA07: PE 0305913F: *NUDET Detection System*	42.506	20.405	14.447	-	14.447	18.785	24.253	13.898	14.147	Continuing	Continuing
• MPAF: BA05: Line Item # MGPS00: *Global Positioning System (Space)*	55.895	49.887	66.135	-	66.135	13.276	-	-	-	-	185.193
• MPAF: BA05: Line Item # GPSIII: *GPS III TOA*	450.238	315.398	199.218	-	199.218	257.697	767.498	906.239	902.397	3,872.270	7,670.955

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. It was subsequently extended to support the timing and competitive award of a new SE&I contract which is currently in a full and open competition source selection. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*	Project (Number/Name) 67A025 / *GPS Enterprise Integrator*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS Enterprise Integrator	C/CPAF	Leidos : El Segundo, CA	28.050	37.325	Jan 2014	39.158	Jan 2015	36.935	Jan 2016	-		36.935	140.045	281.513	-
GPS Enterprise Integrator 2	MIPR	Aerospace : El Segundo, CA	6.509	9.626	Oct 2013	11.020	Oct 2014	11.012	Oct 2015	-		11.012	45.953	84.120	-
GPS Enterprise Integrator 3	WR	MITRE : Bedford, MA	8.726	8.615	Oct 2013	8.858	Oct 2014	9.213	Oct 2015	-		9.213	40.685	76.097	-
		Subtotal	43.285	55.566		59.036		57.160		-		57.160	226.683	441.730	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T&E	C/Various	Various : Various,	0.000	-		-		0.100	Nov 2015	-		0.100	0.450	0.550	-
		Subtotal	0.000	-		-		0.100		-		0.100	0.450	0.550	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Admistration	Various	Various : El Segundo, CA	0.552	2.950	Oct 2013	3.960	Oct 2014	3.980	Oct 2015	-		3.980	14.900	26.342	-
		Subtotal	0.552	2.950		3.960		3.980		-		3.980	14.900	26.342	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0603423F / *Global Positioning System III - Operational Control Segment*	Project (Number/Name) 67A025 / *GPS Enterprise Integrator*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.837	58.516		62.996		61.240		-		61.240	242.033	468.622	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

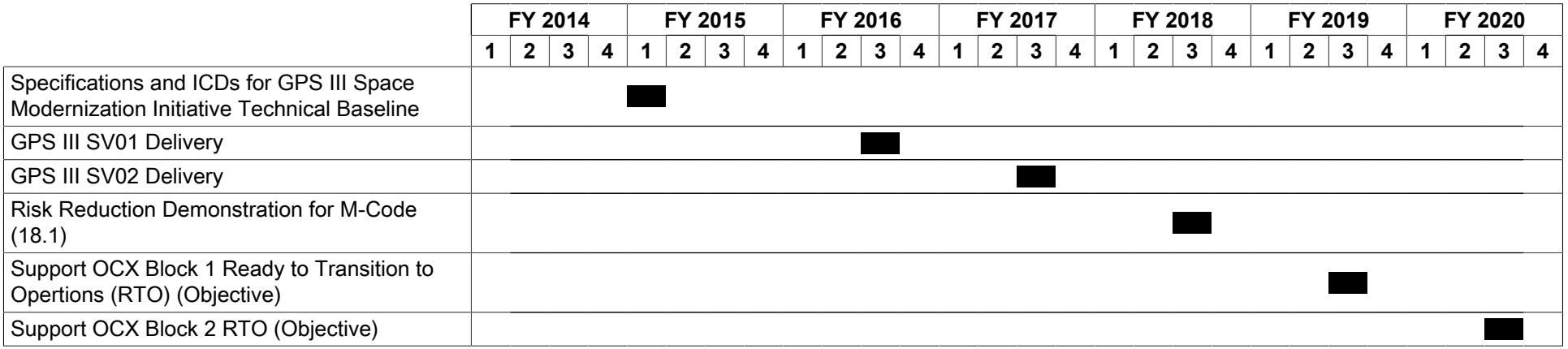

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0603423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Specifications and ICDs for GPS III Space Modernization Initiative Technical Baseline	1	2015	1	2015
GPS III SV01 Delivery	3	2016	3	2016
GPS III SV02 Delivery	3	2017	3	2017
Risk Reduction Demonstration for M-Code (18.1)	3	2018	3	2018
Support OCX Block 1 Ready to Transition to Opertions (RTO) (Objective)	3	2019	3	2019
Support OCX Block 2 RTO (Objective)	3	2020	3	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	10.465	-	10.465	4.972	4.341	4.430	4.519	Continuing	Continuing
674101: *Undergraduate Remotely Piloted Aircraft Training*	-	-	-	0.720	-	0.720	0.741	0.763	0.785	0.809	Continuing	Continuing
676034: *Joint Primary Aircraft Training System (JPATS)*	-	-	-	2.583	-	2.583	-	-	-	-	-	2.583
676035: *T-6 Operational System Development*	-	-	-	4.904	-	4.904	3.107	2.433	2.479	2.523	Continuing	Continuing
676037: *T-38 Operational System Development*	-	-	-	2.258	-	2.258	1.124	1.145	1.166	1.187	Continuing	Continuing
MDAP/MAIS Code: **Other MDAP/MAIS Code(s):** N42												

Note

In FY2016 PE 0604233F Specialized Undergraduate Flight Training, Project 654102 JPATS was transferred to Budget Activity 7 as it no longer met the criteria for Budget Activity 5.

In FY2016 Project 674101 Undergraduate Remotely Piloted Aircraft Training includes a new start effort for Remotely Piloted Aircraft (RPA) Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS).

In FY2016 Project 676034 Joint Primary Aircraft Training System (JPATS) was completed.

In FY2016 Project 676035 T-6 Operational System Development includes new start efforts for studies & development efforts to support future ACAT III Engineering Change Proposals(ECPs) to the T-6 Aircraft. This includes development for the FAA mandated ACAT III program for ADS-B Out and associated upgrades.

In FY2016 Project 676037 T-38 Operational Systems Development includes a new start effort for Block upgrades to incorporate software and/or hardware improvements to comply with new requirements 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).

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight 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. Also included is development of the aircraft Mission Planning System (MPS) support to obtain Joint Mission Planning System (JMPS) currency and certification for T-6 flight operations. The JMPS requirements are levied from outside the T-6 JPATS program office and may or may not correlate with block upgrade requirements.
T-38 Operational System Development continues follow on development activities for the T-38 including 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. Block upgrades incorporate software and/or hardware improvements to comply with new requirements 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).

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	10.465	-	10.465
Total Adjustments	-	-	10.465	-	10.465
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	10.465	-	10.465

Change Summary Explanation

In FY16, PE 0604233F transferred from BA05 to BA07 as the efforts are shifting towards sustainment.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 674101 / *Undergraduate Remotely Piloted Aircraft Training*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
674101: *Undergraduate Remotely Piloted Aircraft Training*	-	-	-	0.720	-	0.720	0.741	0.763	0.785	0.809	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016 Remotely Piloted Aircraft (RPA) Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS) includes new Start efforts for PRIME.

A. Mission Description and Budget Item Justification

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 keep training relevant.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Predator Reaper Integrated Mission Environment (PRIME) support	-	-	0.720	-	0.720
Description: Add Phase 7 operational capabilities.					
FY 2014 Accomplishments: N/A					
FY 2015 Plans: N/A					
FY 2016 Base Plans: Extend and enhance interoperability between PRIME and Modern Air Combat Environment (MACE) software incorporated in Phase 6 for instructor operations and entity generation. Add additional instrumentation					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 674101 / *Undergraduate Remotely Piloted Aircraft Training*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
functionality. Add record and playback functionality. Add multiple emergency missions. Add additional entity functionality. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	-	0.720	-	0.720

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

PRIME is proprietary software designed and built by Intific Inc. A Sole Source/Brand Name Acquisition of Intific services will be pursued. The PRIME upgrade effort will be awarded as a Firm Fixed Price Contractor Logistics Support (CLS) 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 674101 / *Undergraduate Remotely Piloted Aircraft Training*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Phase 7 software	TBD	Not specified. : ,	-	-		-		0.720	Feb 2016	-		0.720	Continuing	Continuing	-
		Subtotal	-	-		-		0.720		-		0.720	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.720		-		0.720	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 674101 / *Undergraduate Remotely Piloted Aircraft Training*

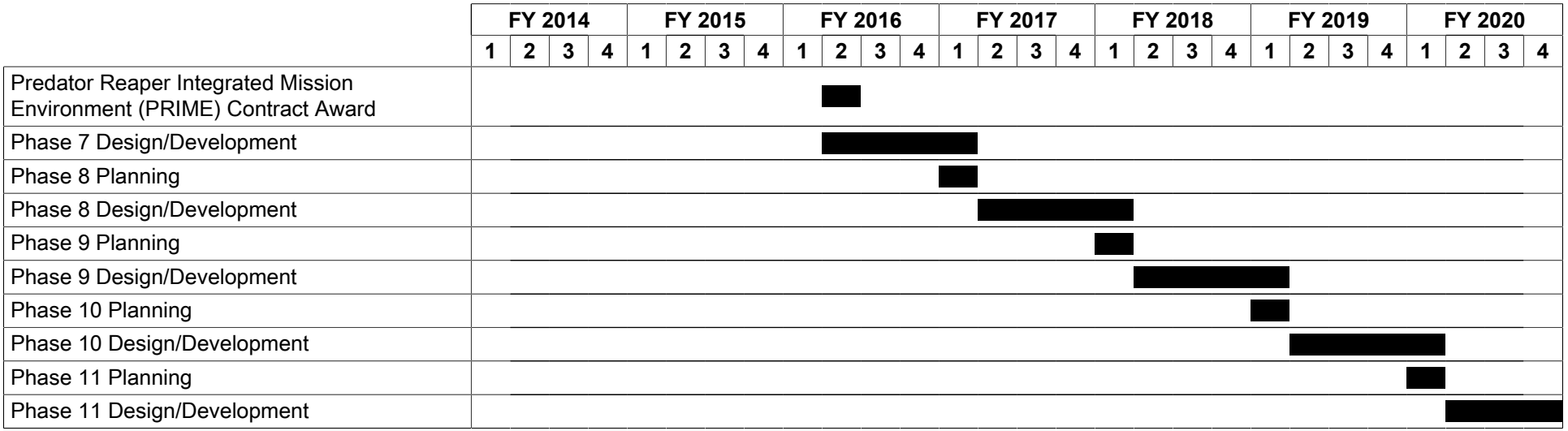

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 674101 / *Undergraduate Remotely Piloted Aircraft Training*

Schedule Details

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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676034: *Joint Primary Aircraft Training System (JPATS)*	-	-	-	2.583	-	2.583	-	-	-	-	-	2.583
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: N42

Note

In FY2016 PE 0604233F Specialized Undergraduate Flight Training, Project 654102 JPATS was transferred to Budget Activity 7 as it no longer met the criteria for Budget Activity 5.

In FY2016 Project 676034 Joint Primary Aircraft Training System (JPATS) was completed.

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 will be purchasing four T-6 Army Variant aircraft to replace the T-34 aircraft for the Army Test and Evaluation Command. The 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Joint Primary Aircraft Training System (JPATS) Studies ***Description:*** JPATS airframe studies & development efforts. ***FY 2016 Base Plans:*** Completion of JPATS studies and development activities including of the T-6 Power Management Unit (PMU) software upgrade, parachute surveillance study, Ejection Seat safe/arm handle development.	-	-	2.076	-	2.076
Title: Engine Upgrade Studies ***Description:*** Studies to investigate potential upgrade options to increase service life and decrease life cycle costs of the T106-PW-100 engine ***FY 2016 Base Plans:***	-	-	0.278	-	0.278

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Compilation of six individual studies to investigate engine 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.					
Title: High Cycle Engine Fatigue Research ***Description:*** Analysis of Hight Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine. ***FY 2016 Base Plans:*** Completion of research and analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine.	-	-	0.229	-	0.229
Accomplishments/Planned Programs Subtotals	-	-	2.583	-	2.583

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF BA06 Line Item #000999: *Initial Spares/Repair Parts*	0.538	0.948	0.910	-	0.910	2.556	2.605	2.653	2.716	-	-
• APAF BA05 Line Item#JPAT00: *T-6*	5.392	14.486	17.968	-	17.968	26.300	25.844	26.246	26.689	Continuing	Continuing
• APN BA03 Line Item#033900: *JPATS*	249.080	-	8.914	-	8.914	5.913	-	-	-	-	-
• APN BA05 Line Item#057100: *JPATS Series*	1.576	1.085	7.594	-	7.594	14.439	22.200	27.613	24.652	Continuing	Continuing
• APN BA06 Line Item#060500: *Spares & Repair Parts*	3.046	0.011	0.264	-	0.264	0.099	0.102	-	-	Continuing	Continuing
• APA BA01 Line Item#A11300: *Utility F/W Aircraft*	12.617	-	-	-	-	-	-	-	-	-	29.919

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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

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.

FY16 is the final year of development funded efforts under the JPATS ACAT IC 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JPATS Studies	Various	Various : Various,	-	-		-		2.076	Feb 2016	-		2.076	-	2.076	TBD
JPATS Engine Upgrade Study	C/CPFF	BDC : Various,	-	-		-		0.278	Feb 2016	-		0.278	-	0.278	TBD
JPATS High Cycle Fatigue Research	C/FFP	Universal Technology Corp : Dayton, OH	-	-		-		0.229	Feb 2016	-		0.229	-	0.229	TBD
		Subtotal	-	-		-		2.583		-		2.583	-	2.583	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	-	-		-		2.583		-		2.583	-	2.583	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

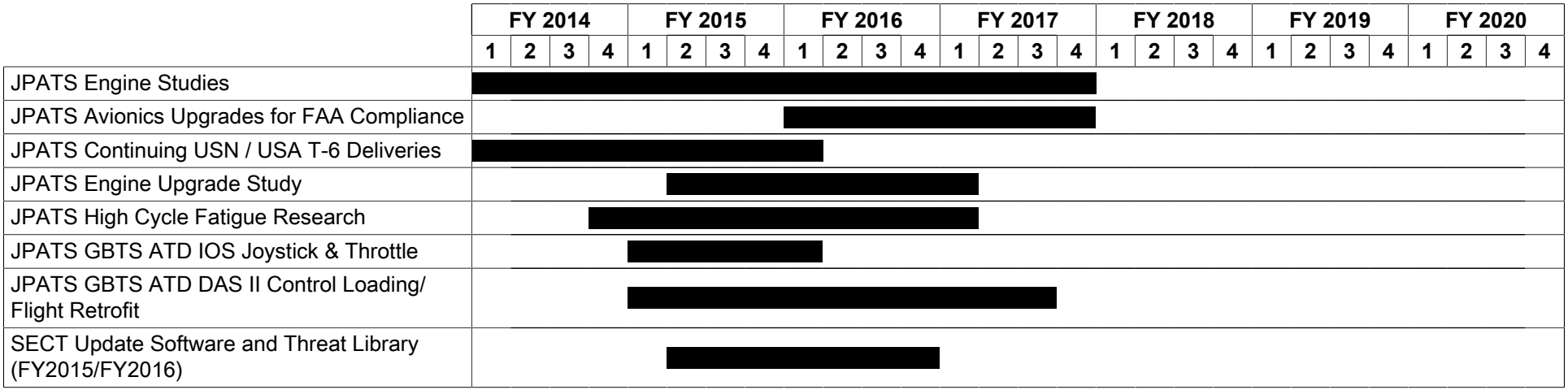

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676034 / *Joint Primary Aircraft Training System (JPATS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JPATS Engine Studies	1	2014	4	2017
JPATS Avionics Upgrades for FAA Compliance	1	2016	4	2017
JPATS Continuing USN / USA T-6 Deliveries	1	2014	1	2016
JPATS Engine Upgrade Study	2	2015	1	2017
JPATS High Cycle Fatigue Research	4	2014	1	2017
JPATS GBTS ATD IOS Joystick & Throttle	1	2015	1	2016
JPATS GBTS ATD DAS II Control Loading/Flight Retrofit	1	2015	3	2017
SECT Update Software and Threat Library (FY2015/FY2016)	2	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676035 / *T-6 Operational System Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676035: *T-6 Operational System Development*	-	-	-	4.904	-	4.904	3.107	2.433	2.479	2.523	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: N42

Note

In FY2016 Project 676035 T-6 Operational System Development includes new start efforts for studies & development efforts to support future ACAT III Engineering Change Proposals(ECPs) to the T-6 Aircraft. This includes development for the FAA mandated ACAT III program for ADS-B Out and associated upgrades.

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 ADS-B Out and associated upgrades. Also included is development of the aircraft Mission Planning System (MPS) support to obtain Joint Mission Planning System (JMPS) currency and certification for T-6 flight operations. The JMPS requirements are levied from outside the T-6 JPATS program office and may or may not correlate with block upgrade requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: T-6 Aircraft Studies ***Description:*** - T-6 Aircraft studies & development efforts ***FY 2016 Base Plans:*** T-6 Aircraft studies and development activities include development of the T-6 Power Management Unit (PMU) software upgrade, parachute surveillance study, safe/arm handle development.	-	-	0.978	-	0.978
Title: Avionics Upgrades for FAA (Federal Aviation Administration) Compliance ***Description:*** Funding supports component selection, integration, test and certification of Automated Dependent Surveillance Broadcast (ADS-B Out)capability for use in T-6A aircraft and Ground Based Training System (GBTS). ***FY 2016 Base Plans:***	-	-	3.926	-	3.926

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676035 / *T-6 Operational System Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Funding will be used to develop and test upgrades and enhancements to hardware and software components to include Avionics Upgrades for Federal Aviation Administration (FAA) Compliance. Funding supports development, integration, test and certification of the Automated 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					
Accomplishments/Planned Programs Subtotals	-	-	4.904	-	4.904

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APN BA05 Line Item#057100: *JPATS Series*	1.576	1.085	7.594	-	7.594	14.439	22.200	27.613	24.653	Continuing	Continuing
• APN BA06 Line Item#060500: *Spares & Repair Parts*	3.046	0.011	0.264	-	0.264	0.099	0.102	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Air Force is lead service for the JPATS program and currently manages upgrades to the entire family of systems for both the Air Force and Navy. The JPATS Operations 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676035 / *T-6 Operational System Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Avionics Upgrades for FAA Compliance	C/FFP	TBD : TBD,	-	-		-		3.926	Mar 2016	-		3.926	Continuing	Continuing	TBD
T-6 High Cycle Engine Fatigue	C/CPFF	Universal Technology Corp : Dayton, OH	-	-		-		0.150	Mar 2016	-		0.150	Continuing	Continuing	TBD
T-6 Parachute Surveillance	C/FFP	Martin Baker Aircraft Co LTD : Various,	-	-		-		0.450	Mar 2016	-		0.450	Continuing	Continuing	TBD
T-6 Engine CIP	PO	Arnold Engineering Development Center : Arnold AFB, TN	-	-		-		0.378	Feb 2016	-		0.378	Continuing	Continuing	TBD
		Subtotal	-	-		-		4.904		-		4.904	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676035 / *T-6 Operational System Development*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		4.904		-		4.904	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676035 / *T-6 Operational System Development*

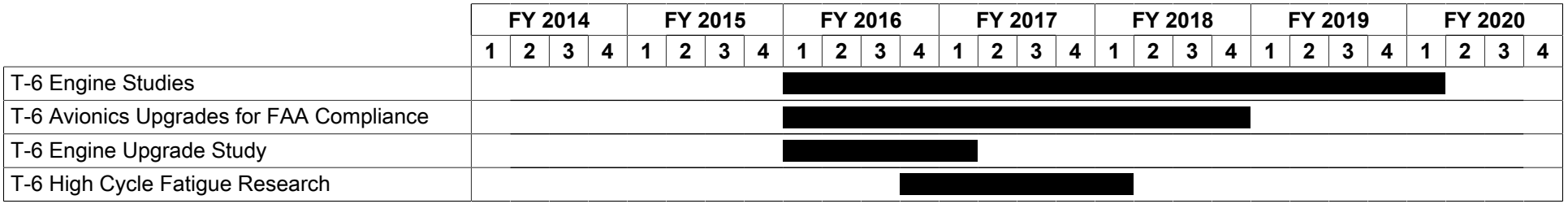

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676035 / *T-6 Operational System Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
T-6 Engine Studies	1	2016	1	2020
T-6 Avionics Upgrades for FAA Compliance	1	2016	4	2018
T-6 Engine Upgrade Study	1	2016	1	2017
T-6 High Cycle Fatigue Research	4	2016	1	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676037 / *T-38 Operational System Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676037: *T-38 Operational System Development*	-	-	-	2.258	-	2.258	1.124	1.145	1.166	1.187	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: N42

Note

In FY2016 Project 676037 T-38 Operational Systems Development includes a new start effort for Block upgrades to incorporate software and/or hardware improvements to comply with new requirements 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).

Due to T-38's advanced age, many parts are either obsolete or will become obsolete. Research is necessary to determine how, and with what to address the issues. When solutions are identified, source funding may either be acquisition or sustainment, whichever is appropriate.

A. Mission Description and Budget Item Justification

T-38 Operational System Development continues follow on development activities for the T-38 including 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. Block upgrades incorporate software and/or hardware improvements to comply with new requirements 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Avionics Post Production Support (APPS)	-	-	2.258	-	2.258
Description: T-38C Avionics System obsolescence remediation effort is intended to develop and qualify replacement components/LRUs that are becoming non-supportable. Additionally the T-38C program will begin development of a solution for the FAA ADS-B (Out) mandate. ***FY 2016 Base Plans:*** Complete Block 10 aircraft operational testing and JMPS IV&V and developmental testing. Complete data chain management audit requirements with the Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) Center of Excellence to ensure the T-38C aircraft is compliant with Air Force navigation data chain management standards and directives. Obtain Authority to Operate and field T-38C Block 10.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676037 / *T-38 Operational System Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue research and development of a replacement Heads-Up Display and Up-Front Control panel.					
Accomplishments/Planned Programs Subtotals	-	-	2.258	-	2.258

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item #T03800: *T-38*	-	-	-	-	-	-	-	-	-	-	-

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 will be evaluated and implemented incrementally to efficiently deliver required capabilities to AETC. System Block upgrades will utilize technical data rights to enable support the T-38C's federated systems architecture. The Avionics Component Integration (AvCI) contract is currently in the source selection process. The current contract strategy is projected to be a Type D IDIQ contract competitively awarded to address T-38C avionics system obsolescence issues and provide CLS follow-on 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676037 / *T-38 Operational System Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T-38C Avionics System obsolescence remediation	C/Various	AFMCLCMC/WLDM T-38 Program office : Dayton, OH	-	-		-		0.900	Nov 2014	-		0.900	Continuing	Continuing	-
Heads-Up Display Development	C/FFP	TBD : ,	-	-		-		1.273	Jan 2016	-		1.273	Continuing	Continuing	-
		Subtotal	-	-		-		2.173		-		2.173	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA Contract support	C/FFP	Not specified. : ,	-	-		-		0.030	Dec 2015	-		0.030	Continuing	Continuing	-
Government Travel	Various	Not specified. : ,	-	-		-		0.055	Oct 2015	-		0.055	Continuing	Continuing	-
		Subtotal	-	-		-		0.085		-		0.085	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		2.258		-		2.258	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / *Specialized Undergraduate Flight Training*	Project (Number/Name) 676037 / *T-38 Operational System Development*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676037 / *T-38 Operational System Development*

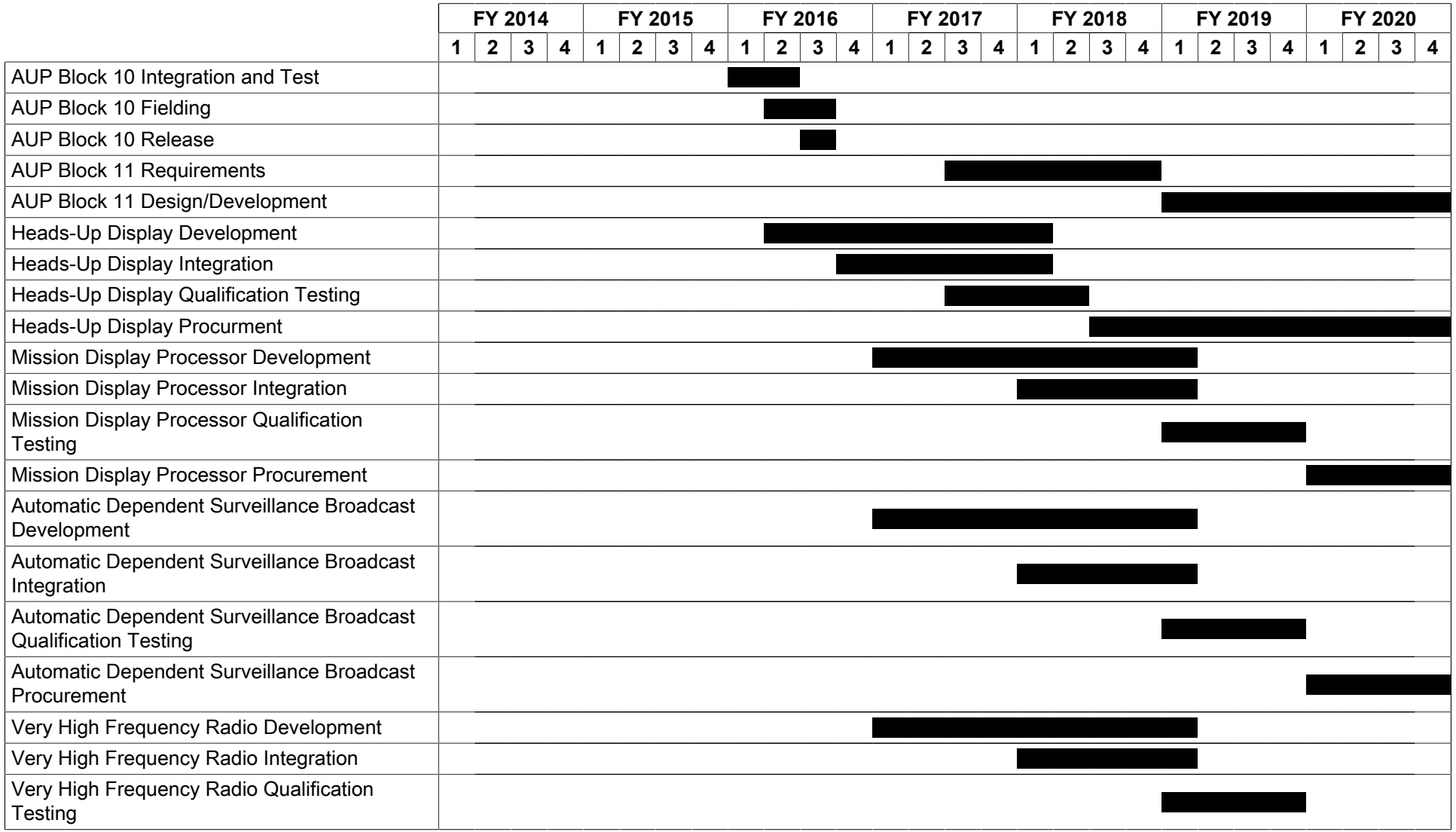

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676037 / *T-38 Operational System Development*

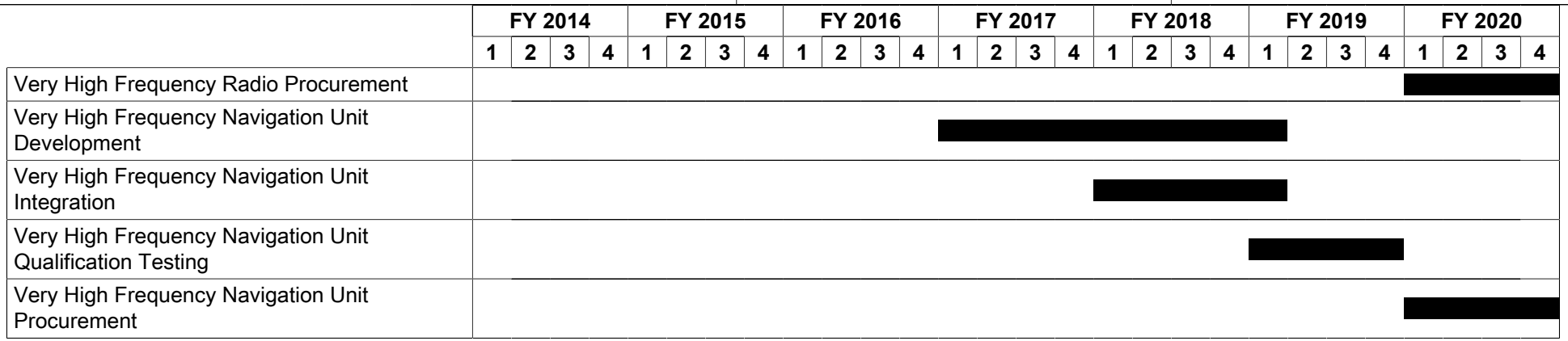

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676037 / *T-38 Operational System Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AUP Block 10 Integration and Test	1	2016	2	2016
AUP Block 10 Fielding	2	2016	3	2016
AUP Block 10 Release	3	2016	3	2016
AUP Block 11 Requirements	3	2017	4	2018
AUP Block 11 Design/Development	1	2019	4	2020
Heads-Up Display Development	2	2016	1	2018
Heads-Up Display Integration	4	2016	1	2018
Heads-Up Display Qualification Testing	3	2017	2	2018
Heads-Up Display Procurment	3	2018	4	2020
Mission Display Processor Development	1	2017	1	2019
Mission Display Processor Integration	1	2018	1	2019
Mission Display Processor Qualification Testing	1	2019	4	2019
Mission Display Processor Procurement	1	2020	4	2020
Automatic Dependent Surveillance Broadcast Development	1	2017	1	2019
Automatic Dependent Surveillance Broadcast Integration	1	2018	1	2019
Automatic Dependent Surveillance Broadcast Qualification Testing	1	2019	4	2019
Automatic Dependent Surveillance Broadcast Procurement	1	2020	4	2020
Very High Frequency Radio Development	1	2017	1	2019
Very High Frequency Radio Integration	1	2018	1	2019
Very High Frequency Radio Qualification Testing	1	2019	4	2019
Very High Frequency Radio Procurement	1	2020	4	2020
Very High Frequency Navigation Unit Development	1	2017	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604233F / *Specialized Undergraduate Flight Training*	**Project (Number/Name)** 676037 / *T-38 Operational System Development*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Very High Frequency Navigation Unit Integration	1	2018	1	2019
Very High Frequency Navigation Unit Qualification Testing	1	2019	4	2019
Very High Frequency Navigation Unit Procurement	1	2020	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604445F / *Wide Area Surveillance*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	4.836	2.000	24.577	-	24.577	9.529	5.515	5.652	4.743	Continuing	Continuing
675895: *Wide Area Surveillance*	-	4.836	2.000	24.577	-	24.577	9.529	5.515	5.652	4.743	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

NOTE: The Stateside Affordable Radar System (STARS) is an ARMY effort managed by the Joint Integrated Air and Missile Defense Office (JIAMDO). Beginning in FY14, PE 0604445F funds the establishment of an Air Force program office and development of acquisition documentation in preparation for the program transferring to the AF in FY16. For further details, please refer to PE 0604445J.

A. Mission Description and Budget Item Justification

The Stateside Affordable Radar System (STARS) is an ARMY effort managed by the Joint Integrated Air and Missile Defense Office (JIAMDO). For further details, please refer to PE 0604445J.

Beginning in FY14, PE 0604445F funds the development and installation of STARS Engineering Developmental Models (EDMs). The EDMs will be part of a demonstration to evaluate further development and fielding of STARS as a means to improve the existing air surveillance capabilities for homeland defense.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	5.000	-	18.240	-	18.240
Current President's Budget	4.836	2.000	24.577	-	24.577
Total Adjustments	-0.164	2.000	6.337	-	6.337
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	2.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.164	-			
• Other Adjustments	-	-	6.337	-	6.337

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604445F / *Wide Area Surveillance*

Change Summary Explanation

FY16 funding increased to fully fund the development of STARS.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Program Office Establishment ***Description:*** Establish Air Force program office and coordinate with the ARMY program office to transfer the effort to the Air Force. ***FY 2014 Accomplishments:*** - Started efforts to establish Air Force program office, which included coordination of the Air Force development team with the Army team, to facilitate transfer of STARS to the Air Force. - Started developing acquisition documentation. ***FY 2015 Plans:*** - Continue efforts to establish Air Force program office, which includes coordination of the Air Force development team with the Army team, to facilitate transfer of STARS to the Air Force. - Continue developing acquisition documentation. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	4.836	0.500	-	-	-
Title: Development & Fielding ***Description:*** Development & Fielding ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Development efforts include multiple site specific requirements, such as, but not limited to: security, site maintenance, equipment maintenance, material shipping, etc. - Development and fielding of a series of prototypes to reduce the risk of an eventual full rate production. ***FY 2016 Base Plans:***	-	1.500	24.577	-	24.577

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604445F / *Wide Area Surveillance*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Will continue development efforts including multiple site specific requirements, such as, but not limited to: security, site maintenance, equipment maintenance, material shipping, etc. - Will also continue developing/fielding a series of prototypes to reduce the risk of an eventual full rate production. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.836	2.000	24.577	-	24.577

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA04: PE 0604445J: *Wide Area Surveillance*	30.000	53.000	-	-	-	-	-	-	-	-	83.000

Remarks

E. Acquisition Strategy

To be determined upon transition to Air Force in FY16

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / *Wide Area Surveillance*	Project (Number/Name) 675895 / *Wide Area Surveillance*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STARS	Various	Various : Various,	-	-		1.500	Mar 2015	21.337	Mar 2015	-		21.337	Continuing	Continuing	-
		Subtotal	-	-		1.500		21.337		-		21.337	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	TBD : TBD,	-	-		-		1.100	Jan 2016	-		1.100	Continuing	Continuing	-
		Subtotal	-	-		-		1.100		-		1.100	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various,	-	4.836	Jun 2014	0.500	Mar 2015	2.140	Dec 2015	-		2.140	Continuing	Continuing	-
		Subtotal	-	4.836		0.500		2.140		-		2.140	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.836		2.000		24.577		-		24.577	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604445F / *Wide Area Surveillance*	**Project (Number/Name)** 675895 / *Wide Area Surveillance*

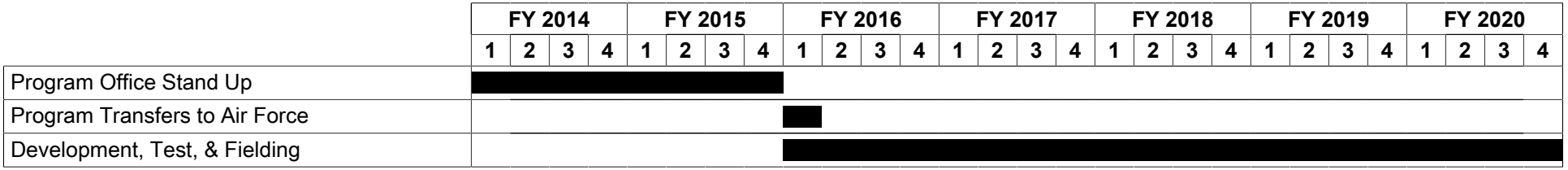

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604445F / *Wide Area Surveillance*	**Project (Number/Name)** 675895 / *Wide Area Surveillance*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Program Office Stand Up	1	2014	4	2015
Program Transfers to Air Force	1	2016	1	2016
Development, Test, & Fielding	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force												Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604618F / *Joint Direct Attack Munition*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	2.469	-	-	-	-	-	-	-	-	2.469
674138: *JDAM DEVELOPMENT*	0.000	-	2.469	-	-	-	-	-	-	-	-	2.469
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 503
Other MDAP/MAIS Code(s): N42

Note

In FY 2015, PE 0604618F, JDAM Development and Prototyping, Project 674138, JDAM Development efforts were transferred to PE 0604618F, JDAM Development and Prototyping, Project 674138, JDAM Development, in order to properly align budget activity.

A. Mission Description and Budget Item Justification

The 5000 lb demonstration is an integration of BLU-113 warhead with a Joint Direct Attack Munition (JDAM) tail kit, scaled if necessary from smaller or larger warhead control design, 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). Weapon system will have an identical Concept of Operations (CONOPS) as existing USAF inventory for Global Positioning System-aided Inertial Navigation System (GPS-aided INS) weapons, and compatibility with aircraft Operational Flight Profile (OFP).

BA-07 - 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."

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604618F / *Joint Direct Attack Munition*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	2.469	-	-	-
Current President's Budget	-	2.469	-	-	-
Total Adjustments	-	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-	-	-

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: JDAM	-	2.469	-
Description: The 5000 lb demonstration is an integration of the BLU-113 warhead with a guidance kit that provides accurate, reliable, tight dispersion, hard target penetration capability. JDAM accuracy expands the drill down CONOPS used by the GBU-31 (2000 lb class warhead) to a 5000 lb concept, holding harder and deeper targets at risk. This is an objective requirement of the 2001 JDAM ORD. The 5000 lb weapon expands USG capability using JDAM proven performance, identical CONOPS as existing JDAM inventory, and compatibility with aircraft Operational Flight Profile (OFP). 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.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: Design a BLU-113 conversion kit including BLU-113 strake assembly, BLU-113 umbilical cover, and BLU-113 wire harness extension and develop a unique Operational Flight Profile (OFP) with modified autopilot that provides JDAM like performance. N/A			
Accomplishments/Planned Programs Subtotals	-	2.469	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604618F / *Joint Direct Attack Munition*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDT&E:BA04: PE 0604618F: *JDAM DEVELOPMENT*	2.417	-	-	-	-	-	-	-	-	-	-

Remarks

N/A

E. Acquisition Strategy

Effort will be competed and executed under a firm fixed price.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604618F / *Joint Direct Attack Munition*	Project (Number/Name) 674138 / *JDAM DEVELOPMENT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.3Software Development and Hardware Fabrication	C/TBD	TBD : ,	0.000	-		0.787	Jun 2016	-		-		-	-	0.787	0.647
		Subtotal	0.000	-		0.787		-		-		-	-	0.787	0.647

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Wind Tunnel Test	Various	TBD : ,	0.000	-		0.737	Apr 2015	-		-		-	-	0.737	0.455
Flight Test	Various	96th Test Wing : Eglin AFB, FL	0.000	-		0.770	Jul 2015	-		-		-	-	0.770	0.374
		Subtotal	0.000	-		1.507		-		-		-	-	1.507	0.829

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA)	Various	AFLCM/EBDJ : Eglin AFB, FL	0.000	-		0.175	Apr 2015	-		-		-	-	0.175	-
		Subtotal	0.000	-		0.175		-		-		-	-	0.175	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		2.469		-		-		-	-	2.469	1.476

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604618F / *Joint Direct Attack Munition*	Project (Number/Name) 674138 / *JDAM DEVELOPMENT*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604618F / *Joint Direct Attack Munition*	**Project (Number/Name)** 674138 / *JDAM DEVELOPMENT*

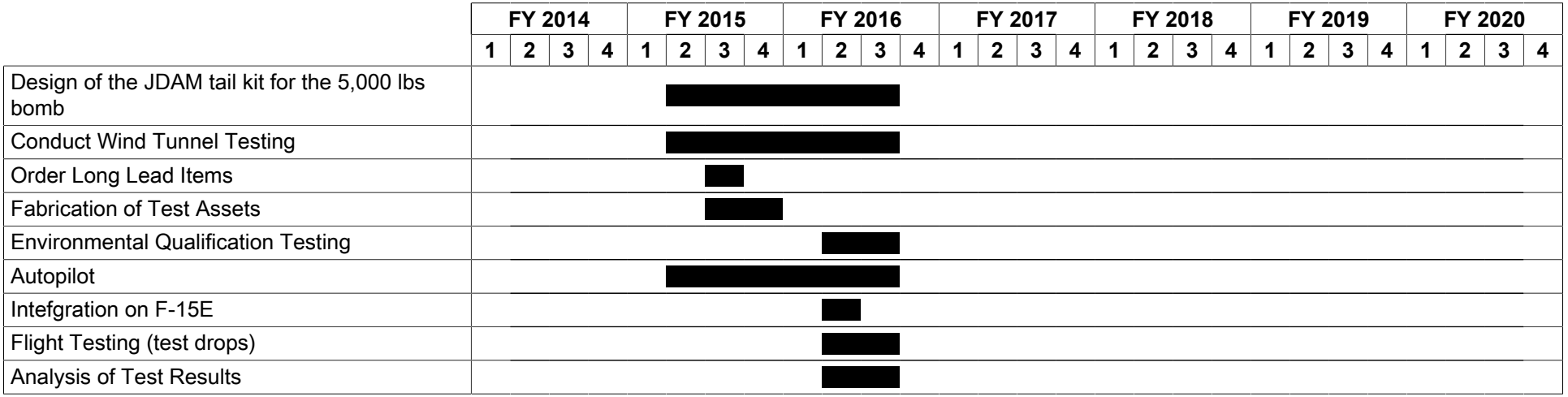

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0604618F / *Joint Direct Attack Munition*	**Project (Number/Name)** 674138 / *JDAM DEVELOPMENT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Design of the JDAM tail kit for the 5,000 lbs bomb	2	2015	3	2016
Conduct Wind Tunnel Testing	2	2015	3	2016
Order 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	3	2016
Intefgration on F-15E	2	2016	2	2016
Flight Testing (test drops)	2	2016	3	2016
Analysis of Test Results	2	2016	3	2016

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force												Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	121.463	33.114	60.019	69.694	-	69.694	64.317	57.845	28.463	28.972	-	463.887
676003: *HRM Structural Development*	121.463	33.114	60.019	69.694	-	69.694	64.317	57.845	28.463	28.972	-	463.887
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 many existing personnel and pay processes into one self-service system. The system represents the AF commitment to modernizing business practices and providing enhanced support for today's service members and their families. AFIPPS will align with DoD data standards for personnel, pay, and accounting, including the Common Human Resource Information Standards (CHRIS), which will ensure compliance with the Business Enterprise Architecture (BEA). The AFIPPS program will be bound by using the BEA "Hire-to-Retire" (H2R) construct. Eighty-four percent of the BEA's H2R activities are within the scope of AFIPPS.

The purpose of AFIPPS is to provide the AF with a sustainable, cost-effective, auditable, and regulatory-compliant method of effectively capturing and maintaining personnel information so that Service members are paid accurately and on-time without requiring repetitive action or onerous paperwork, while allowing commanders/ managers to easily access pertinent information.

The goal of AFIPPS, as documented in the Capability Development Document (CDD) signed 05 Jul 11, is to fully integrate personnel and pay management for the AF's Total Force (Regular Air Force (RegAF), Air National Guard (ANG), and Air Force Reserve (AFRes)). The future state will be characterized by streamlined, Total Force business processes; efficient and accurate management of pay entitlements; auditable financial statements with regard to military pay; improved access to accurate and timely personnel data for authorized users; and a modernized IT systems environment that is cost-effective and can adapt to future needs.

AFIPPS's customers include approximately 620,000 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.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	34.034	90.218	93.788	-	93.788
Current President's Budget	33.114	60.019	69.694	-	69.694
Total Adjustments	-0.920	-30.199	-24.094	-	-24.094
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-30.199			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.920	-			
• Other Adjustments	-	-	-24.094	-	-24.094

Change Summary Explanation

FY15 Congressional Directed Reduction (-$30.199M) due to contract award delay.
FY16 funding request was reduced (-$24.094M) to support other higher Air Force priorities.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: AFIPPS - Product Development	32.883	59.486	68.878

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 2014 Accomplishments:
Continued the following efforts: (1) Contract 1 (C1) including Blueprinting/Conference Room Pilot (CRP) and planning for the Leave capability,(2) Data Management Environment (DME) activities, (3) the 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, (4) Contract 1 Independent Verification & Validation (IV&V), (5) Building production, Continuity of Operations (COOP), and additional development environments to the AFIPPS development and test environment,(6) Purchasing and renewing Commerical-Off-The-Shelf (COTS) S/W to support data management and development activities, (7) Leading the integration for C1 and managing the interaction between all contractor and Government activities. Prepare for Milestone B (MS B). Continue acquisition planning, reporting, and the execution of C1 activities. Release the Contract 2 (C2) Request for Information and Proposal. Includes contracted personnel and other program management expenses to support implementation of the program.

FY 2015 Plans:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Continue the following efforts: (1) C1 Blueprinting/CRPs 1&2 and Release 1 (Leave),(2) Data Management Environment (DME) activities, (3) 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, (4) Building production, COOP, and additional development environments to the AFIPPS development and test environment, (5) Purchasing COTS S/W to support data management and development activities, (6) Planning the integration for Contracts 1 & 2 and managing the interaction between all contractor and Government activities. Plan for and achieve Milestone (MS) B. Continue acquisition planning, reporting, and the execution of C1 activities. Conduct C2 source selection activities, and subsequently award C2. Includes contracted personnel and other program management expenses to support implementation of the program. ***FY 2016 Plans:*** Continue the following efforts: (1) Execute Contracts 1 and 2 including Blueprinting/CRP and development, (2) DME activities, (3) 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, (4) Building production, COOP, and additional development environments as required to support existing DISA services (e.g., cloud computing), (5) Purchasing COTS S/W to support data management, sustainment and development activities, (6) Leading the integration for Contracts 1 and 2 and managing the interaction between all contractor and Government activities. Continue acquisition planning, reporting, and the execution of Contracts 1 and 2 activities. Includes contracted personnel and other program management expenses to support implementation of the program.			
Title: AFIPPS - Test and Evaluation ***Description:*** Government integrated test and evaluation activities. ***FY 2014 Accomplishments:*** Finalized test strategy and developing test plans for the Leave capability. ***FY 2015 Plans:*** Adjust Test Strategy to reflect new release schedule, update Test and Evaluation Master Plan (TEMP) and prepare test plans for A2M and subsequent releases. ***FY 2016 Plans:*** Will finalize test plans for Arc 2 Mission (A2M) Release, and continue preparing and finalizing test plans for subsequent releases.	0.231	0.533	0.816
Accomplishments/Planned Programs Subtotals	33.114	60.019	69.694

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA 03: Line Item # 834410: *Integrated Personnel and Pay System*	-	-	3.976	-	3.976	2.961	-	-	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

AFIPPS Acquisition Strategy consists of multiple capability releases that are developed and fielded in 2 separate contracts. The Government will conduct a Full and Open competition to award each of the two contracts which will deliver the integrated personnel and pay system for the military Total Force (i.e. RegAF, ANG, and AFRes). The Acquisition Strategy also specifies that Contract 2 awardee will act as system integrator."

AFIPPS will deliver severable and discrete capability releases under two contracts. Each capability release builds upon and incorporates the previous baseline. Contract 1 includes the effort to blueprint for all releases. The primary contract type is Fixed Price Incentive Firm (FPIF). Cost Plus Incentive Fee (CPIF) and Firm Fixed Price (FFP) are used for the smaller portions of the contract, as appropriate.

Contract 1 will deliver blueprinting products for each capability release. Contract 2 will have a basic contract for the ARC-to-Mission Release, with options for subsequent Releases (Officers and Enlisted/Cadet Pay), each of which represents a fieldable capability for the Air Force human resources mission. AFIPPS will provide a fully integrated personnel and pay service capability for the Total Force to fully use capabilities in the COTS software, minimize customization of the ERP and sustainment costs and maximize the life of the system. Contract 2 will be awarded through full and open competition with details to be determined via the Contract 2 acquisition strategy process.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*	Project (Number/Name) 676003 / *HRM Structural Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AFIPPS Environments	Various	DISA, Various SW Vendors : Bedford, MA	22.347	16.518	Aug 2014	19.880	Feb 2015	12.938	Oct 2015	-		12.938	57.766	129.449	TBD
Contract 1	C/Various	IBM : Bethesda, MD	13.689	6.437	Dec 2013	14.591	Apr 2015	-		-		-	-	34.717	TBD
Contract 2	C/Various	TBD : TBD,	0.000	-		-		28.180	Jan 2016	-		28.180	96.230	124.410	154.874
Direct Mission Support (DMS) Other	Various	Various IT Vendors : Bedord, MA	39.436	5.350	Aug 2014	17.378	Mar 2015	19.858	Mar 2016	-		19.858	70.777	152.799	TBD
PeopleSoft Licenses	MIPR	Oracle : Reston, VA	9.150	2.423	Dec 2014	2.467	Dec 2015	3.015	Dec 2016	-		3.015	8.861	25.916	TBD
Independent Verification & Validation (IV&V)	C/Various	Various : TBD,	2.354	-		-		-		-		-	-	2.354	TBD
		Subtotal	86.976	30.728		54.316		63.991		-		63.991	233.634	469.645	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Gov't Integrated Test & Evaluation Activities	C/Various	Various : Orlando, FL	0.690	0.231	Aug 2014	0.533	Mar 2015	0.816	Oct 2015	-		0.816	3.840	6.110	TBD
		Subtotal	0.690	0.231		0.533		0.816		-		0.816	3.840	6.110	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*	**Project (Number/Name)** 676003 / *HRM Structural Development*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technology Acquisition Support Services (ETASS)	C/CPFF	Jacobs Technology : Bedford, MA	9.225	-		-		-		-		-	-	9.225	TBD
MITRE Engineering Support	SS/CPFF	MITRE : Lexington, MA	5.078	0.167	Dec 2013	-		-		-		-	-	5.245	TBD
Other PMA	Various	Various : Bedford, MA	7.232	0.645	Nov 2013	3.240	Oct 2014	1.090	Oct 2015	-		1.090	3.007	15.214	TBD
Professional Acquisition Support Services I (PASS I)	C/CPFF	Oasis Systems, Inc. : Lexington, MA	9.308	0.511	Jan 2014	-		-		-		-	-	9.819	TBD
Professional Acquisition Support Services II (PASS II)	C/CPAF	Quantech Services, Inc. : Lexington, MA	1.345	-		1.345	Aug 2015	3.237	Aug 2016	-		3.237	9.513	15.440	TBD
Specialized Cost Services (SCS)	C/CPFF	Tecolote : Bedford, MA	1.609	0.832	Oct 2013	0.585	Oct 2014	0.560	Oct 2015	-		0.560	1.645	5.231	TBD
		Subtotal	33.797	2.155		5.170		4.887		-		4.887	14.165	60.174	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	121.463	33.114		60.019		69.694		-		69.694	251.639	535.929	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

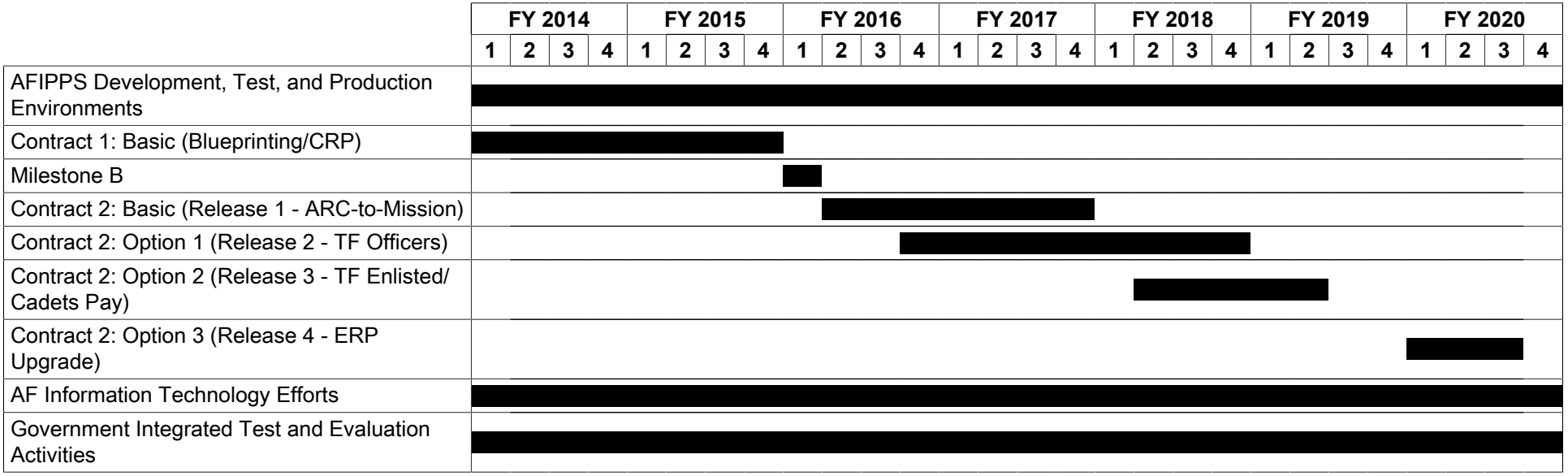

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605018F / *AF Integrated Personnel and Pay System (AF-IPPS)*	**Project (Number/Name)** 676003 / *HRM Structural Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AFIPPS Development, Test, and Production Environments	1	2014	4	2020
Contract 1: Basic (Blueprinting/CRP)	1	2014	4	2015
Milestone B	1	2016	1	2016
Contract 2: Basic (Release 1 - ARC-to-Mission)	2	2016	4	2017
Contract 2: Option 1 (Release 2 - TF Officers)	4	2016	4	2018
Contract 2: Option 2 (Release 3 - TF Enlisted/Cadets Pay)	2	2018	2	2019
Contract 2: Option 3 (Release 4 - ERP Upgrade)	1	2020	3	2020
AF Information Technology Efforts	1	2014	4	2020
Government Integrated Test and Evaluation Activities	1	2014	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0605024F / *Anti-Tamper Technology Executive Agency*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	25.733	34.815	26.718	-	26.718	29.871	29.776	29.123	29.644	Continuing	Continuing
675066: *Anti-Tamper Technology Executive Agent*	-	25.733	34.815	26.718	-	26.718	29.871	29.776	29.123	29.644	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
MDAP/MAIS Code: **Other MDAP/MAIS Code(s):** N42												

A. Mission Description and Budget Item Justification

The Air Force is the DoD Anti-Tamper Executive Agent (ATEA). The ATEA is responsible for developing and implementing Anti-Tamper (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 Anti-Tamper technologies, providing proper security mechanisms, providing outreach and education to the AT Community, and conducting effective validation and evaluations of AT implementations. The purpose of AT is to protect critical program information (CPI) in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands. AT protections will permit the U.S. to preserve its technological advantage of critical weapons systems while supporting the warfighters mission requirements. Furthermore, AT will add longevity to DoD critical technologies by deterring efforts to reverse engineer or develop weapon countermeasures against the system or system component.

The DoD ATEA will coordinate technology development and enhancement efforts among the DoD Services/Agencies, National Laboratories, and industry. The DoD ATEA acquisition strategy is to fund development of new AT technology, as well as enhancing existing AT technology efforts to increase the technology readiness level (TRL). The AT technology development and enhancement efforts will occur in multiple areas, including the following: Advanced sensor hardware, secure processing, crypto-analysis, tamper penalties, and power solutions. Emerging research in the areas of materials, cryptography and electronic circuits has the potential to bring new AT capabilities that have reduced power needs and smaller form factor. The goal of the research is to mature promising technologies to the point that they can be transitioned to a program office or industry for implementation in our weapons systems. Priorities will be given to those technologies that most benefit the DoD AT community.

All DoD acquisition programs, Foreign Military Sales, and Direct Commercial Sales with CPI and/or resident critical program information (RCPI) require a validated AT Plan. The AT program includes resources required for the subject matter experts (SMEs) to review AT Plans and conduct AT validation, and perform AT assessments of both commercial off the shelf and government of the shelf products. To maintain its advantage, the AT program continues to improve its 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.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605024F / *Anti-Tamper Technology Executive Agency*

The FY2016 funding request was reduced by $3.000 million to account for the availability of prior execution balances.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	26.541	34.815	29.895	-	29.895
Current President's Budget	25.733	34.815	26.718	-	26.718
Total Adjustments	-0.808	-	-3.177	-	-3.177
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.808	-			
• Other Adjustments	-	-	-3.177	-	-3.177

Change Summary Explanation

FY14: SBIR Adjustment.

FY15: FY16 Reduction due under execution with a payback in FY17 and FY18.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Anti-Tamper Technology	22.176	29.732	21.618	-	21.618
Description: Continue AT technology development and evaluations, hardware/software vulnerability assessments, laboratory infrastructure, alternate power sources, provide outreach and education to the AT Community, conduct effective validation and evaluation of AT implementation as well as implementation of AT policy.					
FY 2014 Accomplishments: AT Policy and Guidance: Published new AT Guidelines. Ed/Outreach: Trained over 1000 members of the AT Community. Technology Development: Completed limited efforts due to funding. Assessments: Completed numerous assessments on COTS/GOTS parts in support of DoD and Industry.					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605024F / *Anti-Tamper Technology Executive Agency*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Evaluations: Provided funding to the Services that enabled them to evaluate AT implentations on their programs. ***FY 2015 Plans:*** - Continue AT technology development and evaluations, hardware/software vulnerability assessments, laboratory infrastructure, alternate power sources, conduct effective validation and evaluation of AT implementation. - Continue to train and implement AT policy within the AT Community. ***FY 2016 Base Plans:*** - Continue AT technology development and evaluations, hardware/software vulnerability assessments, laboratory infrastructure, alternate power sources, conduct effective validation and evaluation of AT implementation. - Continue to train and implement AT policy within the AT Community. ***FY 2016 OCO Plans:*** N/A					
Title: Program Management Support ***Description:*** Includes civilian pay, A&AS, outreach and education, travel, supplies, and AFLCMC/WWG support ***FY 2014 Accomplishments:*** Supported program office efforst, including civilian pay, A&AS, outreach and education, travel, and supplies. ***FY 2015 Plans:*** Support program office efforst, including civilian pay, A&AS, outreach and education, travel, and supplies. ***FY 2016 Base Plans:*** Support program office efforst, including civilian pay, A&AS, outreach and education, travel, and supplies. ***FY 2016 OCO Plans:*** N/A	3.557	5.083	5.100	-	5.100
Accomplishments/Planned Programs Subtotals	25.733	34.815	26.718	-	26.718

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605024F / *Anti-Tamper Technology Executive Agency*

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

The DoD ATEA acquisition strategy is to fund development and assessments of new AT technology, as well as enhance existing AT technology efforts by increasing TRL. The AT technology development and enhancement efforts will occur in multiple areas, including the following: Advanced sensor hardware, secure processing, crypto-analysis, tamper penalties, and power solutions. Emerging research in the areas of materials, cryptography and electronic circuits has the potential to bring new AT capabilities that have reduced power needs and smaller form factor. The goal of the research is to mature promising technologies to the point that they can be transitioned to a program office or industry for implementation in our weapons systems. Priorities will be given to those technologies that most benefit the DoD AT community.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / *Anti-Tamper Technology Executive Agency*	Project (Number/Name) 675066 / *Anti-Tamper Technology Executive Agent*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office	Various	Not specified. : ,	-	3.557		5.083		5.100		-		5.100	Continuing	Continuing	-
		Subtotal	-	3.557		5.083		5.100		-		5.100	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
R&D	Various	Not specified. : ,	-	22.176		29.732		21.618		-		21.618	Continuing	Continuing	-
		Subtotal	-	22.176		29.732		21.618		-		21.618	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	25.733		34.815		26.718		-		26.718	-	-	-

Remarks

Additional funding breakout and award dates are classified per the Anti-Tamper Security Classification Guide. Please contact the ATEA if addtional information is required.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605024F / *Anti-Tamper Technology Executive Agency*	**Project (Number/Name)** 675066 / *Anti-Tamper Technology Executive Agent*

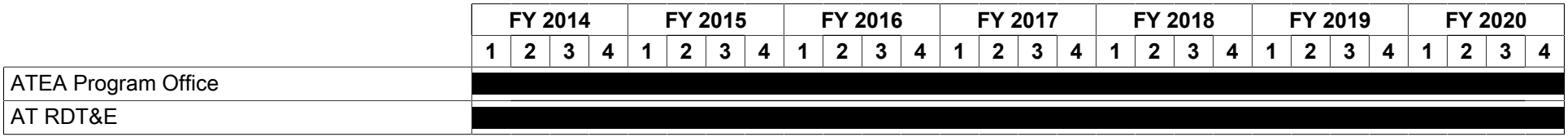

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605024F / *Anti-Tamper Technology Executive Agency*	**Project (Number/Name)** 675066 / *Anti-Tamper Technology Executive Agent*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ATEA Program Office	1	2014	4	2020
AT RDT&E	1	2014	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force												Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0605278F / *HC/MC-130 Recap RDT&E*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	10.807	-	10.807	23.926	21.879	4.809	4.895	-	66.316
675006: *HC/MC-130 RECAP*	-	-	-	10.807	-	10.807	23.926	21.879	4.809	4.895	-	66.316
MDAP/MAIS Code: 257												

Note

In FY16, the HC-MC 130 RECAP RDT&E efforts moved from BA 05 PE 0605278F / Project 655249 to BA 07 PE 0605278F / Project 675006. The descriptions and funding for efforts FY15 and prior are included in the BA 05 PE 0605278F document.

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 aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Production Document (CPD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The Joint Requirements Oversight Council (JROC) validated the CPD in Aug 2009.

This program will develop and integrate changes from discrepancies found during EMD flight test, operational use, and common C-130J block upgrades during HC/MC production. The C-130J program (PE 0401132F) developed Blocks 7.0 and 8.1 separately but all other platforms (including HC/MC) will have combined Block 7.0/8.1 trial kit install and modification programs and will be known simply as Block 8.1.

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

This program has met the condtions of 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. Starting with the FY16 PB, the HC-MC 130 RECAP 3600 efforts moved from BA 05 PE 0605278F / Project 655249 to BA 07 PE 0605278F / Project 675006. The descriptions and funding for efforts FY15 and prior are included in the R-Docs under BA 05 PE 0605278F.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*			**R-1 Program Element (Number/Name)** PE 0605278F / *HC/MC-130 Recap RDT&E*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	10.807	-	10.807
Total Adjustments	-	-	10.807	-	10.807
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	10.807	-	10.807

Change Summary Explanation

In FY16, the HC-MC 130 RECAP RDT&E efforts moved from BA 05 PE 0605278F / Project 655249 to BA 07 PE 0605278F / Project 675006. The descriptions and funding for efforts FY15 and prior are included in the BA 05 PE 0605278F document.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / *HC/MC-130 Recap RDT&E*	Project (Number/Name) 675006 / *HC/MC-130 RECAP*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675006: *HC/MC-130 RECAP*	-	-	-	10.807	-	10.807	23.926	21.879	4.809	4.895	-	66.316
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2016, HC/MC-130 Recap BA5 efforts were transferred from PE 0605278F, Project Number 655249, HC/MC-130 Recap, as the program achieved full rate production.

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 aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Production Document (CPD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The Joint Requirements Oversight Council (JROC) validated the CPD in Aug 2009.

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 Managment System (FMS), Civil GPS Navigation, Identification Friend or FOE (IFF) transponder Mode-5, Civil Data-link, and Automatic Dependent Surveillance-Broadcast (ADS-B).

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

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.

Beginning in FY 2016, this program has met the condtions of 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.

FY 2015 and prior this program was funded in Budget Activity 5, System Development and Demonstration because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting valiadated requirements prior to full-rate production.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Test and Evaluation	-	-	0.764

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605278F / *HC/MC-130 Recap RDT&E*	**Project (Number/Name)** 675006 / *HC/MC-130 RECAP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Description: Test and evaluation planning, conduct, and support for developmental and operational testing. ***FY 2014 Accomplishments:*** Funding in BA 05 ***FY 2015 Plans:*** Funding in BA 05 ***FY 2016 Plans:*** Funding provided to support developmental and operational testing.			
Title: Continuous Improvement Program ***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. ***FY 2014 Accomplishments:*** Funding in BA 05 ***FY 2015 Plans:*** Funding in BA 05 ***FY 2016 Plans:*** Funding provided to add system and software modifications to the aircraft configurations as identified as deficiency reports by using command.	-	-	1.978
Title: Block 8.1 ***Description:*** Combined software/hardware upgrade for Block 8.1. Additional efforts include: Link 16, a new Flight Managment System (FMD), 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 (ADS-B). ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Funding in BA 05 ***FY 2016 Plans:***	-	-	8.065

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605278F / *HC/MC-130 Recap RDT&E*	**Project (Number/Name)** 675006 / *HC/MC-130 RECAP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Due to program interdependencies, Block 8.1 development will ramp-up in FY16. Funding is to develop and integrate HC-130J Delta Block 8.1 in Increment 2 configuration and develop and integrate MC-130J Delta Block 8.1 in Increment 3 configuration.			
Accomplishments/Planned Programs Subtotals	-	-	10.807

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• P-59: *APAF, HC/ MC-130J Block 8.1*	-	-	-	-	-	-	-	32.209	-	293.229	325.438
• P-6,7: *APAF, PE 0207224F, HC-130 Recap*	210.121	382.024	493.934	-	493.934	320.407	10.550	-	103.663	648.384	2,115.082
• P-8,9: *APAF, PE 0207230F, MC-130 Recap*	453.434	372.971	888.472	-	888.472	603.246	483.563	611.173	353.420	2,524.383	6,290.662

Remarks

D. 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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / *HC/MC-130 Recap RDT&E*	Project (Number/Name) 675006 / *HC/MC-130 RECAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Continuous Improvement Program (CIP)	SS/CPIF	Lockheed Martin : Marietta, GA	-	-		-		1.978	May 2016	-		1.978	Continuing	Continuing	TBD
Block 8.1	SS/CPIF	Lockheed Martin : Marietta, GA	-	-		-		8.065	Apr 2016	-		8.065	Continuing	Continuing	TBD
		Subtotal	-	-		-		10.043		-		10.043	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation Support	RO	46the Test Wing : EAFB, FL	-	-		-		0.764	May 2016	-		0.764	Continuing	Continuing	TBD
		Subtotal	-	-		-		0.764		-		0.764	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		10.807		-		10.807	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

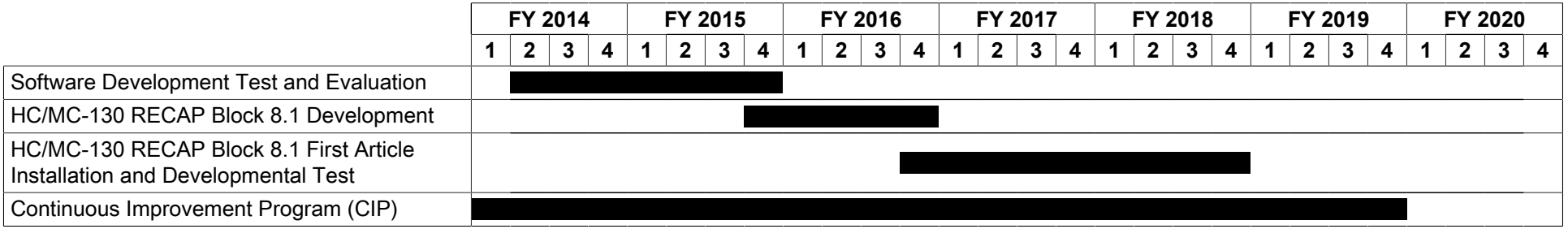

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0605278F / *HC/MC-130 Recap RDT&E*	**Project (Number/Name)** 675006 / *HC/MC-130 RECAP*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Software Development Test and Evaluation	2	2014	4	2015
HC/MC-130 RECAP Block 8.1 Development	4	2015	4	2016
HC/MC-130 RECAP Block 8.1 First Article Installation and Developmental Test	4	2016	4	2018
Continuous Improvement Program (CIP)	1	2014	4	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101113F / *B-52 SQUADRONS*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	16.481	49.457	74.520	-	74.520	48.849	38.276	23.318	0.050	Continuing	Continuing
675039: *B-52 System Improvements*	-	-	-	0.050	-	0.050	0.050	0.050	0.050	0.050	Continuing	Continuing
675048: *1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)*	-	7.373	41.134	60.265	-	60.265	26.070	15.244	-	-	-	150.086
675050: *CONECT*	-	9.108	8.323	11.225	-	11.225	12.808	9.097	11.369	-	-	61.930
675055: *GPS-IU*	-	-	-	2.980	-	2.980	9.921	13.885	11.899	-	Continuing	Continuing

Note

"In FY 2016, Project 675055, GPS-IU, includes new start effort for Global Positioning System (GPS)-Interface Unit(IU) Replacement.

In FY 2016, Project 675039, B-52 System Improvements, includes new start effort(s) for potential engineering studies & analysis and test & evaluation."

A. Mission Description and Budget Item Justification

B-52 System Improvements is a comprehensive project to ensure B-52 viability to perform current and future wartime missions to include datalinks, navigation, sensors, weapons, electronic warfare (EW), and training capabilities. B-52 System Improvements integrates and adds both tactical and global datalink communications for real time command and control, targeting, and intelligence. It upgrades antiquated Air Traffic Management (ATM) systems with those supported by three key functions using satellite technology: Communications, Navigation and Surveillance (CNS). B-52 System Improvements upgrades training devices to support aircrew and maintenance training with the latest B-52 capability. In addition, it improves conventional warfare capability with additional MIL-STD-1760 smart weapons and improved weapons carriage and fully integrates advanced targeting pods with the offensive avionics system. It studies, analyzes, and tests aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments. B-52 System Improvements upgrades or replaces legacy defensive EW systems to include the radar warning receiver, jammers, chaff and flare dispensers and situational awareness displays as well as integration of offensive EW such as the Miniature Air-Launched Decoy (MALD) and MALD-Jammer (MALD-J).

Engineering Studies & Analysis and Test & Evaluation
B-52 System Improvements funds test activities at the Air Force Flight Test Center (AFFTC), engineering and planning studies for potential future weapon system enhancements (weapons, sensors, avionics, and EW) and emerging requirement on current projects, upgrades to the B-52 Systems Integration Laboratory (SIL), Avionics Integration Support Facility (AISF), and Weapon System Trainers (WSTs and other operations/maintenance trainers), and weapon system operational/safety, supportability, reliability, and Total Ownership Cost (TOC) improvements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*

Additional Efforts

B-52 System Improvements funds additional efforts that stem from the operation and maintenance of a 50-plus-year-old aircraft, such as parts obsolescence, Diminishing Manufacturing Sources (DMS), and emerging requirements to add to or maintain the existing capabilities. Examples include, but are not limited to upgrades to radar,outdated avionics computers, communications and security updates,mission planning interfaces to Joint Mission Planning Software (JMPS), Air Force Mission Support System (AFMSS), upgrades to the EW suite, and studies and analysis. All B-52 development projects support planned requirements for unique identification in their production phases.

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 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.

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.

B-52 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU) (BPAC 675048)

The 1760 IWBU requires the integration of the 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.

Increment 1.1 consists of internal carriage of eight Joint Direct Attack Munitions (JDAM) and variants, to include Laser JDAM (L/JDAM), on a conventional rotary launcher. Additionally, this increment develops the capability for external carriage for 16 L/JDAM on Heavy Storage Adaptor Beam.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*

GPS-INTERFACE UNIT (GPS-IU)REPLACEMENT (BPAC 675055)
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.

These projects 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	17.007	55.457	62.642	-	62.642
Current President's Budget	16.481	49.457	74.520	-	74.520
Total Adjustments	-0.526	-6.000	11.878	-	11.878
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.526	-			
• Other Adjustments	-	-	11.878	-	11.878

Change Summary Explanation

FY14: -$.526M SBIR

FY15: -$6.0M Congressional Mark (CONECT)Improving Funds Management: Forward Financing.

FY16: +$0.050M for B-52 System Improvements
+$4.813M to correct CONECT Weapon System Trainer
+$3.000M for GPS-IU Replacement
+$4.015M realignment of CONECT APAF to RDT&E

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675039: *B-52 System Improvements*	-	-	-	0.050	-	0.050	0.050	0.050	0.050	0.050	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, Project 675039, B-52 System Improvements, includes new start effort(s) for potential engineering studies & analysis and test & evaluation.

A. Mission Description and Budget Item Justification

B-52 System Improvements is 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. B-52 System Improvements will encompass the following major aircraft areas but is not limited to the examples given within each area.

Avionics - Offensive and Defensive; Electronic Warfare systems require upgrades to continue to protect the aircraft in the battle space. Radar Modernization is require to ensure the aircraft can perform the mission in today's environment and resolve current mean time between repair issues with legacy radar. Global Positioning Satellite Interface Unit (GPS-IU) requires replacement due to throughput issues.

Navigation - Communication, Navigation and Surveillance and Air Traffic Management (CNS/ATM) upgrades are required to comply with ever increasing FAA requirements. Automatic Dependent Surveillance-Broadcast (ADS-B) upgrade FAA mandate for FY20. GPS guidance unit requires upgrade to new military M-Code standard.

Situational Awareness (SA) - upgrades to current SA systems is require to ensure the B-52 maintains battle space awareness of intelligence broadcasts, friendly force locations, enemy forces and any emerging threats within the Area of Responsibility (AOR). Adaptation of new data links as well as addition of existing links is crucial to the B-52 remaining relevant to the integrated airborne battle space.

Weapons/Targeting Pod Integration - Improves conventional warfare capability with additional MIL-STD-1760 smart weapons and improved weapons carriage and fully integrates advanced targeting pods with the offensive avionics system. Integrate emerging targeting pods to include optical and radar targeting capabilities.

Communications - current UHF communications systems require upgrades due to legacy radios and satellite systems rearing end of life. Multiple User Objective System (MUOS) satellite deployments will require the B-52 to upgrade legacy UHF radios to remain relevant. New technology Beyond line of Sight (BLOS) and Line of Sight (LOS) radios are emerging and required on the B-52 to ensure communications continue in the AOR. Extreme High Frequency (EHF) program required to meet Nuclear Command Authority two way communications.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675039 / *B-52 System Improvements*

Flight Systems - current Jet A fuel used freezes at higher temperatures than previous fuel and therefore requires the addition of an internal fuel tank monitoring system to ensure the fuel does not gel and freeze while flying at altitude. In additiona, the B-52 requires a new Environmental Control System (ECS) upgrade to support any new major aircraft modifications. EHF studies have indicated this will be a needed modification for integration depending on the terminal selection.

Nuclear Systems - studies, analyzes, and tests aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments.

Electronic Flight Bags - require a system for displaying aircrew checklists on a permanent display. This supports current AF requirements to reduce carry on paper checklists.

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 2014	FY 2015	FY 2016
Title: B-52 System Improvements	-	-	0.050
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 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.			
Accomplishments/Planned Programs Subtotals	-	-	0.050

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA 05: Line Item # B05200: *Arms Control Implementation*	0.500	0.198	0.099	-	0.099	0.198	-	-	-	-	0.995

Remarks

D. Acquisition Strategy

Analysis of Alternatives will be conducted by various AFLCMC (Wright-Patterson AFB) organizations.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675039 / *B-52 System Improvements*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / *B-52 SQUADRONS*	Project (Number/Name) 675039 / *B-52 System Improvements*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Analysis of Alternatives	TBD	Not specified. : ,	-	-		-		0.050	Jan 2016	-		0.050	Continuing	Continuing	-
		Subtotal	-	-		-		0.050		-		0.050	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.050		-		0.050	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675039 / *B-52 System Improvements*

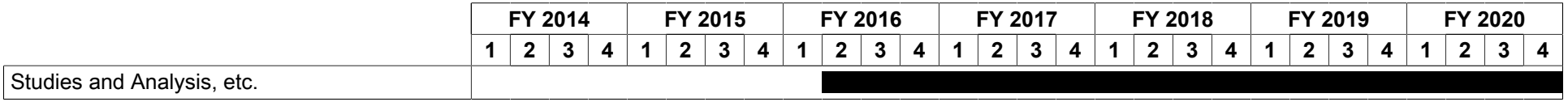

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675039 / *B-52 System Improvements*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Studies and Analysis, etc.	2	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675048: *1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)*	-	7.373	41.134	60.265	-	60.265	26.070	15.244	-	-	-	150.086
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, 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. 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.

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 IBR was conducted in February 2014, validating cost and schedule baselines.

Aircraft Hardware Development: None

Software Development: Consists of modifying aircraft Operational Flight Program (OFP) 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 will be modified using RDT&E funds.

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.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

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 2014	FY 2015	FY 2016
Title: 1760 IWBU Inc 1.1	7.373	11.140	-
Description: Provides internal J-series weapons capability through modification of CSRLs with IWIUs and upgraded weapon management software.			
FY 2014 Accomplishments: Continued Increment 1.1 development: Continued SEEK EAGLE safe separation analysis. Conducted ground testing of CRL prototype and JDAM SMO. Continued B-52 JMPS and Trainer/Ground Maintenance Computer Program (GMCP) software.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Finalized drawings for CRL, and test support equipment modification kits to support Milestone C activity. Continue development of technical orders in preparation for kit-proof. Modify three prototype CRLs. ***FY 2015 Plans:*** Conclude Increment 1.1 development: Conclude SEEK EAGLE safe separation analysis. Conclude ground and initiate flight testing of CRL prototype and JDAM SMO. Conclude B-52 JMPS and Trainer/GMCP software. Finalize drawings for CRL, and test support equipment modification kits to support Milestone C activity. Conclude development of technical orders in preparation for kit-proof. Conclude modification of three prototype CRLs.			
Title: 1760 IWBU Inc 1.2 ***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. ***FY 2015 Plans:*** Implement Increment 1.2 development: Enter Technology Maturation & Risk Reduction phase (TMRR). Award Tech Maturation & Risk Reduction and Weapon Operational Flight Program Software contracts, including test assets. Initiate SEEK Eagle safe separation analysis. Begin designing and coding of software. Initiate test planning efforts. ***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.	-	29.994	60.265
Accomplishments/Planned Programs Subtotals	7.373	41.134	60.265

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # B05200: *B-52 Modifications*	-	6.724	14.472	-	14.472	3.724	0.373	41.561	0.662	-	-
• APAF: BA06: Line Item # 000999: *Initial Spares/Repair Parts*	-	0.449	1.093	-	1.093	0.952	-	0.112	0.840	-	-
• APAF: BA07: Line Item # B05200: *Depot Activation*	-	-	3.960	-	3.960	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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 project will competitively procure the CRL modification kits for full rate production, and installs of the kits will be completed via Contract Field Teams (CFTs).

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).

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 vaildated 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 1760 IWBU Production Development	Various	Boeing : OKC, OK	-	0.771	Dec 2014	5.721	Nov 2014	-		-		-	Continuing	Continuing	-
1.2 1760 IWBU Production Development	Various	Boeing : OKC, OK	-	-		16.446	Feb 2015	32.482	Oct 2015	-		32.482	Continuing	Continuing	-
1.1 1760 IWBU Mission Planning Development	WR	557 SMXS : Tinker AFB, OK	-	-		0.044	Jan 2015	-		-		-	Continuing	Continuing	-
1.2 1760 IWBU MALD OFP	SS/FFP	Raytheon : Tuson, AZ	-	-		3.318	Mar 2015	2.705	Oct 2015	-		2.705	Continuing	Continuing	-
1.2 1760 IWBU JASSM OFP	SS/FFP	Lockheed : St Louis, MO	-	-		3.318	Mar 2015	2.900	Oct 2015	-		2.900	Continuing	Continuing	-
		Subtotal	-	0.771		28.847		38.087		-		38.087	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 1760 IWBU Other Government Costs	Various	Various : Various,	-	0.168	Dec 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.168		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	5.244	Nov 2014	2.170	May 2015	-		-		-	Continuing	Continuing	-
1.2 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	-		0.175	Feb 2015	0.988	May 2016	-		0.988	Continuing	Continuing	-
1.1 1760 IWBU Test Assets	MIPR	Navy Warfare : Patuxent River, MD	-	0.206	Sep 2014	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	-		2.500	Jul 2015	-		-		-	Continuing	Continuing	-
1.2 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	-		-		0.626	Mar 2016	-		0.626	Continuing	Continuing	-
1.1 1760 IWBU Ground Maintenance Computer Program	WR	AFLCMC : Tinker AFB, OK	-	0.050	Jan 2014	-		-		-		-	Continuing	Continuing	-
1.2 1760 IWBU JASSM Test Assets	SS/FFP	Lockheed : St Louis, MO	-	-		5.640	Mar 2015	17.830	Nov 2015	-		17.830	Continuing	Continuing	-
1.2 1760 IWBU MALD Test Assets	SS/FFP	Raytheon : Tuson, AZ	-	-		-		1.510	Nov 2015	-		1.510	Continuing	Continuing	-
		Subtotal	-	5.500		10.485		20.954		-		20.954	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 1760 IWBU Program Management Administration A&AS, Travel	Various	AFLCMC : Tinker AFB, OK	-	0.934	Sep 2014	0.705	Oct 2015	-		-		-	Continuing	Continuing	-
1.2 1760 IWBU Program Management Administration, A&AS, Travel	Various	AFLCMC : Tinker AFB, OK	-	-		1.097	Feb 2015	1.224	Oct 2015	-		1.224	Continuing	Continuing	-
		Subtotal	-	0.934		1.802		1.224		-		1.224	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.373		41.134		60.265		-		60.265	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

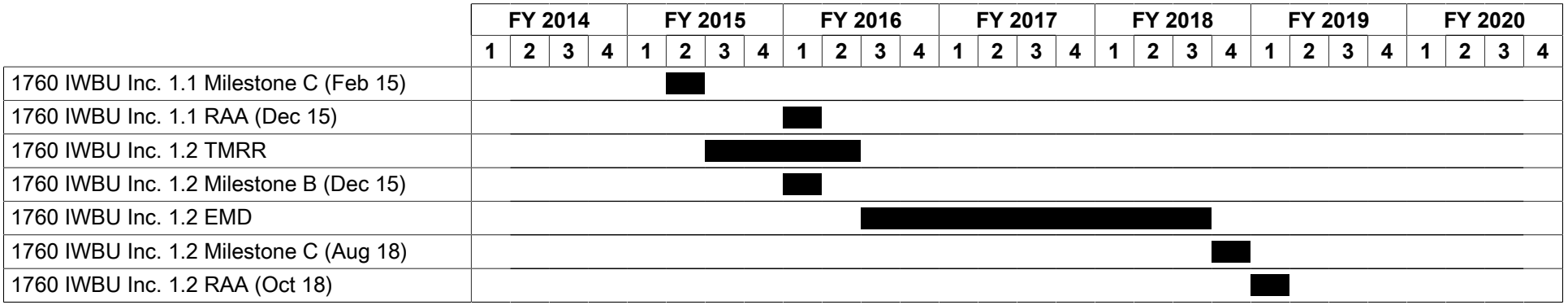

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675048 / *1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
1760 IWBU Inc. 1.1 Milestone C (Feb 15)	2	2015	2	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	3	2016	3	2018
1760 IWBU Inc. 1.2 Milestone C (Aug 18)	4	2018	4	2018
1760 IWBU Inc. 1.2 RAA (Oct 18)	1	2019	1	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675050: *CONECT*	-	9.108	8.323	11.225	-	11.225	12.808	9.097	11.369	-	-	61.930
Quantity of RDT&E Articles	2	-	-	-	-	-	-	-	-	-		

Note

PRIOR YEAR COSTS FOR CONECT FY 05 - FY 12 ARE CONTAINED IN BPAC 675039 B-52 MODERNIZATION. THIS DOCUMENT REFLECTS NEW BPAC 675050 WHICH WAS ESTABLISHED IN FY14.

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; 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 or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the system integration laboratory (SIL) for the Weapon System Trainers (WST).

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 2014	FY 2015	FY 2016
Title: CONECT	9.108	8.323	11.225
Description: Continued 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 or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WST.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
FY 2014 Accomplishments: Continue DMS redesign development and test effort. Continuation of 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. ***FY 2015 Plans:*** Complete DMS redesign development and test effort. Continuation of 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 update the existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WST. ***FY 2016 Plans:*** Continuation of 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 update of the existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/ maintain the SIL for the WST.			
Accomplishments/Planned Programs Subtotals	9.108	8.323	11.225

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # B05200: *B-52*	74.221	133.778	128.219	-	128.219	139.317	110.748	52.542	27.637	-	-
• APAF: BA06: Line Item # B05200: *Initial Spares\Repair Parts*	-	5.966	5.474	-	5.474	5.396	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675050 / *CONECT*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA07: Line Item # B05200: *Post Production Support*	5.600	5.249	5.911	-	5.911	9.010	0.201	14.252	5.537	-	-
• APAF:BA07: Line Item # B05200: *Depot Activation*	-	0.198	-	-	-	-	-	-	-	-	-

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / *B-52 SQUADRONS*	Project (Number/Name) 675050 / *CONECT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CONECT EMD - Wright Patt	SS/ Various	Boeing : Oklahoma City, OK	-	7.441	Mar 2015	1.184	Mar 2015	0.050	Feb 2016	-		0.050	Continuing	Continuing	-
		Subtotal	-	7.441		1.184		0.050		-		0.050	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Trainer Update	Various	AFLCMC/WNS : WPAFB, OH	-	0.465	Sep 2014	6.529	Aug 2015	11.155	Feb 2016	-		11.155	Continuing	Continuing	-
Other Government Costs (OGC)	Various	Various : ,	-	0.441	May 2014	0.600	Feb 2015	0.010	Feb 2016	-		0.010	Continuing	Continuing	-
		Subtotal	-	0.906		7.129		11.165		-		11.165	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AFTRS R2/R3 Testing	PO	Edwards AFB : , CA	-	0.485	Apr 2014	0.010	Feb 2015	0.010	Feb 2016	-		0.010	Continuing	Continuing	-
Operational Test Support for DMS Redesign	PO	53rd Wing : Barksdale AFB, LA	-	0.204	Jan 2015	-		-		-		-	Continuing	Continuing	-
DMS Redesign JREAP Support/Analysis	PO	46th Test Squad : Eglin AFB, FL	-	0.062	May 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.751		0.010		0.010		-		0.010	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AAS, Travel, Centralized Support	Various	Various : ,	-	0.010	Apr 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.010		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / *B-52 SQUADRONS*	Project (Number/Name) 675050 / *CONECT*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	9.108		8.323		11.225		-		11.225	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675050 / *CONECT*

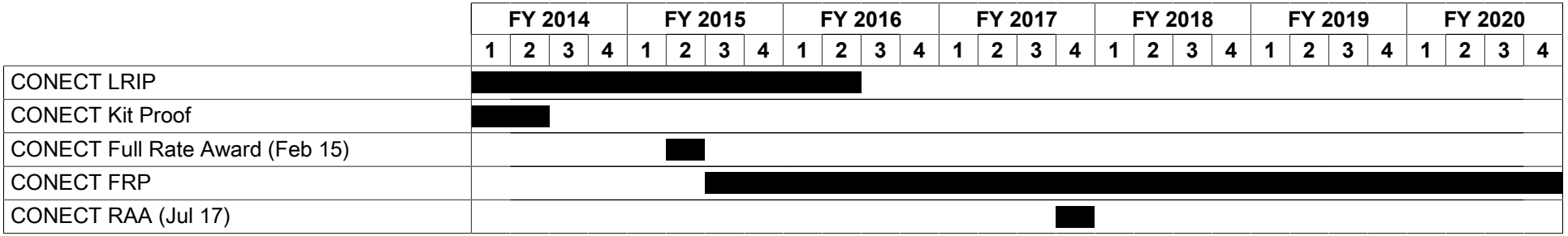

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675050 / *CONECT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CONECT LRIP	1	2014	2	2016
CONECT Kit Proof	1	2014	2	2014
CONECT Full Rate Award (Feb 15)	2	2015	2	2015
CONECT FRP	3	2015	4	2020
CONECT RAA (Jul 17)	4	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675055: *GPS-IU*	-	-	-	2.980	-	2.980	9.921	13.885	11.899	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, Project 675055, GPS-IU, includes new start effort for Global Positioning System (GPS)-Interface Unit(IU) Replacement.

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-IU (76 installed on B-52H, plus current inventory levels of 17, plus 1 in the System Integration Laboratory (SIL)) will be upgraded by Prime Contractor Boeing, and the upgraded LRUs replaced using blue-suit installation, using remove-and-replace processes on the flight line (the current maintenance process). This is a new initiative upgrade to the B-52H platform.

GPS-IU acts as a controller and a communications path between onboard computer systems, ensuring data needed by one system is available in the correct format for the requesting system. 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 address obsolescence, as well as increase memory and throughput capacity to ensure future modernization efforts are successful.

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 2014	FY 2015	FY 2016
Title: Global Positioning System (GPS) Interface Unit (IU)	-	-	2.980
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 2016 Plans:*** Enter GPS-IU Technology Maturation Risk Reduction (TMRR) phase. Award TMRR sole source contract to Boeing, OKC OK.			
Accomplishments/Planned Programs Subtotals	-	-	2.980

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675055 / *GPS-IU*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Award Technology Maturation Risk Reduction (TMRR) phase sole source contract to Boeing, OKC OK

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / *B-52 SQUADRONS*	Project (Number/Name) 675055 / *GPS-IU*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS-IU TMRR	SS/ Various	Boeing : Oklahoma City, OK	-	-		-		2.980	May 2017	-		2.980	Continuing	Continuing	-
		Subtotal	-	-		-		2.980		-		2.980	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		2.980		-		2.980	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675055 / *GPS-IU*

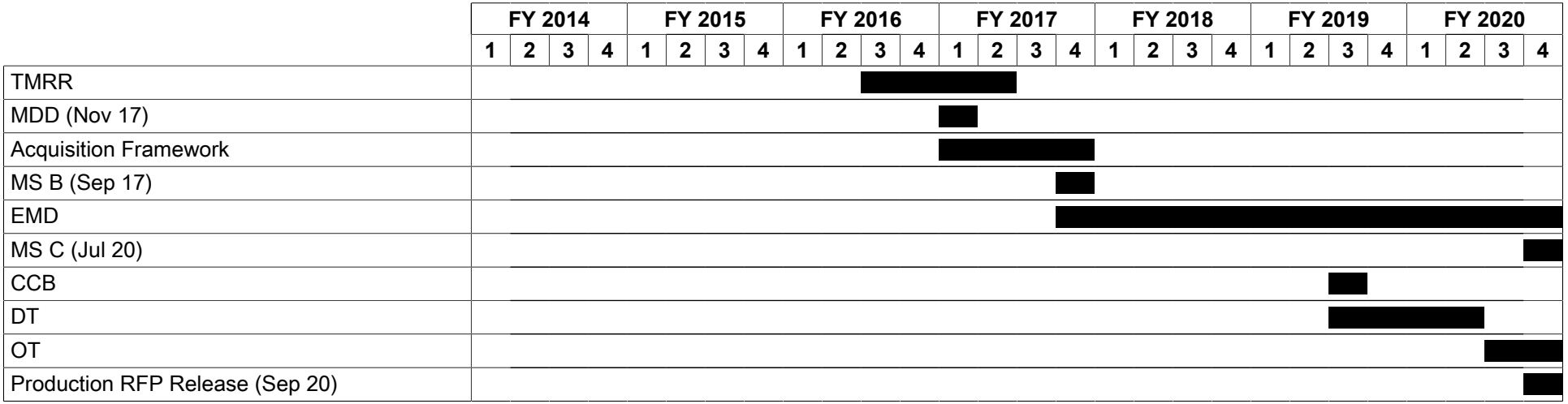

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101113F / *B-52 SQUADRONS*	**Project (Number/Name)** 675055 / *GPS-IU*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TMRR	3	2016	2	2017
MDD (Nov 17)	1	2017	1	2017
Acquisition Framework	1	2017	4	2017
MS B (Sep 17)	4	2017	4	2017
EMD	4	2017	4	2020
MS C (Jul 20)	4	2020	4	2020
CCB	3	2019	3	2019
DT	3	2019	2	2020
OT	3	2020	4	2020
Production RFP Release (Sep 20)	4	2020	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101122F / *Air-Launched Cruise Missile (ALCM)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.983	0.450	0.451	-	0.451	0.458	0.467	0.477	0.486	Continuing	Continuing
674797: *ALCM Sustainment*	-	0.983	0.450	0.451	-	0.451	0.458	0.467	0.477	0.486	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 W80 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 purpose of this program is to ensure ALCM sustainability through 2030 in support of Air Force strategic nuclear deterrence and global strike mission requirements.

An ALCM Service Life Extension Program (SLEP) was developed to support ALCM Service Life through 2030. The results of SLEP studies identified system components and support equipment that will become non-supportable prior to 2030. Service life extension of this critical weapon is essential to meet United States Strategic Command (USSTRATCOM) deliberate planning commitments. Development funds are required to add capabilities to assist in identifying candidate components for future SLEP efforts.

The Aging and Surveillance program for ALCM 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. Development funds are required to update software, test procedures, and test equipment. FY16 funding will allow for the development of test capabilities for additional ALCM components.

As part of the build phase of the sustaining engineering approach, the program has developed a plan for ALCM sustainment using a computer-aided decision making process called the ALCM Sustainment Enhancement Toolbox (ASET). The first phase of ASET is the ALCM Report Recommendation Tool (ARRT) that will develop the software tools to sustain ALCM to 2030. Funds will also be used to develop test procedures to implement the Chairman of the Joint Chiefs of Staff (CJCS)-directed requirements for Electromagnetic (EM) survivability testing including, but not limited to, High-altitude Electromagnetic Pulse (HEMP), Hazards of EM Radiation to Ordnance (HERO) and High-Powered Microwave (HPM) testing for nuclear systems.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	0.450	0.450	0.454	-	0.454
Current President's Budget	0.983	0.450	0.451	-	0.451
Total Adjustments	0.533	-	-0.003	-	-0.003
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.533	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.003	-	-0.003

Change Summary Explanation

FY14: $0.533M of additional funding received in the FY14 Omnibus reprogramming request for the ALCM Report Recommendation Tool (ARRT)
FY16: -$0.003 for inflation adjustment

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: ALCM Aging and Surveillance Program	0.180	0.195	0.351	-	0.351
Description: Continue Aging and Surveillance program for ALCM system components to identify age-related failure trends and prevent reliability and supportability issues.					
FY 2014 Accomplishments: - Conducted Aging and Surveillance program for ALCM system components at a reduced level of effort due to a higher EM test priority. - Will resume planned level of Aging and Surveillance effort in FY15.					
FY 2015 Plans: Continue Aging and Surveillance Program for ALCM system components to identify age-related failure trends and prevent reliability and supportability issues.					
FY 2016 Base Plans:					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue Aging and Surveillance Program for ALCM system components to identify age-related failure trends and prevent reliability and supportability issues. Program ramps back up to full level of effort with maturation of Electromagnetic (EM) test development. ***FY 2016 OCO Plans:*** N/A					
Title: ALCM EM Test Plan Development ***Description:*** Develop test procedures to implement CJCS-directed requirement for EM testing for nuclear systems. ***FY 2014 Accomplishments:*** Developed test procedures to implement CJCS-directed requirement for EM testing for nuclear systems. ***FY 2015 Plans:*** Continue to develop test procedures to implement CJCS-directed requirement for EM testing for nuclear systems. ***FY 2016 Base Plans:*** Continue to develop test procedures to implement CJCS-directed requirement for EM testing for nuclear systems. ***FY 2016 OCO Plans:*** N/A	0.283	0.255	0.100	-	0.100
Title: ALCM Sustainment Enhancement Tool (ASET) ***Description:*** Develop the ALCM Report Recommendation Tool (ARRT), a computer-aided decision-making process, to support ALCM sustainment to 2030. ***FY 2014 Accomplishments:*** Developed the ALCM Report Recommendation Tool (ARRT), a computer-aided decision-making process, to support ALCM sustainment to 2030. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:***	0.520	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.983	0.450	0.451	-	0.451

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA03: Line Item # MALCBG: *ALCM, Missile Modifications*	6.888	16.083	25.019	-	25.019	15.785	15.395	17.836	3.894	Continuing	Continuing
• MPAF: BA04: Line Item # MALCBG: *ALCM, Replenishment Spares*	4.561	4.767	0.496	-	0.496	0.496	2.960	2.322	2.363	Continuing	Continuing
• OPAF: BA03: Line Item # MALCBG: *ALCM, Electronics & Telecomunications Equipment (BP83)*	1.125	1.989	1.908	-	1.908	1.724	1.753	1.785	1.816	Continuing	Continuing

Remarks

E. Acquisition Strategy

The ALCM Aging and Surveillance Program is being executed by the prime contractor utilizing annual delivery orders on a Firm Fixed Price (FFP) contract.

The EM test development will be funded via a Military Interdepartmental Purchase Request (MIPR) to White Sands Missile Range, NM.

ARRT is a 206-funded organic workload to the Tinker Software Lab.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*	**Project (Number/Name)** 674797 / *ALCM Sustainment*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALCM Aging and Surveillance	C/FFP	Boeing : St. Louis, MO	-	0.175	Mar 2014	0.190	Jan 2015	0.346	Jan 2016	-		0.346	Continuing	Continuing	-
ALCM Sustainment Enhancement Toolbox (ASET)	MIPR	OC-ALC : OKC, OK	-	0.520	Nov 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.695		0.190		0.346		-		0.346	-	-	-

Remarks

The ALCM Aging and Surveillance Program is being executed by the prime contractor utilizing annual delivery orders on a Firm Fixed Price (FFP) contract. A new contract in FY13 changed the period of performance from June-to-June to January-to-January with two subsequent one-year options ending 31 Dec 2015.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EM Test Plan Development	MIPR	White Sands Missile Range : , NM	-	0.283	Nov 2013	0.255	Feb 2015	0.100	Nov 2015	-		0.100	Continuing	Continuing	-
		Subtotal	-	0.283		0.255		0.100		-		0.100	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Government Costs	Various	Various : Various,	-	0.005	Aug 2014	0.005	Aug 2015	0.005	Aug 2016	-		0.005	Continuing	Continuing	TBD
		Subtotal	-	0.005		0.005		0.005		-		0.005	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*	**Project (Number/Name)** 674797 / *ALCM Sustainment*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks ALCM Aging and Surveillance Program PMA is for Supplies and Travel in project number 674797															
Project Cost Totals			-	0.983		0.450		0.451		-		0.451	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*	**Project (Number/Name)** 674797 / *ALCM Sustainment*

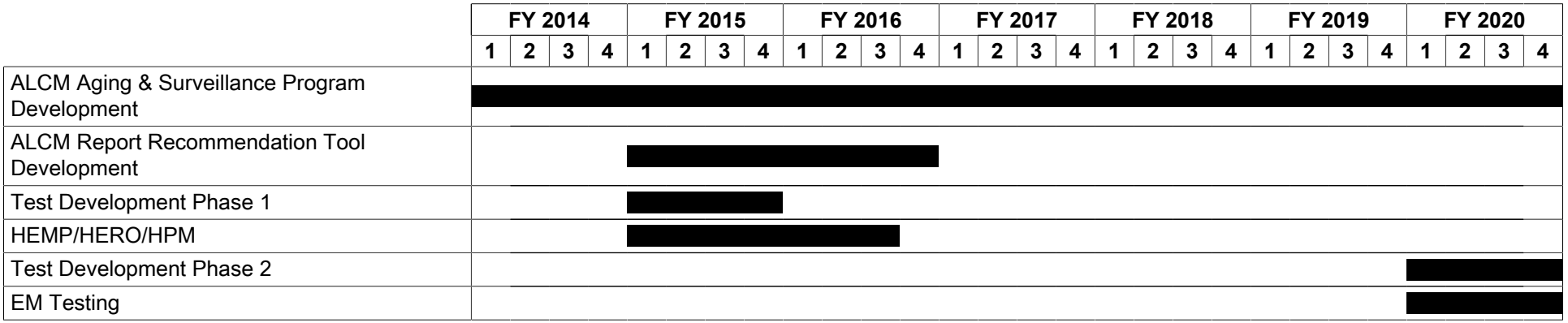

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101122F / *Air-Launched Cruise Missile (ALCM)*	**Project (Number/Name)** 674797 / *ALCM Sustainment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALCM Aging & Surveillance Program Development	1	2014	4	2020
ALCM Report Recommendation Tool Development	1	2015	4	2016
Test Development Phase 1	1	2015	4	2015
HEMP/HERO/HPM	1	2015	3	2016
Test Development Phase 2	1	2020	4	2020
EM Testing	1	2020	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101126F / *B-1B Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	14.355	4.353	2.245	-	2.245	2.990	0.706	-	-	Continuing	Continuing
675344: *B-1B Modernization*	-	14.355	4.353	2.245	-	2.245	2.990	0.706	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-1B Lancer is a swing-wing, supersonic, long-range, conventional bomber. It carries the largest payload of both guided and unguided weapons in the 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.

This effort provides funding for B-1B modernization programs. These modernization programs 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.

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 programs. These upgrades are required to bring the simulators up to the same configuration of the modernized aircraft. The B-1B training system provides the war fighter with a fully integrated, cost effective, high fidelity training capability in flight operations, weapons employment, and maintenance of the B-1B weapon system.

Aircraft RDT&E efforts include development of a Self-Contained Standby Attitude Indicator (SCAI). This development activity will replace three standby flight indicators (attitude, altimeter, and airspeed) with a more reliable/supportable commercial off-the-shelf display that combines all necessary flight information into one device. If the primary flight instruments are lost, SCAI will continue to provide the flight information needed to fly the aircraft. Standby instrumentation must be functional and reliable in the event of primary flight display failure, and is a Mission-Essential Subsystem List (MESL) item required for flight.

Upgrades to the B-1B flight test aircraft are included in the modernization programs 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.

Additionally, program funds cover engineering/planning studies, related engineering efforts, and auxiliary equipment needed for development programs 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 programs support planned requirements for unique identification in their production phases.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101126F / *B-1B Squadrons*

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

The FY2016 funding request was reduced by $1.780 million to account for the availability of prior year balances.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.774	5.353	4.040	-	4.040
Current President's Budget	14.355	4.353	2.245	-	2.245
Total Adjustments	1.581	-1.000	-1.795	-	-1.795
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.000	-			
• SBIR/STTR Transfer	-0.419	-			
• Other Adjustments	-	-	-1.795	-	-1.795

Change Summary Explanation

FY14 reprogramming of $2M for SCAI Program.
FY15 change of -$1M due to execution adjustment improving funds management.
The FY2016 funding request was reduced by $1.780 million to account for the availability of prior year balances.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: B-1B IBS Simulator Development	1.165	3.353	-
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 2014 Accomplishments: Simulator and training upgrades conducted software and hardware development with integration and testing to support fielding of CITS, FIDL, and VSDU.			
FY 2015 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101126F / *B-1B Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Simulator and training upgrades will complete software and hardware development with integration and testing to support fielding of CITS, FIDL, and VSDU.			
Title: B-1B Self-Contained Attitude Indicator ***Description:*** The B-1B Self-Contained Attitude Indicator (SCAI) program will replace the legacy standby attitude indicator that uses an obsolete spinning mass gyro with a reliable and supportable standby attitude indicator. ***FY 2014 Accomplishments:*** SCAI development completed prototype hardware, ground/flight testing, and all EMD activities.	8.200	-	-
Title: B-1B Flight Test Upgrades ***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. ***FY 2014 Accomplishments:*** Flight Test Upgrades purchased the upgrade kits to replace CITS, FIDL, and VSDU Engineering and Manufacturing Development (EMD) Line Replaceable Units (LRU) with production LRUs on the test aircraft. This effort provided engineering technical support and analysis for CITS, FIDL, and VSDU EMD LRUs on the RDT&E funded test jets. ***FY 2015 Plans:*** Flight Test Upgrades fund the engineering technical support and analysis for CITS, FIDL, and VSDU EMD LRUs on the RDT&E funded test jets. ***FY 2016 Plans:*** Flight Test Upgrades will continue to fund the engineering technical support and analysis for CITS, FIDL, and VSDU EMD LRUs prior to and during the installation of upgrade kits on test jets. This effort funds the installation of production LRUs installation.	4.990	1.000	2.245
Accomplishments/Planned Programs Subtotals	14.355	4.353	2.245

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # B01B00: *Training Support to Units, Mods*	0.333	0.427	0.434	-	0.434	0.442	0.451	0.458	0.466	-	-
• APAF: BA05: Line Item # B01B00: *Bomber Tactical Data Link, Mods*	-	0.223	1.011	-	1.011	1.392	0.539	0.800	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101126F / *B-1B Squadrons*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line ITem # B01B00: *B-1B Squadrons, Mods*	138.802	219.219	112.674	-	112.674	120.521	74.586	86.777	21.358	-	-
• APAF: BA05: Line Item # B01B00 S...: *B-1B Squadrons, Spares*	14.267	13.093	17.198	-	17.198	9.971	3.898	3.470	-	-	-
• APAF: BA05: Line Item # B01B00:: *Bomber Tactical Data Link, Spares PE0207446F*	-	1.038	-	-	-	-	-	-	-	-	-
• APAF: BA07: Line Item # B00100: *B-1B Squadrons, Post Production Support*	3.683	-	-	-	-	-	-	-	-	-	-

Remarks

(U) Program Element 0208006F, Air Force Mission Planning Systems (AFMPS), Joint Mission Planning System (JMPS)
(U) Program Element 0207446F, Bomber Tactical Data Link

E. Acquisition Strategy

The B-1 IBS Simulator Development program uses a Fixed Price Incentive Firm competitive award contract.

The B-1 Self-Contained Standby Attitude Indicator acquisition strategy includes one year EMD, three years production and installation. The EMD portion of the Contract is a Cost Plus Fixed Fee (CPFF) with Firm Fixed Price for production.

The B-1B Flight Test Upgrades program is using a sole source CPFF contract with the prime / integrating contractor (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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / *B-1B Squadrons*	Project (Number/Name) 675344 / *B-1B Modernization*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
B-1B IBS Simulator Development (CITS FIDL VSDU)	C/FPIF	AAI : Goose Creek, SC	-	0.810	Apr 2014	2.682	Apr 2015	-		-		-	Continuing	Continuing	-
B-1B Self Contained Attitude Indicator	C/CPFF	TBD : ,	-	8.200	Jan 2015	-		-		-		-	Continuing	Continuing	-
B-1B Flight Test Aircraft Upgrades	SS/FFP	Boeing : OKC, OK	-	4.990	Mar 2014	0.980	May 2016	2.000	Jun 2016	-		2.000	Continuing	Continuing	-
		Subtotal	-	14.000		3.662		2.000		-		2.000	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies	Various	TBD : ,	-	-		0.500	Jun 2015	0.220	Jun 2016	-		0.220	Continuing	Continuing	-
		Subtotal	-	-		0.500		0.220		-		0.220	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A AS	Various	Various : Various,	-	0.238	Dec 2013	0.144		-		-		-	Continuing	Continuing	-
PMA	Various	Various : Various,	-	0.117	Jan 2014	0.047	Dec 2015	0.025	Jul 2015	-		0.025	Continuing	Continuing	-
		Subtotal	-	0.355		0.191		0.025		-		0.025	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / *B-1B Squadrons*	Project (Number/Name) 675344 / *B-1B Modernization*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.355		4.353		2.245		-		2.245	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101126F / *B-1B Squadrons*	**Project (Number/Name)** 675344 / *B-1B Modernization*

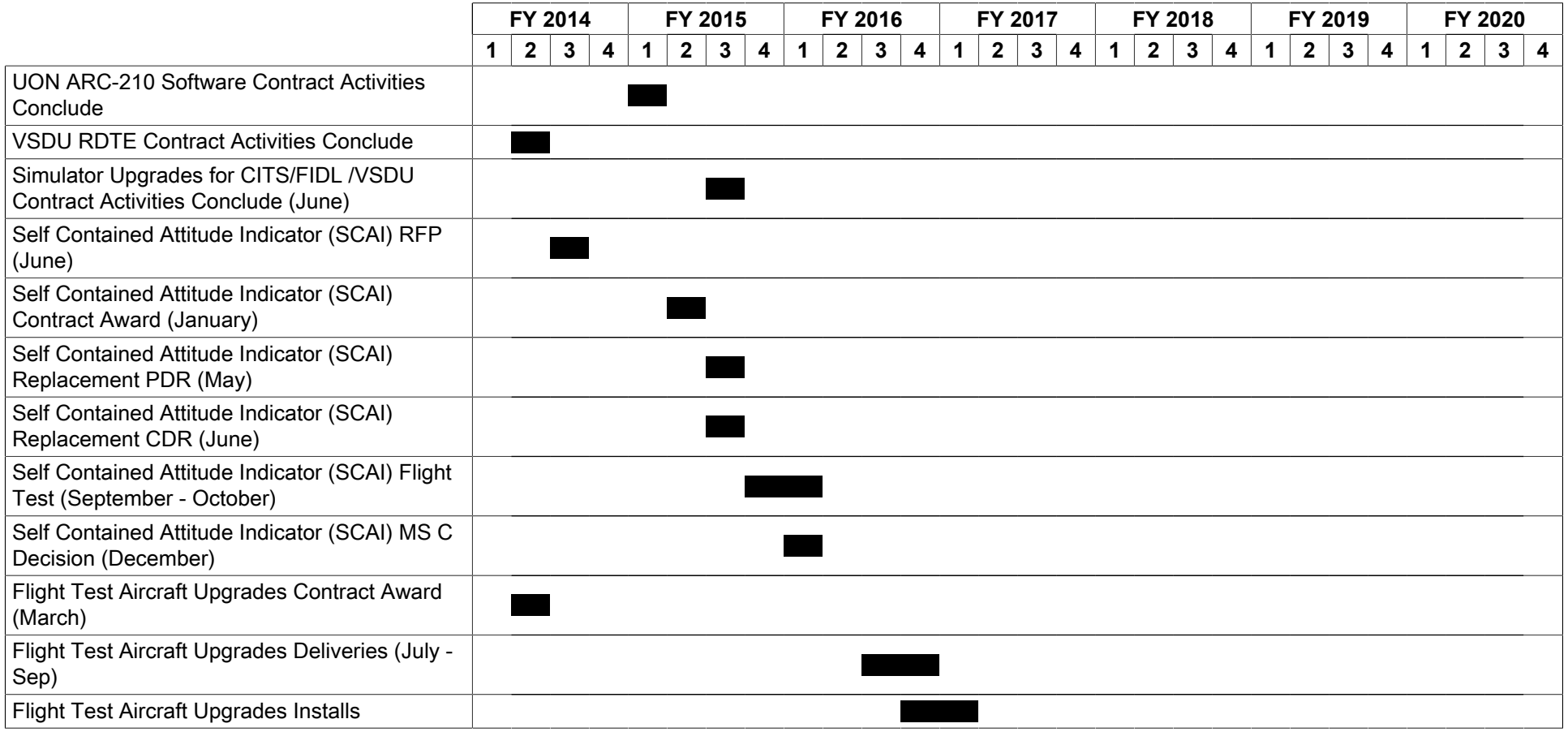

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101126F / *B-1B Squadrons*	**Project (Number/Name)** 675344 / *B-1B Modernization*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UON ARC-210 Software Contract Activities Conclude	1	2015	1	2015
VSDU RDTE Contract Activities Conclude	2	2014	2	2014
Simulator Upgrades for CITS/FIDL /VSDU Contract Activities Conclude (June)	3	2015	3	2015
Self Contained Attitude Indicator (SCAI) RFP (June)	3	2014	3	2014
Self Contained Attitude Indicator (SCAI) Contract Award (January)	2	2015	2	2015
Self Contained Attitude Indicator (SCAI) Replacement PDR (May)	3	2015	3	2015
Self Contained Attitude Indicator (SCAI) Replacement CDR (June)	3	2015	3	2015
Self Contained Attitude Indicator (SCAI) Flight Test (September - October)	4	2015	1	2016
Self Contained Attitude Indicator (SCAI) MS C Decision (December)	1	2016	1	2016
Flight Test Aircraft Upgrades Contract Award (March)	2	2014	2	2014
Flight Test Aircraft Upgrades Deliveries (July - Sep)	3	2016	4	2016
Flight Test Aircraft Upgrades Installs	4	2016	1	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101127F / *B-2 SQUADRONS*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	80.225	116.580	108.183	-	108.183	69.768	31.808	32.409	32.988	Continuing	Continuing
675345: *B-2 Modernization*	0.000	60.498	96.909	94.621	-	94.621	55.972	17.747	18.083	18.406	Continuing	Continuing
676021: *BASELINE SUPPORT*	0.000	19.727	19.671	13.562	-	13.562	13.796	14.061	14.326	14.582	Continuing	Continuing
MDAP/MAIS Code: 224												

Note

In FY 2016 Project 675345, B-2 Modernization, includes new start effort for B-2 strategic communication.

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, alternative communication solutions such as Common Very Low Frequency Receiver, Massive Ordnance Penetrator weapon integration and modernization of Global Positioning System hardware and signal enhancement, Flexible Strike Phase 1, Link-16 Center Instrument Display/In-Flight Replanner and Multifunctional Information Distribution System Low Volume Terminal modernization, Training System upgrades, Mission Planning System improvements, flight test aircraft upgrades and base of operations support, integration and testing of upgraded crypto components, and other weapons integration and engine improvements, 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	87.810	131.580	81.904	-	81.904
Current President's Budget	80.225	116.580	108.183	-	108.183
Total Adjustments	-7.585	-15.000	26.279	-	26.279
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-15.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.700	-			
• SBIR/STTR Transfer	-2.885	-			
• Other Adjustments	-	-	26.279	-	26.279

Change Summary Explanation

FY14: -$4.7M for higher Air Force prioities, -$2.885M SBIR

FY15: -$15.0M Congressional reduction for Improving Funds Management: Forward Financing

FY16: +$10.926M for B-2 strategic communications, +$15.720M for Common VLF Receiver Increment 1

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675345: *B-2 Modernization*	-	60.498	96.909	94.621	-	94.621	55.972	17.747	18.083	18.406	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016 Project 675345, B-2 Modernization, includes new start effort for B-2 strategic communication.

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 as well as 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, very low bandwidth VLF 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. Secure, survivable, two-way communications in an anti-access/area denial environment remains a requirement for the B-2. The Air Force will assess B-2 strategic communications performance requirements for advanced extremely high frequency (AEHF) and other waveforms, conduct technology maturation, assess affordability impacts, and conduct other acquisition planning activities in anticipation of entering a near-term EMD phase. The Link 16 Multifunctional Information Distribution System block upgrade will provide enhanced security for Link 16 tactical networks and improve the reliability and maintainability of the system.

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 B-2 is the only anti-access/area denial penetrating platform capable of carrying the Massive Ordnance Penetrator (MOP), a capability which meets Urgent Operational Need requirements. The MOP Quick Reaction Capability effort includes dual fuze control and single Smart Bomb Rack Controller per bay weapon control and monitor. The Flexible Strike Phase 1 program will rehost the current B-2 stores management software onto a new integrated processor; future efforts could update other software and hardware to enable simultaneous multiple weapons carriage capabilities, providing B-2 with maximum strategic nuclear and conventional strike flexibility. The B-2 Weapons System Tester and its associated Test Program Sets (TPS), to include but not limited to, the Common Organizational Level Tester (COLT), and B-2 Replacement Armament Tester, will be continually upgraded for increased reliability and performance to support current and new B-2 weapon suspension and release systems. B-2 will also integrate the Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER) weapon as well as other Expanded Strike weapons to further enhance the B-2's ability to attack and destroy high value target sets, making this platform the most versatile long range strategic bomber in the Air Force arsenal.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

Low Observable Signature and Supportability Modifications (LOSSM) directly address B-2 aircraft availability, the primary stated B-2 user requirement. 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 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.

Peculiar support equipment development activities include design, development, test, and procurement of new peculiar support equipment, to include but not limited to, special test equipment for newly emerging test and support requirements of legacy B-2 capabilities and/or functionality. Development of new peculiar support equipment will support test and sustainment activities at the B-2 Weapon System Support Center Ground Test Facility, Program Depot Maintenance facility, Test Range facilities, and AFGSC operating locations.

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. Improvements include, but are not limited to, threat systems parametrics and order of battle information, radar display emulation improvements, improved aero fidelity of key pilot procedures, courseware improvements, and upgrades to display systems, subsystems, and simulation and computational processors. Other upgrades include, but are not limited to, conventional and nuclear guided weapons delivery training, expanded crypto keyfill capability in simulators, upgraded capability to train weapons as powered up upon completion of initial conditions, as well as upgrades to the electronic combat environment threat database tools to include threat laydown, threat parametrics, and Integrated Air Defense System. Upgrades also include the current Defensive Management System (DMS) simulation, improved DMS alternative/ emergency procedures courseware, and upgraded Mission Generation System, Suppressor tool, and simulation and computational processors as necessary. Enhancements are provided to the B-2 family of trainers to include the Weapon System Trainers, Mission Trainer, Cockpit Procedures Trainers, Computerized Maintenance Training System, Weapon System Training Aids, Weapons Load Trainer, Crew Escape System Maintenance Trainer, Flight Control System Trainer, instructor-operator station, and Training System Support Center.

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: B-2 Common Very Low Frequency Receiver (CVR)	13.035	45.460	42.070
Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-2.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Continued Common VLF Receiver development effort, entered Engineering and Manufacturing Development phase. ***FY 2015 Plans:*** Continue Engineering and Manufacturing Development efforts and conduct Preliminary Design Review and System Critical Design Review. ***FY 2016 Plans:*** Continue Engineering and Manufacturing Development efforts, conduct Flight Test, and prepare for entry into Production.			
Title: B-2 Flex Strike Phase 1 ***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. ***FY 2014 Accomplishments:*** Concluded requirements maturation and risk reduction efforts, conducted Preliminary Design Review, conducted Milestone B,and entered the Engineering and Manufacturing Development phase. ***FY 2015 Plans:*** Continue Engineering and Manufacturing Development efforts and conduct Critical Design Review. ***FY 2016 Plans:*** Continue Engineering and Manufacturing Development efforts. Conduct software/hardware integration testing and flight test.	27.266	49.519	39.683
Title: Low Observable Signature and Supportability Mods ***Description:*** B-2 Modernization includes, but is not limited to, Low Observable Signature and Supportability Modifications, Massive Ordnance Penetrator with accuracy improvements, Joint Air-to-Surface Standoff Missile- Extended Range and Expanded Strike weapons integration, armament tester improvements, Training System core upgrades, Link 16 Center Instrument Display/Inflight Replanner, Mode S/5 Identification Friend or Foe with Automatic Dependence Surveillance-Broadcast capability improvements, Moving Target Kill and Non-Traditional Surveillance and Reconnaissance capability improvements, information fusion upgrades, and Special Test Equipment development. ***FY 2014 Accomplishments:*** Continued development of on-going Low Observable Signature and Supportability Modifications, Training System core upgrades, Aircraft Supportability Modifications, and other weapons integration improvements including, LOSSM Signature Diagnostic System Spirals 10.5 and 11, LOSSM Radar Radomes, LOSSM Advance Signature Reduction Parts 1 and 3, as well as LOSSM Survivability Deficiency Trade Study ***FY 2015 Plans:***	20.197	1.930	1.942

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Continue development of on-going Low Observable Signature and Supportability Modifications, Training System core upgrades, Aircraft Supportability Modifications, and other weapons integration improvements. ***FY 2016 Plans:*** Continue development of on-going Low Observable Signature and Supportability Modifications, Training System core upgrades, Aircraft Supportability Modifications, and other weapons integration improvements.			
Title: B-2 Strategic Communications ***Description:*** 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. ***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.	-	-	10.926
Accomplishments/Planned Programs Subtotals	60.498	96.909	94.621

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item #B00200: *B-2 CVR Inc 1 Mod Funding*	-	-	19.190	-	19.190	18.758	9.407	4.041	-	-	-
• APAF: BA05: Line Item # B00200: *B-2 Training Support Modification, PE 0809731F*	2.006	6.415	3.131	-	3.131	9.663	9.140	7.928	8.062	Continuing	Continuing
• APAF: BA07: Line Item #B00200: *B-2 Post Production Support, B-2A ICS for CVR Inc 1: PE 0101127F*	-	-	-	-	-	0.010	0.132	0.256	-	Continuing	Continuing
• APAF: BA06: Line Item #B00200: *B-2 Squadrons, A/C Initial Spares for CVR Inc 1*	-	-	-	-	-	2.054	2.595	-	-	Continuing	Continuing
• APAF:BA07: Line Item #B00200: *B-2 Depot Activation for CVR Inc 1, PE0101127F*	-	-	2.196	-	2.196	0.768	0.512	-	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / *B-2 SQUADRONS*	Project (Number/Name) 675345 / *B-2 Modernization*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
B-2 Flex Strike Phase 1	Various	Various : Various,	0.000	21.923	Jan 2014	45.032	Dec 2014	29.504	Nov 2015	-		29.504	Continuing	Continuing	-
B-2 Common Very Low Frequency Receiver (CVR)	Various	Various : Various,	0.000	11.475	Jan 2014	34.883	Oct 2014	38.136	Oct 2015	-		38.136	Continuing	Continuing	-
Low Observable Signature and Supportability Mods	Various	Various : Various,	0.000	19.912	Dec 2014	1.676	Feb 2015	1.707	Feb 2016	-		1.707	Continuing	Continuing	-
B-2 Advanced Extremely High Frequency Communications	Various	Various : Various,	0.000	-		-		10.605	Jan 2016	-		10.605	Continuing	Continuing	-
Aircrew Training	Various	Various : Various,	0.000	2.160	Dec 2013	5.378	Dec 2014	3.142	Dec 2015	-		3.142	Continuing	Continuing	-
Mission Planning	Various	Various : Various,	0.000	2.860	Jan 2014	1.238	Jan 2015	0.509	Jan 2016	-		0.509	Continuing	Continuing	-
		Subtotal	0.000	58.330		88.207		83.603		-		83.603	-	-	-

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.

LOSSM received excess FY14 funds from Flexible Strike Phase 1 that could not be earned in FY14/15. Redirection of FY14 excess funds to LOSSM funded several previously unfunded requirements while correcting a funding phasing problem within Flexible Strike.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Test	PO	AFFTC : ,	0.000	0.110	Nov 2013	4.500	Nov 2014	8.044	Nov 2015	-		8.044	Continuing	Continuing	-
		Subtotal	0.000	0.110		4.500		8.044		-		8.044	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / *B-2 SQUADRONS*	Project (Number/Name) 675345 / *B-2 Modernization*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : ,	0.000	2.058	Oct 2013	4.202	Oct 2014	2.974	Oct 2015	-		2.974	Continuing	Continuing	TBD
		Subtotal	0.000	2.058		4.202		2.974		-		2.974	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	60.498		96.909		94.621		-		94.621	-	-	-

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

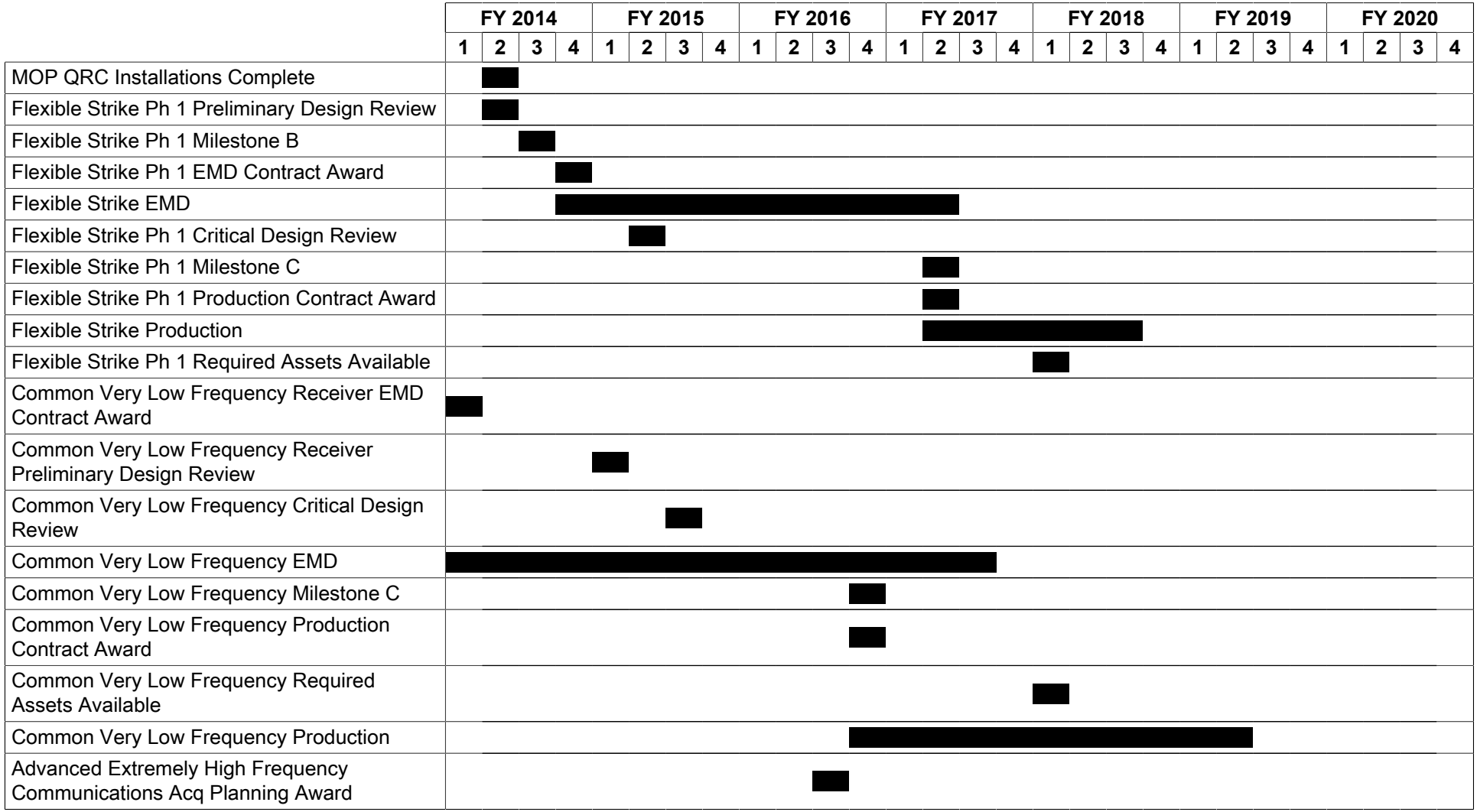

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 675345 / *B-2 Modernization*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MOP QRC Installations Complete	2	2014	2	2014
Flexible Strike Ph 1 Preliminary Design Review	2	2014	2	2014
Flexible Strike Ph 1 Milestone B	3	2014	3	2014
Flexible Strike Ph 1 EMD Contract Award	4	2014	4	2014
Flexible Strike EMD	4	2014	2	2017
Flexible Strike Ph 1 Critical Design Review	2	2015	2	2015
Flexible Strike Ph 1 Milestone C	2	2017	2	2017
Flexible Strike Ph 1 Production Contract Award	2	2017	2	2017
Flexible Strike Production	2	2017	3	2018
Flexible Strike Ph 1 Required Assets Available	1	2018	1	2018
Common Very Low Frequency Receiver EMD Contract Award	1	2014	1	2014
Common Very Low Frequency Receiver Preliminary Design Review	1	2015	1	2015
Common Very Low Frequency Critical Design Review	3	2015	3	2015
Common Very Low Frequency EMD	1	2014	3	2017
Common Very Low Frequency Milestone C	4	2016	4	2016
Common Very Low Frequency Production Contract Award	4	2016	4	2016
Common Very Low Frequency Required Assets Available	1	2018	1	2018
Common Very Low Frequency Production	4	2016	2	2019
Advanced Extremely High Frequency Communications Acq Planning Award	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676021: *BASELINE SUPPORT*	-	19.727	19.671	13.562	-	13.562	13.796	14.061	14.326	14.582	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. 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 2014	FY 2015	FY 2016
Title: Baseline Support Acq Plan/Studies/Integr Tst Spt	7.271	4.238	0.395
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 2014 Accomplishments:*** Continued Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, and program integration activities, as well as integration and test support of upgraded crypto components. ***FY 2015 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, and refine requirements and study 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, and refine requirements and study affordable options to satisfy B-2 communications requirements in an anti-access/area denial environment.			
Title: Baseline Support Flight Test	9.957	13.176	10.155

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 676021 / *BASELINE SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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. ***FY 2014 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. ***FY 2015 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. ***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.			
Title: Baseline Support Mission Planning ***Description:*** Description: Baseline Support Mission Planning System improvements ensure the mission planning system keeps pace with aircraft modifications and improves mission planning core systems. ***FY 2014 Accomplishments:*** Continued B-2 Mission Planning activities, keeping pace with aircraft mods 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). ***FY 2015 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). ***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).	2.499	2.257	3.012
Accomplishments/Planned Programs Subtotals	19.727	19.671	13.562

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 676021 / *BASELINE SUPPORT*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / *B-2 SQUADRONS*	Project (Number/Name) 676021 / *BASELINE SUPPORT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Planning	Various	Various : Various,	0.000	2.414	Jan 2014	2.039	Jan 2015	2.600	Jan 2016	-		2.600	Continuing	Continuing	TBD
		Subtotal	0.000	2.414		2.039		2.600		-		2.600	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other Government Costs	Various	Various : Various,	0.000	13.912	Oct 2013	13.372	Oct 2014	8.006	Oct 2015	-		8.006	Continuing	Continuing	TBD
		Subtotal	0.000	13.912		13.372		8.006		-		8.006	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Test	PO	AFFTC : ,	0.000	3.260	Oct 2013	3.587	Oct 2014	2.559	Oct 2015	-		2.559	Continuing	Continuing	TBD
		Subtotal	0.000	3.260		3.587		2.559		-		2.559	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : ,	0.000	0.141	Oct 2013	0.673	Oct 2014	0.397	Oct 2015	-		0.397	Continuing	Continuing	TBD
		Subtotal	0.000	0.141		0.673		0.397		-		0.397	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	19.727		19.671		13.562		-		13.562	-	-	-

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 676021 / *BASELINE SUPPORT*

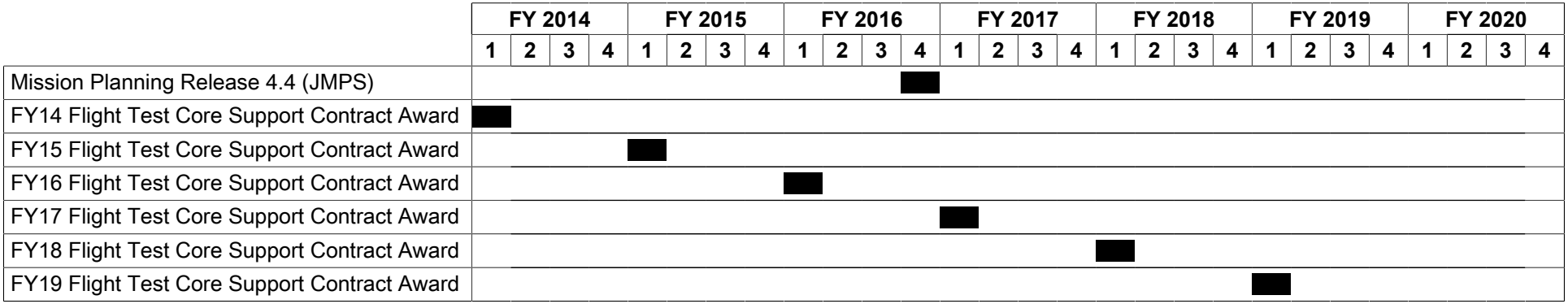

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101127F / *B-2 SQUADRONS*	**Project (Number/Name)** 676021 / *BASELINE SUPPORT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Mission Planning Release 4.4 (JMPS)	4	2016	4	2016
FY14 Flight Test Core Support Contract Award	1	2014	1	2014
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

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	139.109	178.929	-	178.929	193.228	181.622	82.937	79.172	Continuing	Continuing
672983: *MM Ground and Comm Equipment*	-	-	23.678	78.359	-	78.359	124.075	135.872	63.463	73.093	Continuing	Continuing
672984: *MM III Baseline Support*	-	-	21.934	51.173	-	51.173	43.606	26.656	15.172	-	-	158.541
672985: *MM Support Equip*	-	-	40.466	16.552	-	16.552	25.547	19.094	4.302	6.079	Continuing	Continuing
672986: *MM Crypto Mods*	-	-	36.672	32.845	-	32.845	-	-	-	-	-	69.517
672987: *MM Ops Equip*	-	-	16.359	-	-	-	-	-	-	-	-	16.359

Note

In FY 2016, Project 672984, MM III Baseline Support, includes new start efforts for LGM-30G Cadmium Replacement Program (CaDRP) and LGM-30G Squadron Data Simulator (SDS).

In FY 2016, Project 672985, MM Support Equip, the LGM-30G Payload Transporter Replacement (PTR) program was re-established and transferred from PE 0604851F, ICBM - EMD, Project 655037, Support Equipment, in order to consolidate ICBM efforts.

In FY 2016, Project 672987, MM Ops Equipment, the two ongoing efforts will be transferred into PE 0605230F, Ground Based Strategic Deterrent (GBSD), Project 641025. The efforts being transferred are Guidance Modernization Program (GMP) and Solid Rocket Motor Modernization (SRMM).

A. Mission Description and Budget Item Justification

The MM III 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 ALCS, LGM-30G Automatic Switching Unit (ASU), LGM-30G FRBP II, LGM-30G LCCB, LGM-30G Launch Control Center Block Upgrade (LCCBU), and LGM-30G 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 to conduct MM III Operational Test Launches (OTLs) determining ICBM force readiness, reliability and capability shortfalls. Efforts include development, qualification, integration and testing of replacement equipment such as LGM-30G CaDRP, LGM-30G FT3, LGM-30G Ground Test Upgrade (GTU), and LGM-30G 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*

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 Code Systems Media (CSM), LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU), LGM-30G 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 ICBM Crypto Unit 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 will 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 operation through 2030 as well as support future Ground Based Strategic Deterrent (GBSD) requirements. Guidance Modernization Program (GMP) and Solid Rocket Motor Modernization (SRMM) will be 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	139.109	173.067	-	173.067
Current President's Budget	-	139.109	178.929	-	178.929
Total Adjustments	-	-	5.862	-	5.862
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	5.862	-	5.862

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*

Change Summary Explanation

FY 2016 funding reflects a net increase of $5.862M, consisting of an increase of $37.705M in Project 672983, Ground and Comm; an increase of $7.013M in Project 672984, Baseline Support; an increase of $6.963M in Project 672985, Support Equipment; an increase of $18.147; and a decrease of $63.966M in Project 672987, Ops Equipment.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672983 / *MM Ground and Comm Equipment*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672983: *MM Ground and Comm Equipment*	-	-	23.678	78.359	-	78.359	124.075	135.872	63.463	73.093	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 672983, MM Ground and Comm Equipment, Ultra-High Frequency (UHF) Receiver was renamed to LGM-30G Air Launch Control System Replacement, Increment I (ALCS).

In FY 2016, Project 672983, MM Ground and Comm Equipment, includes new start efforts for LGM-30G Fast Rising B-Plug Phase II (FRBP II), LGM-30G Launch Control Center Break-In-Kit (LCCB), and LGM-30G Remote Visual Assessment II (RVA II).

A. Mission Description and Budget Item Justification

The MM III 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 ALCS, LGM-30G ASU, LGM-30G FRBP II, LGM-30G LCCB, LGM-30G LCCBU, and LGM-30G RVA II.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LGM-30G Launch Control Center Block Upgrade (LCCBU)	-	15.778	5.698	-	5.698
Description: The LCCBU program will address elements within the LCC that are experiencing supportability issues. The LCCBU program is an overarching modification effort that replaces LCC 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: 1) Higher Authority Command/Rapid Message Processing Equipment (HAC/RMPE) Service Life Extension replaces the Journal Memory Loader with a modern data storage solution to increase 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) Replacement replaces the current deficient equipment to provide the voice communications quality required to perform the ICBM mission, 4) Weapon System Console (WSC) Printer Replacement replaces current printer that is no longer produced and is unsupportable due to aging hardware and a lack of qualified vendors for replacement/repair components, and 5) Oxygen Regeneration Unit (ORU) replaces the current obsolete system to provide the crew with breathable air during periods when the LCC is locked down. All LCCBU efforts will support the 45 operational LCCs and additional support equipment/test/maintenance locations.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** - Investigate and mature the appropriate set of technologies to be used as replacement solutions. - LCCBU will research solutions for the VCCP first, while continuing develop strategies for the replacement of the other components. ***FY 2016 Base Plans:*** - Continue to identify/mature potential hardware solutions to replace the current components. - Prepare for the Preliminary Design Review, Milestone B and Engineering and Manufacturing Development phase in FY17. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Airborne Launch Control System Replacement, Increment I (ALCS) ***Description:*** ALCS will replace the legacy nuclear command and control (NC2) system that provides the capability to launch MM III ICBMs from an airborne platform (E-6B). The system consists of an Ultra High Frequency (UHF) radio programmer group at each Launch Facility (LF) and a suite of airborne equipment. While not part of the Air Force's management, the current system does use/require the Navy's UHF C3 data path to transmit signals from the E-6B. ALCS will be managed in two increments to provide a low risk approach to meeting GBSD alternate launch requirements while also addressing obsolescence/sustainability issues with the current ALCS MM III system. Increment 1 will replace the existing ALCS equipment with a focus on existing MM III alternate launch capabilities and incorporate GBSD design considerations to reduce risk to Increment II. Increment II will meet alternate launch capabilities required for the GBSD system and leverage the previously developed/fielded Increment I system as much as possible. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Complete Materiel Development Decision for ALCS and enter the acquisition process conducting pre-Milestone B activities.	-	3.300	59.134	-	59.134

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Develop acquisition documentation, to include Acquisition Strategy Document, Source Selection Plan, Request for Proposal, and requirements document. ***FY 2016 Base Plans:*** - Conduct a source selection and award multiple contracts to mature/document ALCS material solution through System Requirements Review. - Contractors will design solutions and identify requirements tradespace for consideration between Increments I and II. Designs will include ground equipment at the LFs, airborne equipment on the E-6B, NC2 cryptographic solutions, and required test/support equipment. Develop the ALCS CDD. - Acquire test equipment to install at the AF's NC2 lab to enable low risk weapon system integration of Increment I, reduce risk for Increment II, and provide a first ever, end-to-end test capability for ALCS. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Automatic Switching Unit (ASU)	-	4.600	5.400	-	5.400
Description: This will replace the current Minuteman ASU and Minuteman Power Processor (MPP). The ASU is controlled by the MPP, which contains software and electronics to measure incoming and standby power characteristics. Technical data does not exist for repair or reprogramming of the MPP. Current equipment and lack of repair/reprogram capability cause inadvertent source transfers by the MPP. The legacy ASU electrical contacts have exceeded their service life and unnecessary power source transfers cause stress on mission critical components. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Develop technical requirement documents to establish the procurement criteria for the replacement transfer switch and controller. - Begin design, development and test of ASU replacement. ***FY 2016 Base Plans:*** - Continue design, development and test of ASU replacement. - Develop technical requirement documents to establish the procurement criteria for the replacement transfer switch and controller.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Conduct Preliminary Design Review, a successful Milestone B, and Critical Design Review. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Remote Visual Assessment II (RVA II) - FY16 New Start ***Description:*** This program will design and develop additional capabilities to the current RVA System. RVA II will improve user capability, provide enhanced situational awareness, and meet DoD Cyber Security requirements. Additionally, these capabilities will provide the RVA feed to the fielded ground vehicles, helicopters, backup power and provide auto-activation of the Outer Zone/Inner Zone (OZ/IZ) alarms to the RVA system. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Begin design, development, verification of RVA II requirements and conduct Preliminary Design Review (PDR). - Conduct a successful Milestone B briefing and enter EMD phase. ***FY 2016 OCO Plans:*** N/A	-	-	3.824	-	3.824
Title: LGM-30G Launch Control Center Break-In-Kit (LCCB) - FY16 New Start ***Description:*** This 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 after a security situation. The LCCB is a new capability and has not been previously fielded. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Begin design, development, fabrication and prototype construction of LCCBs.	-	-	0.793	-	0.793

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Conduct a successful Preliminary Design Review. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Fast Rising B-Plug Phase II (FRBP II) - FY16 New Start ***Description:*** The FRBP Phase II will update hardware and software of the current system to address obsolescence issues as well as decrease susceptibility to uncommanded raises (UCR). Current setup can experience UCRs due to single point failures and transient voltages in the system. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Develop a modification kit that redesigns hardware and software of the existing Fast Rising B-Plug to be reduce or eliminate likelihood of uncommanded raises. - Conduct a successful Milestone B and Preliminary Design Review. ***FY 2016 OCO Plans:*** N/A	-	-	3.510	-	3.510
Accomplishments/Planned Programs Subtotals	-	23.678	78.359	-	78.359

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA 03: M30MLG: *Minuteman III Modifications*	21.585	1.020	-	-	-	6.062	38.066	64.569	53.753	Continuing	Continuing
• MPAF: BA 04: M30MLG: *Minuteman III Initial Spares*	-	-	-	-	-	0.446	1.349	0.063	-	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

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 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Airborne Launch Control System Replacement Increment I TMRR	C/TBD	TBD : ,	-	-		-		51.734	Apr 2016	-		51.734	Continuing	Continuing	-
LGM-30G Launch Control Center Block Upgrade EMD	C/CPIF	TBD : ,	-	-		15.778	Aug 2015	5.698	Aug 2016	-		5.698	Continuing	Continuing	-
LGM-30G Automatic Switching Unit EMD	C/CPIF	TBD : ,	-	-		4.600	Jul 2015	5.400	Jul 2016	-		5.400	Continuing	Continuing	-
LGM-30G Remote Visual Assessment II TMRR/EMD	C/TBD	TBD : ,	-	-		-		3.125	Dec 2015	-		3.125	Continuing	Continuing	-
LGM-30G Launch Control Center Break-In-Kit	TBD	TBD : ,	-	-		-		0.793	Apr 2016	-		0.793	Continuing	Continuing	-
LGM-30G Fast Rising B-Plug Phase II	TBD	TBD : ,	-	-		-		3.510	Apr 2016	-		3.510	Continuing	Continuing	-
		Subtotal	-	-		20.378		70.260		-		70.260	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Remote Visual Assessment Phase II Engineering Support	TBD	TBD : ,	-	-		-		0.339	Dec 2015	-		0.339	Continuing	Continuing	TBD
LGM-30G Air Launch Control System Replacement Increment I	TBD	TBD : ,	-	-		-		2.000	Feb 2016	-		2.000	Continuing	Continuing	TBD
		Subtotal	-	-		-		2.339		-		2.339	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672983 / *MM Ground and Comm Equipment*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Air Launch Control System Replacement Increment I FFRDC	MIPR	MITRE : Bedford, MA	-	-		1.300	Mar 2015	1.400	Mar 2016	-		1.400	Continuing	Continuing	-
LGM-30G Air Launch Control System Replacement Increment I PMA	C/FP	BAE Systems : Roy, UT	-	-		2.000	Mar 2015	4.000	Mar 2016	-		4.000	Continuing	Continuing	-
LGM-30G Remote Visual Assessment Phase II PMA	TBD	TBD : ,	-	-		-		0.360	Apr 2016	-		0.360	Continuing	Continuing	-
Subtotal			-	-		3.300		5.760		-		5.760	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		23.678		78.359		-		78.359	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

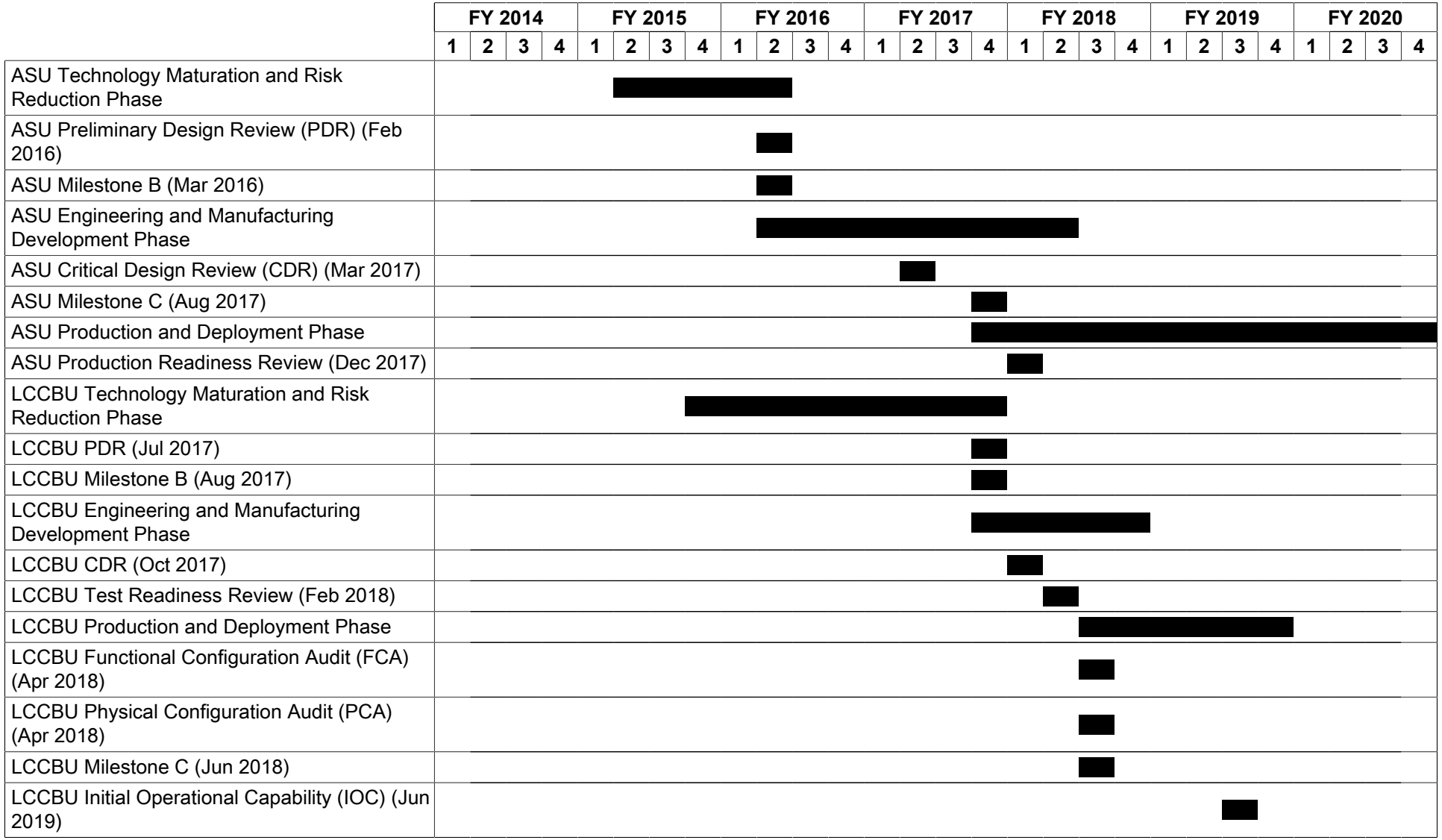

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

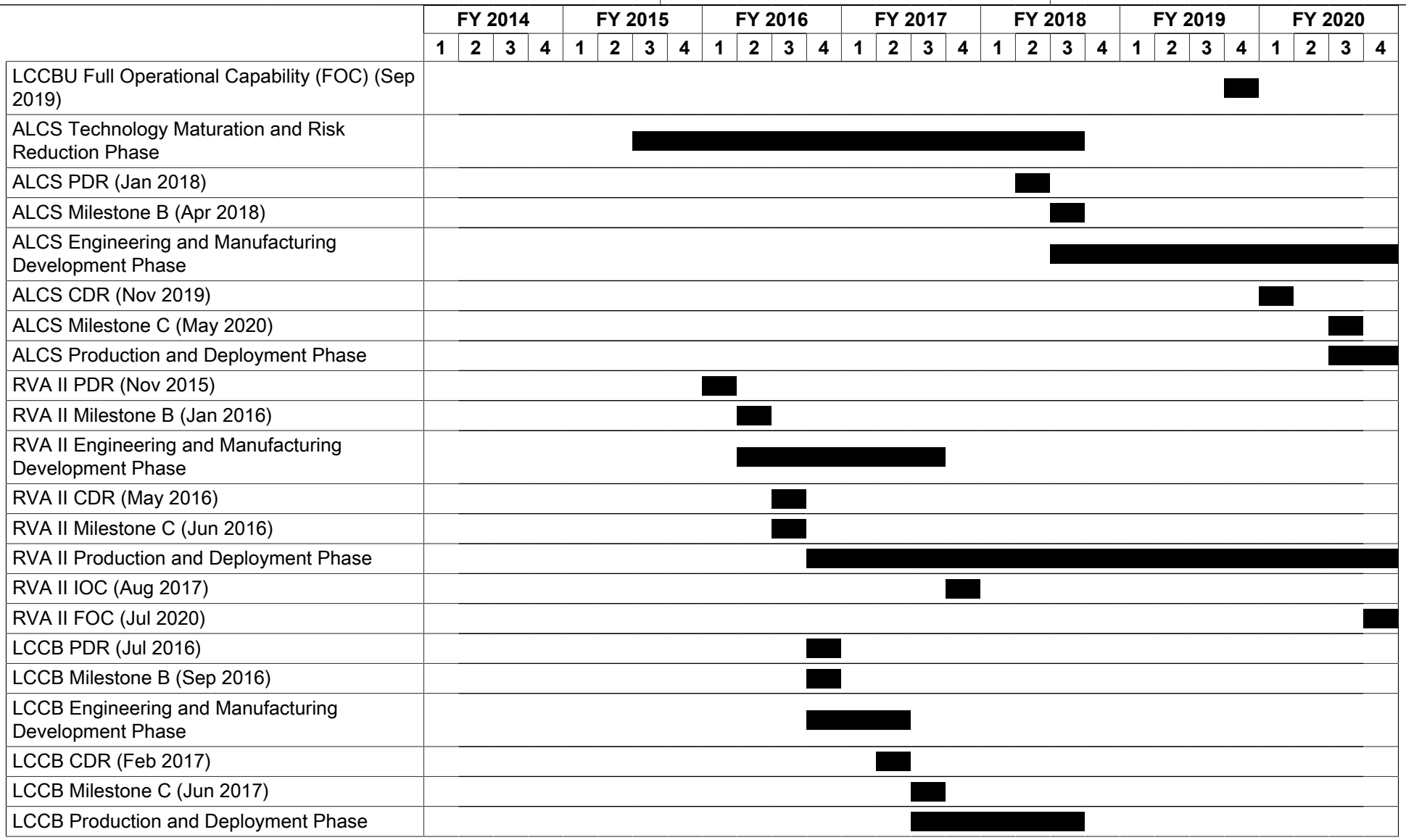

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

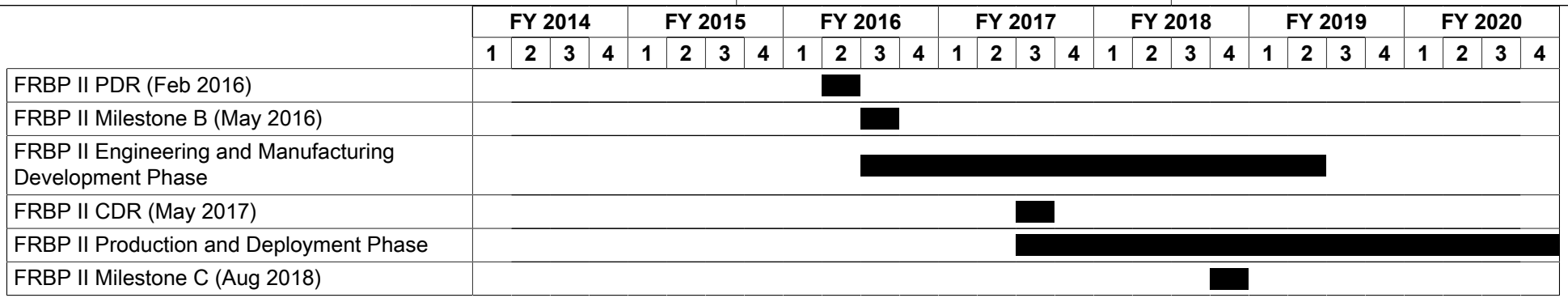

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ASU Technology Maturation and Risk Reduction Phase	2	2015	2	2016
ASU Preliminary Design Review (PDR) (Feb 2016)	2	2016	2	2016
ASU Milestone B (Mar 2016)	2	2016	2	2016
ASU Engineering and Manufacturing Development Phase	2	2016	2	2018
ASU Critical Design Review (CDR) (Mar 2017)	2	2017	2	2017
ASU Milestone C (Aug 2017)	4	2017	4	2017
ASU Production and Deployment Phase	4	2017	4	2020
ASU Production Readiness Review (Dec 2017)	1	2018	1	2018
LCCBU Technology Maturation and Risk Reduction Phase	4	2015	4	2017
LCCBU PDR (Jul 2017)	4	2017	4	2017
LCCBU Milestone B (Aug 2017)	4	2017	4	2017
LCCBU Engineering and Manufacturing Development Phase	4	2017	4	2018
LCCBU CDR (Oct 2017)	1	2018	1	2018
LCCBU Test Readiness Review (Feb 2018)	2	2018	2	2018
LCCBU Production and Deployment Phase	3	2018	4	2019
LCCBU Functional Configuration Audit (FCA) (Apr 2018)	3	2018	3	2018
LCCBU Physical Configuration Audit (PCA) (Apr 2018)	3	2018	3	2018
LCCBU Milestone C (Jun 2018)	3	2018	3	2018
LCCBU Initial Operational Capability (IOC) (Jun 2019)	3	2019	3	2019
LCCBU Full Operational Capability (FOC) (Sep 2019)	4	2019	4	2019
ALCS Technology Maturation and Risk Reduction Phase	3	2015	3	2018
ALCS PDR (Jan 2018)	2	2018	2	2018
ALCS Milestone B (Apr 2018)	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672983 / *MM Ground and Comm Equipment*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALCS Engineering and Manufacturing Development Phase	3	2018	4	2020
ALCS CDR (Nov 2019)	1	2020	1	2020
ALCS Milestone C (May 2020)	3	2020	3	2020
ALCS Production and Deployment Phase	3	2020	4	2020
RVA II PDR (Nov 2015)	1	2016	1	2016
RVA II Milestone B (Jan 2016)	2	2016	2	2016
RVA II Engineering and Manufacturing Development Phase	2	2016	3	2017
RVA II CDR (May 2016)	3	2016	3	2016
RVA II Milestone C (Jun 2016)	3	2016	3	2016
RVA II Production and Deployment Phase	4	2016	4	2020
RVA II IOC (Aug 2017)	4	2017	4	2017
RVA II FOC (Jul 2020)	4	2020	4	2020
LCCB PDR (Jul 2016)	4	2016	4	2016
LCCB Milestone B (Sep 2016)	4	2016	4	2016
LCCB Engineering and Manufacturing Development Phase	4	2016	2	2017
LCCB CDR (Feb 2017)	2	2017	2	2017
LCCB Milestone C (Jun 2017)	3	2017	3	2017
LCCB Production and Deployment Phase	3	2017	3	2018
FRBP II PDR (Feb 2016)	2	2016	2	2016
FRBP II Milestone B (May 2016)	3	2016	3	2016
FRBP II Engineering and Manufacturing Development Phase	3	2016	2	2019
FRBP II CDR (May 2017)	3	2017	3	2017
FRBP II Production and Deployment Phase	3	2017	4	2020
FRBP II Milestone C (Aug 2018)	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672984: *MM III Baseline Support*	-	-	21.934	51.173	-	51.173	43.606	26.656	15.172	-	-	158.541
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 672984, MM III Baseline Support, Instrument Wafer Replacement Program (IWRP), Flight Destruct System (FDS), and Launch Support System (LSS) were combined to form the LGM-30G Flight Test Telemetry and Termination (FT3) System.

In FY 2016, Project 672984, MM III Baseline Support, includes new start efforts for LGM-30G Squadron Data Simulator (SDS) and LGM-30G Cadmium Replacement Program (CaDRP).

A. Mission Description and Budget Item Justification

MM III Baseline Support program replaces or upgrades obsolete/unsupportable flight test unique equipment. The equipment is installed on the missile during flight tests, 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 conducts 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 SDS, CaDRP, FT3, and Ground Test Upgrade (GTU). Similar equipment identified for replacement, 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LGM-30G Flight Test Telemetry and Termination System (FT3)	-	16.434	28.484	-	28.484
Description: FT3 designs, develops, fabricates and tests replacements for the Mod 7 Instrumentation Wafer, associated Signal Conditioner Monitor Group (SCMG), as well as the FDS and the LSS. This will replace the unsupportable 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					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Wafer and FDS are required to continue OTLs through 2030. A new LSS is required to field the Instrumentation Wafer and the FDS. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** -Design, development, fabrication and test of the replacement instrumentation wafer, FDS and LSS. - Determine specific Commercial Off-the-Shelf components and begin review of all Range Safety requirements. - Conduct Preliminary Design Review. ***FY 2016 Base Plans:*** - Conduct Milestone B to gain entry into EMD phase. - Finalize design of the system and integrate/verify at component and system level through ground testing. - Conduct the Critical Design Review. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Baseline Support ***Description:*** This program provides for other MM III unique government costs, studies of system performance, contract closeout costs, cost trades, and acquisition planning activities, up to and including proposal preparation, for future capabilities. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Conduct studies of system performance, contract closeout costs, cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. ***FY 2016 Base Plans:*** Conduct studies of system performance, contract closeout costs, cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. ***FY 2016 OCO Plans:***	-	0.500	0.500	-	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Title: LGM-30G Ground Test Upgrade (GTU) ***Description:*** GTU will design a replacement for the Simulated Electronic Launch Minuteman and Guided Missile Launcher Electronic Circuit test sets. Both test sets enable operational checkout and test of Launch Facilities up to the point of actual MM III launch. Program will address parts obsolescence and combine the two test sets into one using the same interfaces and cables. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Conduct technology research for the Programmable Application Specific Integrated Chip (ASIC) as part of the GTU hardware, software integration approach. - Conduct a Preliminary Design Review. ***FY 2016 Base Plans:*** - Award the Engineering and Manufacturing Development contract. - Begin design, development, fabrication and testing of replacement equipment for GTU. - Conduct a Preliminary Design Review, Milestone B activities, and a Critical Design Review. ***FY 2016 OCO Plans:*** N/A	-	5.000	4.820	-	4.820
Title: LGM-30G Squadron Data Simulator (SDS) - FY16 New Start ***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 (LCCs) and Launch Facilities (LFs) within an ICBM squadron. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:***	-	-	14.686	-	14.686

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Begin design, development, fabrication and test of the replacement SDS. - Conduct Milestone B activities. - Complete Preliminary Design Review. - After Milestone B, begin the Engineering, Manufacturing, and Devolpment phase of the program and prepare for verification testing. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Cadmium Replacement Program (CaDRP) - FY 16 New Start ***Description:*** Cadmium plating is used in LCC and LF motor generators. Motor generator parts are coated with the material to inhibit corrosion, ensure a low electrical signature (bonding and grounding), and aid in the ability to withstand a nuclear environment. Cadmium is an EPA-17 chemical selected for reduction. 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. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Begin the development of replacement for Cadmium plating replacement. - Complete Milestone B and prepare for verification testing. ***FY 2016 OCO Plans:*** N/A	-	-	2.683	-	2.683
Accomplishments/Planned Programs Subtotals	-	21.934	51.173	-	51.173

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604851F: *ICBM - EMD*	112.760	-	-	-	-	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA01: M30GLG: *Missile Replacement Equipment - Ballistic*	-	-	7.689	-	7.689	57.545	5.177	-	-	Continuing	Continuing

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 development required, develop and/or modification with organic depot capabilities or development with industry. Industry development efforts will be executed through contracts available under the Defense Engineering Services Program (DESP III) contract competitive source selection procedures. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672984 / *MM III Baseline Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Ground Test Upgrades	C/CPAF	TBD : ,	-	-		5.000	Mar 2015	4.820	Feb 2016	-		4.820	Continuing	Continuing	-
LGM-30G Flight Test Telemetry and Termination System	C/CPIF	TBD : ,	-	-		8.579	Apr 2015	13.570	Mar 2016	-		13.570	Continuing	Continuing	-
LGM-30G Cadmium Replacement Program	C/CPFF	TBD : ,	-	-		-		2.683	Apr 2016	-		2.683	Continuing	Continuing	-
LGM-30G Squadron Data Simulator	C/CPIF	TBD : ,	-	-		-		10.383	Apr 2016	-		10.383	Continuing	Continuing	-
		Subtotal	-	-		13.579		31.456		-		31.456	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Flight Test Telemetry and Termination System	C/Various	TBD : ,	-	-		2.543	Jun 2015	1.289	Jun 2016	-		1.289	Continuing	Continuing	-
LGM-30G Baseline Support	C/TBD	TBD : ,	-	-		0.500	Mar 2015	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		3.043		1.289		-		1.289	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Squadron Data Simulator	C/CPIF	TBD : ,	-	-		-		3.159	Apr 2016	-		3.159	Continuing	Continuing	-
LGM-30G Flight Test Telemetry and Termination System	C/CPIF	TBD : ,	-	-		4.112	Mar 2015	12.825	Mar 2016	-		12.825	Continuing	Continuing	-
		Subtotal	-	-		4.112		15.984		-		15.984	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672984 / *MM III Baseline Support*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Squadron Data Simulator	C/CPIF	TBD : ,	-	-		-		1.144	Apr 2016	-		1.144	Continuing	Continuing	-
LGM-30G Flight Test Telemetry and Termination System	C/Various	TBD : ,	-	-		1.200	Feb 2015	1.300	Mar 2015	-		1.300	Continuing	Continuing	-
		Subtotal	-	-		1.200		2.444		-		2.444	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		21.934		51.173		-		51.173	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

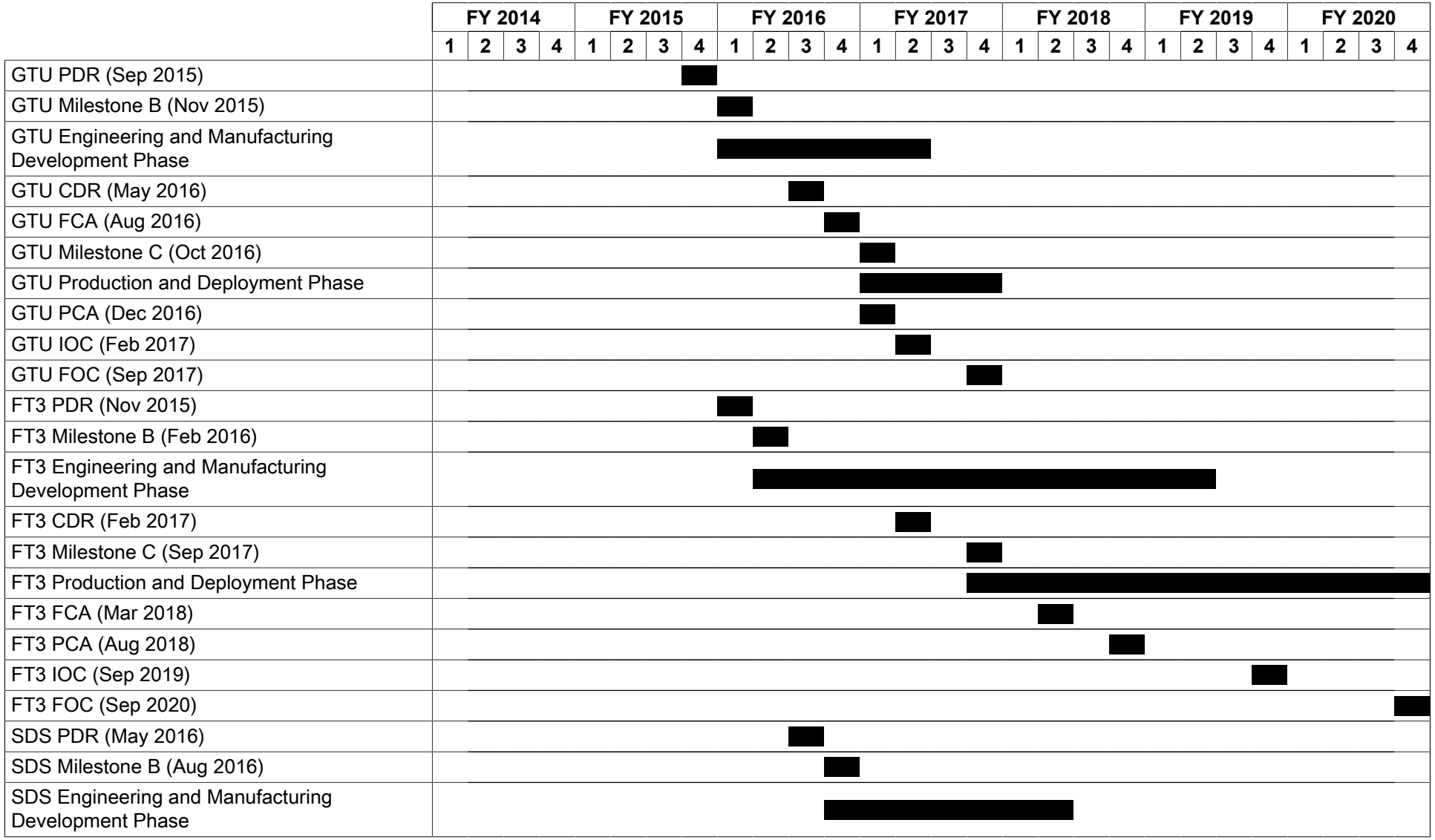

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

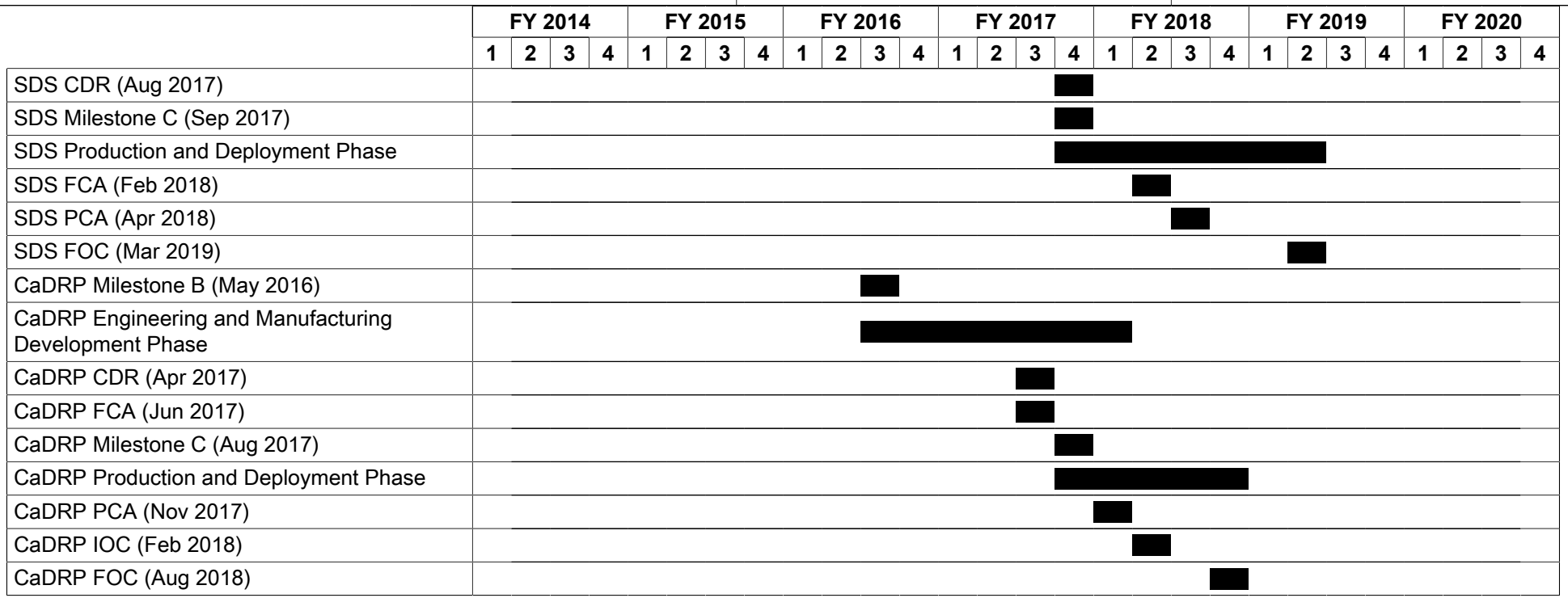

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTU PDR (Sep 2015)	4	2015	4	2015
GTU Milestone B (Nov 2015)	1	2016	1	2016
GTU Engineering and Manufacturing Development Phase	1	2016	2	2017
GTU CDR (May 2016)	3	2016	3	2016
GTU FCA (Aug 2016)	4	2016	4	2016
GTU Milestone C (Oct 2016)	1	2017	1	2017
GTU Production and Deployment Phase	1	2017	4	2017
GTU PCA (Dec 2016)	1	2017	1	2017
GTU IOC (Feb 2017)	2	2017	2	2017
GTU FOC (Sep 2017)	4	2017	4	2017
FT3 PDR (Nov 2015)	1	2016	1	2016
FT3 Milestone B (Feb 2016)	2	2016	2	2016
FT3 Engineering and Manufacturing Development Phase	2	2016	2	2019
FT3 CDR (Feb 2017)	2	2017	2	2017
FT3 Milestone C (Sep 2017)	4	2017	4	2017
FT3 Production and Deployment Phase	4	2017	4	2020
FT3 FCA (Mar 2018)	2	2018	2	2018
FT3 PCA (Aug 2018)	4	2018	4	2018
FT3 IOC (Sep 2019)	4	2019	4	2019
FT3 FOC (Sep 2020)	4	2020	4	2020
SDS PDR (May 2016)	3	2016	3	2016
SDS Milestone B (Aug 2016)	4	2016	4	2016
SDS Engineering and Manufacturing Development Phase	4	2016	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672984 / *MM III Baseline Support*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SDS CDR (Aug 2017)	4	2017	4	2017
SDS Milestone C (Sep 2017)	4	2017	4	2017
SDS Production and Deployment Phase	4	2017	2	2019
SDS FCA (Feb 2018)	2	2018	2	2018
SDS PCA (Apr 2018)	3	2018	3	2018
SDS FOC (Mar 2019)	2	2019	2	2019
CaDRP Milestone B (May 2016)	3	2016	3	2016
CaDRP Engineering and Manufacturing Development Phase	3	2016	1	2018
CaDRP CDR (Apr 2017)	3	2017	3	2017
CaDRP FCA (Jun 2017)	3	2017	3	2017
CaDRP Milestone C (Aug 2017)	4	2017	4	2017
CaDRP Production and Deployment Phase	4	2017	4	2018
CaDRP PCA (Nov 2017)	1	2018	1	2018
CaDRP IOC (Feb 2018)	2	2018	2	2018
CaDRP FOC (Aug 2018)	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672985 / *MM Support Equip*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672985: *MM Support Equip*	-	-	40.466	16.552	-	16.552	25.547	19.094	4.302	6.079	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 672985, MM Support Equip, the LGM-30G Payload Transporter Replacement (PTR) program was re-established and transferred from PE 0604851F, ICBM - EMD, Project 655037, Support Equipment, in order to consolidate ICBM investment efforts under a common PE.

In FY 2016, Project 672985, MM Support Equip, includes a new start effort for LGM-30G Performance Assessment Data Systems Communications Equipment Interface Unit (PADS CEIU).

A. Mission Description and Budget Item Justification

MM Support Equip 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 RFSE, LGM-30G CSM, LGM-30G STACS, LGM-30G TERP, LGM-30G PTR, LGM-30G PADS CEIU, and LGM-30G RSERP.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LGM-30G Reentry Field Support Equipment (RFSE)	-	12.476	-	-	-
Description: Design and develop the 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 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 2014 Accomplishments: N/A					
FY 2015 Plans: - Complete design, development, fabrication and testing of RFSE units. - Conduct a successful Milestone C briefing.					
FY 2016 Base Plans: N/A					
FY 2016 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Title: LGM-30G Code System Media (CSM) ***Description:*** The CSM program supports the replacement of obsolete tape cartridges with more modern and available magnetic media. Segment #1, responsible for providing software to accept National Security Agency (NSA) codes, Operations Plan (OPLAN) changes and software updates on compact disk (CD), has been completed. Segment #2 will provide software and hardware necessary to import all other data on CD and produce Wing Codes Processing System products on CD. Segment #2 will also replace the Cartridge Transfer Unit (CTU) with the Data Transfer Units (DTUs). CSM effectively supports the replacement of aging media required to transport and handle mission essential codes and data throughout the ICBM weapon system. The shelf life of the current stock of DC300 tape cartridges and 9-track tapes began to expire in 2015. CSM delivers the capability to load codes/software on MM III ICBMs through 2030 and is critical to code change activities. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Complete design, development, fabrication and testing of CSM software. - Complete first article production, Test Readiness Review, and system qualification testing of DTU. - Verify and deliver of technical data to accompany First Article Test and Evaluations. - Conduct a successful Milestone C briefing. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	-	4.549	-	-	-
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 unsupportable. 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 2014 Accomplishments:***	-	1.739	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2015 Plans:*** - Complete design and development activities. - Complete certification and deliver the STACS replacement to reach FOC. ***FY 2016 Base Plans:*** N/A ***FY 2016 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 MM III boosters to and from the launch facilities. TERP 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 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Complete design, development, fabrication and testing of replacement TE. - Complete first article production and system qualification testing. - Complete FCA/PCA. - Certify design readiness for Full Rate Production decision. - Verification and delivery of tech data to accompany First Article Test and Evaluations. - Conduct a successful Milestone C briefing. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	-	17.787	-	-	-
Title: LGM-30G Reentry Support Equipment Replacement Program (RSERP)	-	3.915	11.877	-	11.877

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Begin the design, development, fabrication, and test of RSERP. - Conduct Milestone B. ***FY 2016 Base 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 2016 OCO Plans:*** N/A					
Title: LGM-30G Payload Transporter Replacement (PTR) ***Description:*** Designs and develops the capabilities necessary to replace the current Payload Transporter tractor and trailer, mitigating emerging threat technologies and methods. The PTR emplaces, 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. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Complete design, development, fabrication and testing of PTR. - Complete Test Readiness Review and system qualification testing. - Complete FCA/PCA. - Certify design readiness for Full Rate Production decision. - Verification and delivery of tech data to accompany First Article Test and Evaluations.	-	-	4.000	-	4.000

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Conduct a successful Milestone C briefing. ***FY 2016 OCO Plans:*** N/A					
Title: LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU) - FY16 New Start ***Description:*** Updates the legacy CEIU to a more robust software language and changes the communication protocol from telephony to internet protocol to address security concerns. PADS CEIU is an interface unit using an analog signal over the telephone line using a standard commercial off the shelf (COTS) Modem. This system is essential as it is the only way to identify high hour Pendulous Integrating Gyroscopic Accelerometers (PIGA) and provides data that eliminates unnecessary Missile Guidance Set (MGS) removals. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Begin design and development. - Conduct Preliminary Design Review and Milestone B activities. ***FY 2016 OCO Plans:*** N/A	-	-	0.675	-	0.675
Accomplishments/Planned Programs Subtotals	-	40.466	16.552	-	16.552

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604851F: *ICBM - EMD*	112.760	-	-	-	-	-	-	-	-	-	-
• MPAF: BA01: M30GLG: *Missile Replacement Equipment - Ballistic*	38.940	65.568	78.901	-	78.901	59.113	63.259	55.072	43.249	-	-
• MPAF: BA 04: M30GLG: *Minuteman III Initial Spares*	-	11.144	-	-	-	1.697	0.410	0.009	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672985 / *MM Support Equip*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Code System Media EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	-		3.731	Feb 2015	-		-		-	Continuing	Continuing	TBD
LGM-30G Reentry Field Support Equipment EMD	C/CPIF	Northrop Grumman Technical Services : Salt Lake City, UT	-	-		11.992	Oct 2014	-		-		-	Continuing	Continuing	TBD
LGM-30G Reentry Support Equipment Replacement Program	C/Various	GFE/BAE : ,	-	-		3.525	Dec 2014	10.907	Mar 2016	-		10.907	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program EMD	C/FPIF	DRS Environmental Systems : Cincinnati, OH	-	-		11.808	Apr 2015	-		-		-	Continuing	Continuing	TBD
LGM-30G Strategic Targeting and Applications Computer System	C/CPFF	Northrop Grumman : Salt Lake City, UT	-	-		1.739	Jan 2015	-		-		-	Continuing	Continuing	TBD
LGM-30G Payload Transporter Replacement (PTR) EMD	C/CPIF	Northrop Grumman : Salt Lake City, UT	-	-		-		4.000	Jan 2015	-		4.000	Continuing	Continuing	TBD
LGM-30G Performance Assessment Data System Communications Equipment Interface Unit (PADS CEIU) Sotware Development	C/CPFF	TBD : ,	-	-		-		0.675	Mar 2016	-		0.675	Continuing	Continuing	TBD
		Subtotal	-	-		32.795		15.582		-		15.582	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Reentry Field Support Equipment Integration Support	C/FP	BAE : Roy, UT	-	-		0.484	Jan 2015	-		-		-	Continuing	Continuing	TBD
		Subtotal	-	-		0.484		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672985 / *MM Support Equip*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Transporter Erector Replacement Program Organic Support	PO	581 MMXS : Hill AFB, UT	-	-		1.800	Jan 2015	-		-		-	Continuing	Continuing	TBD
		Subtotal	-	-		1.800		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G Code System Media Eng Support	MIPR	Aerospace Research : El Segundo, CA	-	-		0.768	Feb 2015	-		-		-	Continuing	Continuing	TBD
LGM-30G Code System Media PMA	Various	Various : ,	-	-		0.050	Oct 2014	-		-		-	Continuing	Continuing	TBD
LGM-30G Reentry Support Equipment Replacement Program	C/FP	BAE Systems : Layton, UT	-	-		0.390	Oct 2014	0.970	Oct 2015	-		0.970	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program PMA and SPO Support	Various	Various : ,	-	-		1.921	Jun 2015	-		-		-	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program Support	C/FP	BAE Systems : Layton, UT	-	-		0.769	Nov 2014	-		-		-	Continuing	Continuing	TBD
LGM-30G Transporter Erector Replacement Program Eng Support	MIPR	Aerospace Research : El Segundo, CA	-	-		1.489	Feb 2015	-		-		-	Continuing	Continuing	TBD
		Subtotal	-	-		5.387		0.970		-		0.970	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		40.466		16.552		-		16.552	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672985 / *MM Support Equip*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

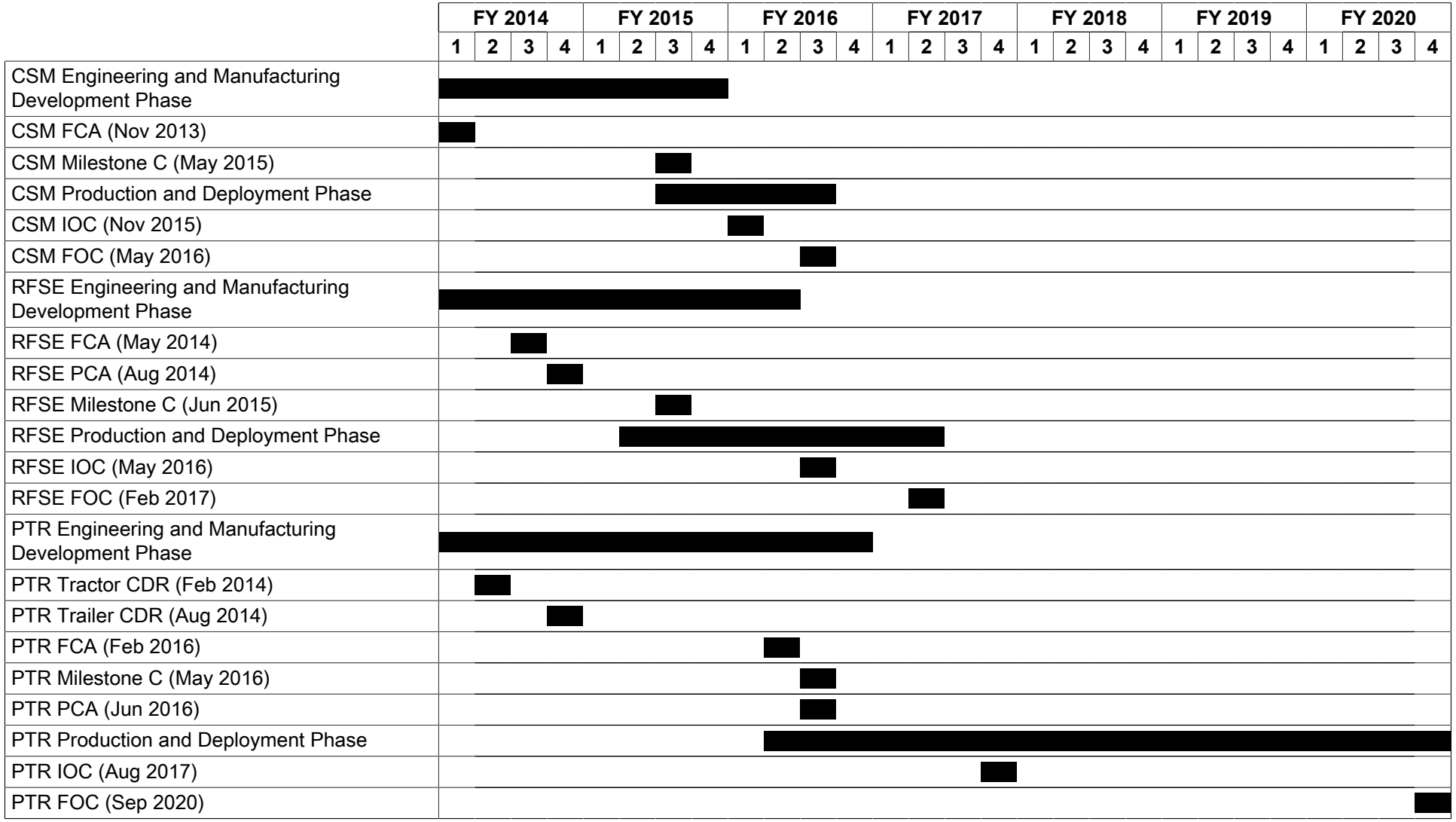

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

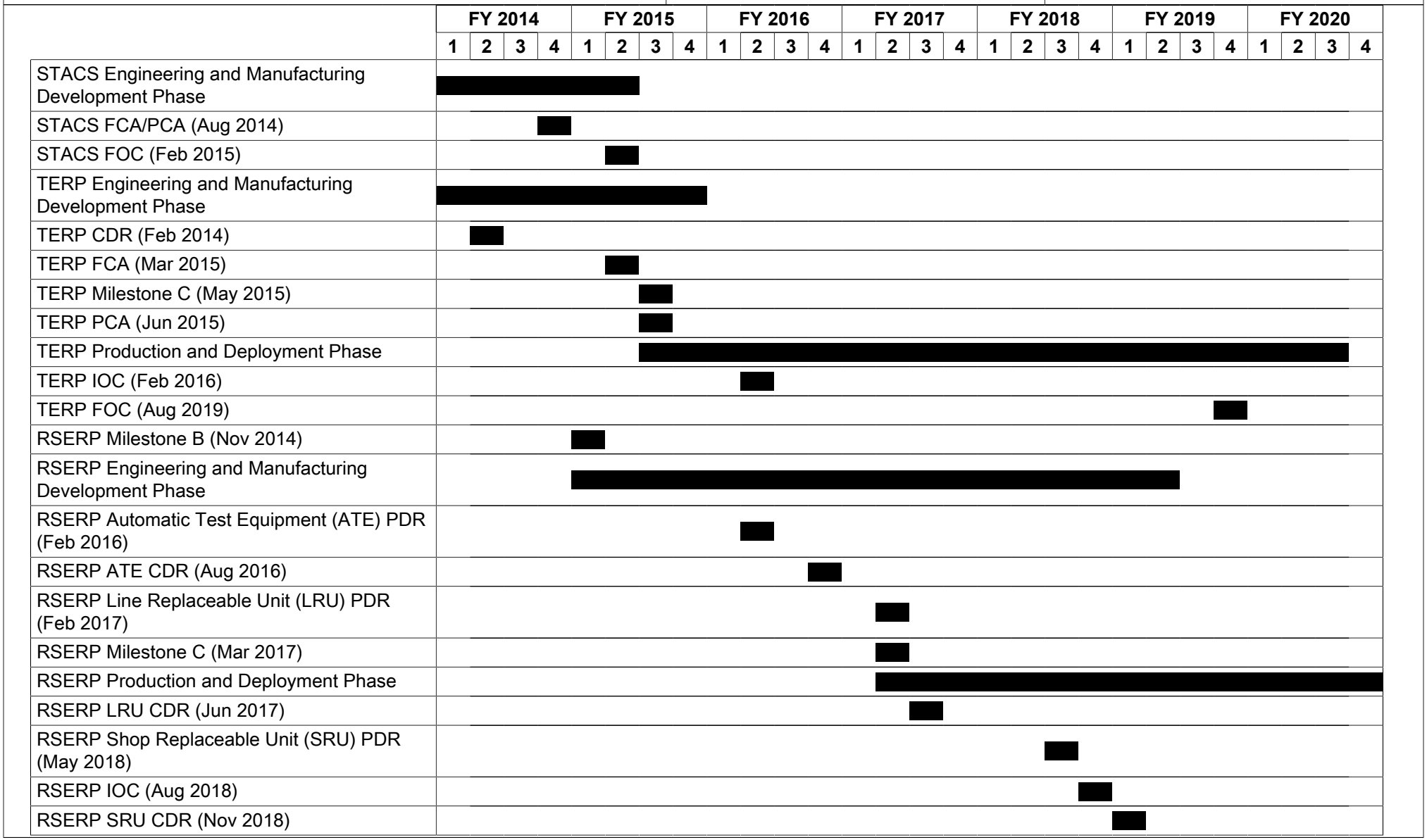

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

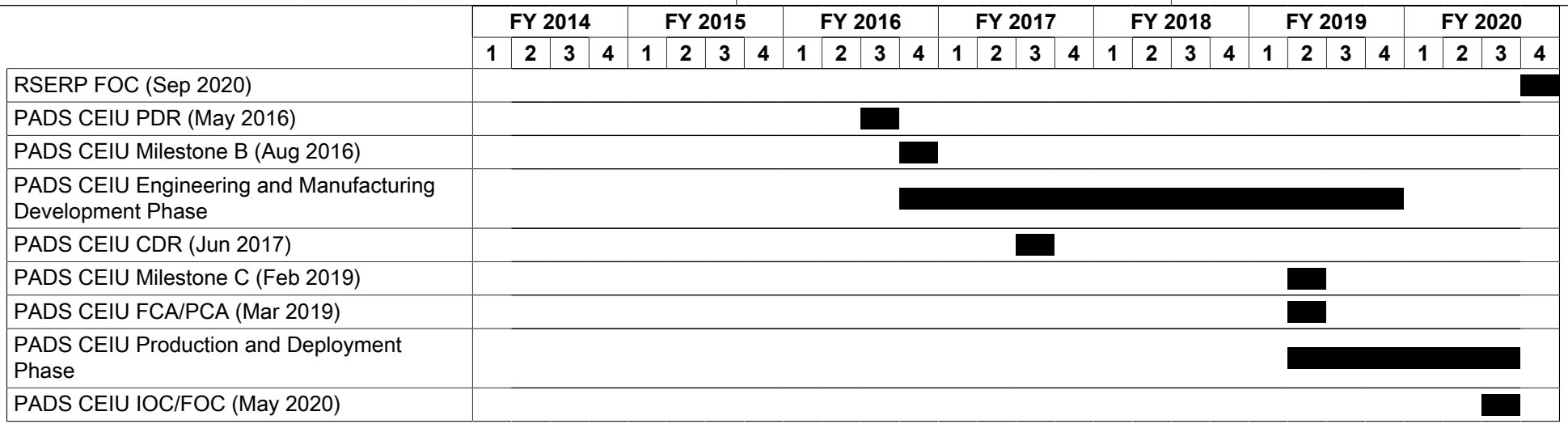

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CSM Engineering and Manufacturing Development Phase	1	2014	4	2015
CSM FCA (Nov 2013)	1	2014	1	2014
CSM Milestone C (May 2015)	3	2015	3	2015
CSM Production and Deployment Phase	3	2015	3	2016
CSM IOC (Nov 2015)	1	2016	1	2016
CSM FOC (May 2016)	3	2016	3	2016
RFSE Engineering and Manufacturing Development Phase	1	2014	2	2016
RFSE FCA (May 2014)	3	2014	3	2014
RFSE PCA (Aug 2014)	4	2014	4	2014
RFSE Milestone C (Jun 2015)	3	2015	3	2015
RFSE Production and Deployment Phase	2	2015	2	2017
RFSE IOC (May 2016)	3	2016	3	2016
RFSE FOC (Feb 2017)	2	2017	2	2017
PTR Engineering and Manufacturing Development Phase	1	2014	4	2016
PTR Tractor CDR (Feb 2014)	2	2014	2	2014
PTR Trailer CDR (Aug 2014)	4	2014	4	2014
PTR FCA (Feb 2016)	2	2016	2	2016
PTR Milestone C (May 2016)	3	2016	3	2016
PTR PCA (Jun 2016)	3	2016	3	2016
PTR Production and Deployment Phase	2	2016	4	2020
PTR IOC (Aug 2017)	4	2017	4	2017
PTR FOC (Sep 2020)	4	2020	4	2020
STACS Engineering and Manufacturing Development Phase	1	2014	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STACS FCA/PCA (Aug 2014)	4	2014	4	2014
STACS FOC (Feb 2015)	2	2015	2	2015
TERP Engineering and Manufacturing Development Phase	1	2014	4	2015
TERP CDR (Feb 2014)	2	2014	2	2014
TERP FCA (Mar 2015)	2	2015	2	2015
TERP Milestone C (May 2015)	3	2015	3	2015
TERP PCA (Jun 2015)	3	2015	3	2015
TERP Production and Deployment Phase	3	2015	3	2020
TERP IOC (Feb 2016)	2	2016	2	2016
TERP FOC (Aug 2019)	4	2019	4	2019
RSERP Milestone B (Nov 2014)	1	2015	1	2015
RSERP Engineering and Manufacturing Development Phase	1	2015	2	2019
RSERP Automatic Test Equipment (ATE) PDR (Feb 2016)	2	2016	2	2016
RSERP ATE CDR (Aug 2016)	4	2016	4	2016
RSERP Line Replaceable Unit (LRU) PDR (Feb 2017)	2	2017	2	2017
RSERP Milestone C (Mar 2017)	2	2017	2	2017
RSERP Production and Deployment Phase	2	2017	4	2020
RSERP LRU CDR (Jun 2017)	3	2017	3	2017
RSERP Shop Replaceable Unit (SRU) PDR (May 2018)	3	2018	3	2018
RSERP IOC (Aug 2018)	4	2018	4	2018
RSERP SRU CDR (Nov 2018)	1	2019	1	2019
RSERP FOC (Sep 2020)	4	2020	4	2020
PADS CEIU PDR (May 2016)	3	2016	3	2016
PADS CEIU Milestone B (Aug 2016)	4	2016	4	2016
PADS CEIU Engineering and Manufacturing Development Phase	4	2016	4	2019
PADS CEIU CDR (Jun 2017)	3	2017	3	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672985 / *MM Support Equip*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PADS CEIU Milestone C (Feb 2019)	2	2019	2	2019
PADS CEIU FCA/PCA (Mar 2019)	2	2019	2	2019
PADS CEIU Production and Deployment Phase	2	2019	3	2020
PADS CEIU IOC/FOC (May 2020)	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672986 / *MM Crypto Mods*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672986: *MM Crypto Mods*	-	-	36.672	32.845	-	32.845	-	-	-	-	-	69.517
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 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). In FY15, ICU II was rebaselined to address emerging nuclear surety requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LGM-30G ICBM Cryptography Upgrade II (ICU II)	-	36.672	32.845	-	32.845
Description: ICU II completes design and development, implements KS-60 remote key/code change, irreversible transformation capabilities, and prevents continuous signal lockout. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Complete A4 Drawer qualification and weapon system testing with preliminary central processor. - Finalize code and fabricate final central processor design. - Conduct Test Readiness Review for the Field Programmable Gate Array (FPGA). ***FY 2016 Base Plans:*** Weapon system testing with final central processor, nuclear certification for A4 Drawer, begin new contract effort to develop support equipment. Conduct Test Readiness Review of the Application Specific Integrated Circuit (ASIC). ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	36.672	32.845	-	32.845

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672986 / *MM Crypto Mods*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604851F: *ICBM - EMD*	31.016	-	-	-	-	-	-	-	-	-	-
• MPAF: BA 03: M30MLG: *Minuteman III Modifications*	-	-	-	-	-	53.820	7.516	20.192	17.701	-	99.229
• MPAF: BA 054: M30MLG: *Minuteman III Initial Spares*	-	-	-	-	-	1.849	5.774	0.189	-	-	-

Remarks

D. Acquisition Strategy

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). This contract is driven by critical nuclear surety requirements to perform an independent assessment of all modifications to nuclear-certified software.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672986 / *MM Crypto Mods*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G ICBM Cryptography Upgrade II EMD	C/CPIF	Northrop Grumman : Clearfield, UT	-	-		27.085	Nov 2014	29.233	Oct 2015	-		29.233	Continuing	Continuing	-
		Subtotal	-	-		27.085		29.233		-		29.233	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G ICBM Cryptography Upgrade II Nuclear Surety Support (NSCCA)	C/CPIF	Northrop Grumman : Clearfield, UT	-	-		2.710	Oct 2014	3.237	Oct 2015	-		3.237	Continuing	Continuing	-
LGM-30G ICBM Cryptography Upgrade II Inter-DoD	MIPR	Navy Crane : Crane, IN	-	-		1.662	Nov 2014	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		4.372		3.237		-		3.237	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LGM-30G ICBM Cryptography Upgrade II	Various	Various : ,	-	-		5.215	Jan 2015	0.375	Oct 2015	-		0.375	Continuing	Continuing	-
		Subtotal	-	-		5.215		0.375		-		0.375	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672986 / *MM Crypto Mods*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		36.672		32.845		-		32.845	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672986 / *MM Crypto Mods*

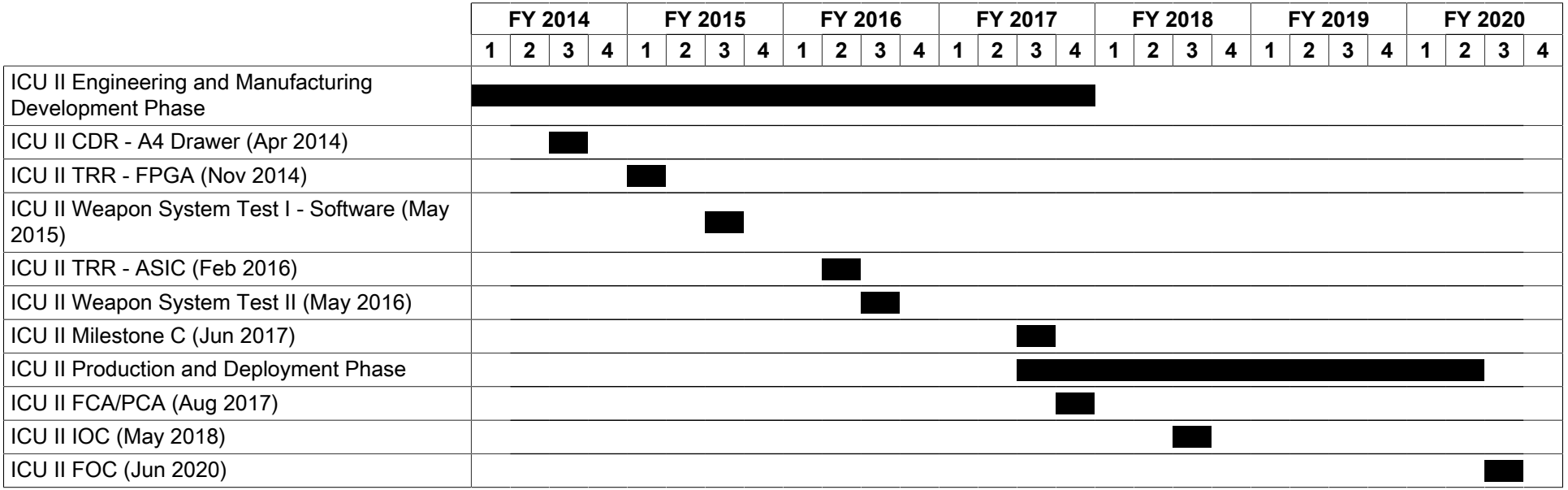

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672986 / *MM Crypto Mods*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ICU II Engineering and Manufacturing Development Phase	1	2014	4	2017
ICU II CDR - A4 Drawer (Apr 2014)	3	2014	3	2014
ICU II TRR - FPGA (Nov 2014)	1	2015	1	2015
ICU II Weapon System Test I - Software (May 2015)	3	2015	3	2015
ICU II TRR - ASIC (Feb 2016)	2	2016	2	2016
ICU II Weapon System Test II (May 2016)	3	2016	3	2016
ICU II Milestone C (Jun 2017)	3	2017	3	2017
ICU II Production and Deployment Phase	3	2017	2	2020
ICU II FCA/PCA (Aug 2017)	4	2017	4	2017
ICU II IOC (May 2018)	3	2018	3	2018
ICU II FOC (Jun 2020)	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672987 / *MM Ops Equip*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672987: *MM Ops Equip*	-	-	16.359	-	-	-	-	-	-	-	-	16.359
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 672987, MM Ops Equipment, the two ongoing efforts will be transferred into PE 0605230F, Ground Based Strategic Deterrent (GBSD), Project 641025. The efforts being transferred are 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 material 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Guidance Modernization Program (GMP)	-	15.900	-	-	-
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 2014 Accomplishments: N/A					
FY 2015 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672987 / *MM Ops Equip*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Continue technology assessment and development initiated under Dem/Val GAP. - Establish contracts with multiple contractors with promising technology and architectures relevant for a guidance replacement. - Continue efforts to mature technologies, define requirements and modular architectures. - Prepare acquisition strategies and plans for a GBSD Milestone A decision point. - Begin development of enhanced ground test capability and identify flight system integration requirements. ***FY 2016 Base Plans:*** Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025. ***FY 2016 OCO Plans:*** N/A					
Title: Solid Rocket Motor Modernization (SRMM) ***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. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Continue technology assessment and development initiated under Dem/Val PAP. - Prepare acquisition strategies and plans for a GBSD Milestone A decision point. ***FY 2016 Base Plans:*** Reflected in PE 0605230F, Ground Based Strategic Deterrent, Project 641025. ***FY 2016 OCO Plans:*** N/A	-	0.459	-	-	-
Accomplishments/Planned Programs Subtotals	-	16.359	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA04: PE 0603851F: *ICBM - Dem/Val*	72.696	30.885	39.765	-	39.765	83.660	73.309	68.310	65.508	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672987 / *MM Ops Equip*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA04: PE 0605230F: *GBSD*	-	-	75.166	-	75.166	120.735	207.048	218.162	324.778	Continuing	Continuing

Remarks

Project 672987, MM Ops Equip, is related to only a portion of the RDT&E funding in Other Program Funding Summary.

D. Acquisition Strategy

GMP will prepare for Milestone A efforts leveraging FY14 studies and market research performed under Dem/Val GAP that have identified and matured materiel solutions to various stages of technical readiness. Based on current MM III and future GBSD requirements, multiple contracts will be competitively awarded following Milestone A supporting follow-on down-select of the best solution. It is anticipated that multiple contracts will be awarded as Cost Plus Fixed Fee, Cost Plus Incentive Fee, Fixed Price Incentive, and/or Firm Fixed Price.

SRMM will prepare for Milestone A efforts leveraging studies and market research performed under Dem/Val PAP that have identified and matured materiel soluctions to various stages of technical readiness. SRMM funding will be disbursed using two contract vehicles. It is anticipated that multiple contracts will be awarded as Cost Plus Fixed Fee, Cost Plus Incentive Fee, Fixed Price Incentive, and/or Firm Fixed Price.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672987 / *MM Ops Equip*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Guidance Modernization Program Instrument Technology Advancement	C/CPFF	Various : Various, UT	-	-		5.319	Feb 2015	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		5.319		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Solid Rocket Motor Modernization Technical Engineering Services	C/FP	BAE : Hill AFB, UT	-	-		0.459	Mar 2015	-		-		-	Continuing	Continuing	-
Guidance Modernization Program Technical Engineering Services	C/FP	BAE : Hill AFB, UT	-	-		8.191	Feb 2015	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		8.650		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Guidance Modernization Program EGT	C/FP	BAE : Clearfield, UT	-	-		2.390	Feb 2015	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		2.390		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / *Minuteman Squadrons*	Project (Number/Name) 672987 / *MM Ops Equip*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		16.359		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672987 / *MM Ops Equip*

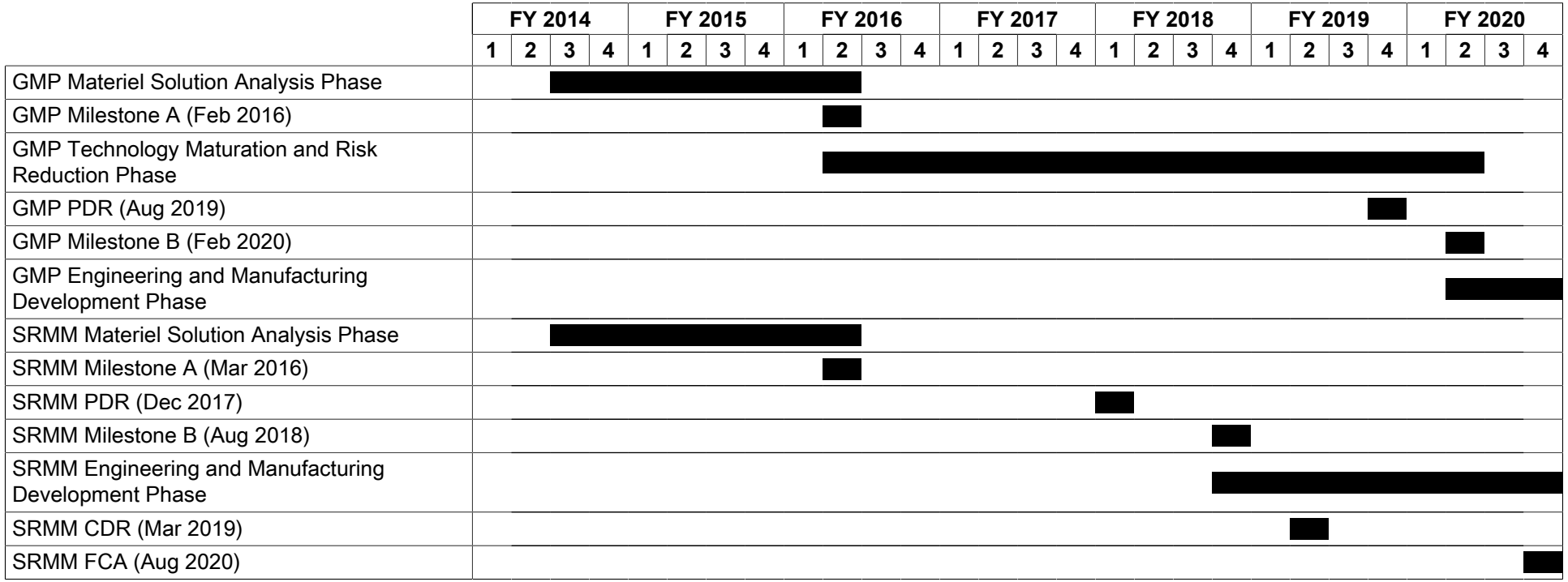

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101213F / *Minuteman Squadrons*	**Project (Number/Name)** 672987 / *MM Ops Equip*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GMP Materiel Solution Analysis Phase	3	2014	2	2016
GMP Milestone A (Feb 2016)	2	2016	2	2016
GMP Technology Maturation and Risk Reduction Phase	2	2016	2	2020
GMP PDR (Aug 2019)	4	2019	4	2019
GMP Milestone B (Feb 2020)	2	2020	2	2020
GMP Engineering and Manufacturing Development Phase	2	2020	4	2020
SRMM Materiel Solution Analysis Phase	3	2014	2	2016
SRMM Milestone A (Mar 2016)	2	2016	2	2016
SRMM PDR (Dec 2017)	1	2018	1	2018
SRMM Milestone B (Aug 2018)	4	2018	4	2018
SRMM Engineering and Manufacturing Development Phase	4	2018	4	2020
SRMM CDR (Mar 2019)	2	2019	2	2019
SRMM FCA (Aug 2020)	4	2020	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101313F / *Strat War Planning System - USSTRATCOM*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	152.112	32.077	32.014	28.481	-	28.481	32.402	16.349	12.826	13.055	Continuing	Continuing
675059: *Integrated Strategic Planning and Analysis Network (ISPAN)*	152.112	24.775	24.938	28.481	-	28.481	32.402	16.349	12.826	13.055	Continuing	Continuing
675368: *GSIN (Global Integrated Sensor Network)*	0.000	7.302	7.076	-	-	-	-	-	-	-	-	14.378
MDAP/MAIS Code: N43												

Note

- MDAP/MAIS Code: N43 ISPAN Inc 2
- MDAP/MAIS Code: 481 ISPAN Inc 4

In FY 2016, PE 0101313F, Strategic War Planning System, Project 675368, Global Sensor Integrated on Network, efforts were transferred to PE 0301017F, Global Sensor Integrated on Network, Project 675368, Global Sensor Integrated on Network, in order to provide improved transparency

A. Mission Description and Budget Item Justification

The mission of US Strategic Command (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 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]) and establishing a unified national architecture integrating disparate Missile Warning/Missile Defense (MW/MD) data into a single Internet Protocol (IP)-based system known as the Global Sensor Integrated Network (GSIN) to provide redundant and unambiguous MW/MD data to national leadership. When the ISPAN modernization is complete the system will support the warfighter in both deliberate and adaptive planning environments while allowing the National Command Authorities to employ the full spectrum of kinetic and non-kinetic weapons. The ISPAN 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).

The nation's strategic Command and Control (C2), sensors and other planning programs cannot rapidly exchange information across multiple missions, creating ambiguity that delays time critical national C2 decision making processes. GSIN establishes a unified national architecture integrating disparate MW/MD systems into a single IP-based system that will provide redundant and unambiguous MW/MD data to national leadership. 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	31.325	35.603	34.683	-	34.683
Current President's Budget	32.077	32.014	28.481	-	28.481
Total Adjustments	0.752	-3.589	-6.202	-	-6.202
• Congressional General Reductions	-	-0.139			
• Congressional Directed Reductions	-	-3.450			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.800	-			
• SBIR/STTR Transfer	-1.048	-			
• Other Adjustments	-	-	-6.202	-	-6.202

Change Summary Explanation

FY14 RDT&E increased $1.800M for GSIN's Non-Traditional Data PreProcessor (NDPP) and TPY-2 Command and Control, Battle Management, Communications (C2BMC) development efforts.

FY15 Congressional Reduction ($3.45M) for ISPAN Inc 4 Contract Award delay and unjustified cost increase for GSIN Data Integration.

FY16 GSIN RDT&E funds ($6.0M) transferred to PE 0301017F, Global Sensor Integrated on Network to provide improved transparency.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / *Strat War Planning System - USSTRATCOM*	Project (Number/Name) 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675059: *Integrated Strategic Planning and Analysis Network (ISPAN)*	152.112	24.775	24.938	28.481	-	28.481	32.402	16.349	12.826	13.055	Continuing	Continuing
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 STRATCOM 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).

The ISPAN modernization program includes initiation of Course of Action (COA) Development as a service to the DoD enterprise, workflow and decision support development, Combatant Commander (COCOM) Collaboration, User Defined Operational Picture (UDOP), conventional mission planning integration, and Mission Planning Analysis System (MPAS) maintenance and modernization. This includes software coding, integration of multiple internal and external planning applications, as well as developmental and early operational test activities. ISPAN also includes automated data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 Block 1 baseline system using proven technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: ISPAN Increment 4	24.775	24.938	28.481	-	28.481
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 2014 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Completed Increment 4 Pre-MS B risk reduction activities. - Initiated Spiral 1 development. -- This includes initiating requirements analysis, design, coding, and test for development of new Mission Planning and Analysis System (MPAS) capabilities. Potential capabilities include a new Plan Manager to orchestrate the crisis action planning processes. -- It also includes development of a new Attack Structure Manager capability (which will optimize on-the-shelf plans in reaction to changes in weapons, weapon availability, targets, and environment), a new Strike Option Generator capability (which will automatically generate strike plan options given a set of constraints and priorities), and a new Data Services Layer/Data Layer which will provide access to common services and data external to MPAS. - Initiated activities for the reengineering of legacy components (e.g. Air Vehicle Planning System, Ballistic Missile Planning System, Aimpoint Construction System, and Plan Quality Review System).					
FY 2015 Plans: - Continue requirements analysis, design, coding, and test activities for development of a new Mission Planning and Analysis System (MPAS) capability. - Complete development, testing, and fielding activities for delivering ISPAN Increment 4 Spiral 1 capability. -- Spiral 1 will deliver the ability to accomplish Time Sensitive Planning (TSP) faster than today's system can support. -- It will provide a partial Plan Management capability for a more automated approach to planning missile missions (partial TSP Weaponeering). -- It will also provide an Attack Structure Management capability for system-assisted deliberate plan management. -- With this capability, courses of action (COAs) can be edited, deleted and added to existing plans in response to changes in the operational environment or shifts in priorities or guidance. -- Spiral 1 will also initiate some of the foundational work necessary to orchestrate work assignments among MPAS subsystems. -- It will also modernize a portion of the Air Vehicle Planning System to improve maintainability and simplify the addition of new capabilities.					
N/A					
FY 2016 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Will continue requirements analysis, design, coding, and test activities for development of a new Mission Planning and Analysis System (MPAS) capability. - Will complete target development, Nuclear Weaponeering/Aimpoint Construction, and TSP Weaponeering. - Start Integrated Options for delivering ISPAN Increment 4 Spiral 2 capability. -- Spiral 2 develop the ability to provide integrated conventional kinetic and non-kinetic plans for integration into level 4 nuclear plans. Continue to initiate some of the foundational work necessary to orchestrate work assignments among MPAS subsystems. -- As in Spiral 1, Spiral 2 will also modernize a portion of the Air Vehicle Planning System to improve maintainability and simplify the addition of new capabilities. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	24.775	24.938	28.481	-	28.481

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BP83: Line Item # 833560: *Integrated Strategic Planning and Analysis Network*	-	9.060	9.597	-	9.597	9.408	9.169	9.049	9.209	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 will develop and modernize strategic planning tools for the combatant commanders using an evolutionary acquisition strategy with development contracts that are negotiated and awarded in a competitive environment.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ISPAN Increment 2	Various	Various : Various, NE	114.006	-		-		-		-		-	Continuing	Continuing	-
Pre-B Risk Reduction	Various	Various : Various, NE	7.753	4.795	Oct 2013	-		-		-		-	-	12.548	-
ISPAN Increment 4 - Spiral 1	Various	Various : Various, NE	0.000	16.430	May 2014	9.933	Feb 2015	-		-		-	Continuing	Continuing	-
ISPAN Increment 4 - Spiral 2	Various	Various : Various, NE	0.000	-		10.805	Feb 2015	16.721	Jan 2016	-		16.721	Continuing	Continuing	-
ISPAN Increment 4 - Spiral 3	Various	Various : Various, NE	0.000	-		-		6.683	Jan 2016	-		6.683	Continuing	Continuing	-
		Subtotal	121.759	21.225		20.738		23.404		-		23.404	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization	Various	Various : Various,	1.345	0.182	Oct 2013	0.185	Oct 2014	0.190	Oct 2015	-		0.190	Continuing	Continuing	TBD
Certification and Accreditation	MIPR	JTIC : Ft Hichuaha, AZ	0.626	0.075	Oct 2013	0.075	Oct 2014	0.075	Oct 2015	-		0.075	Continuing	Continuing	TBD
		Subtotal	1.971	0.257		0.260		0.265		-		0.265	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	PO	Mitre Corp : Offutt AFB, NE	6.360	0.862	Oct 2013	1.200	Oct 2014	1.300	Oct 2015	-		1.300	Continuing	Continuing	TBD
Systems Engineering Operations	C/Various	Various : Various, NE	0.000	-		1.170	Oct 2014	1.070	Oct 2015	-		1.070	Continuing	Continuing	-
Program Management Administration	C/Various	Various : Various, NE	22.022	2.431	Oct 2013	1.570	Oct 2014	2.442	Oct 2015	-		2.442	Continuing	Continuing	TBD
		Subtotal	28.382	3.293		3.940		4.812		-		4.812	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	152.112	24.775		24.938		28.481		-		28.481	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*

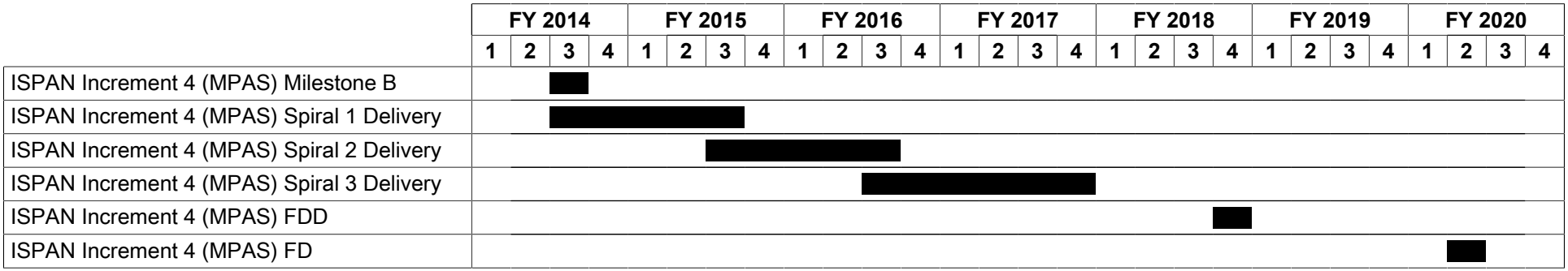

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675059 / *Integrated Strategic Planning and Analysis Network (ISPAN)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ISPAN Increment 4 (MPAS) Milestone B	3	2014	3	2014
ISPAN Increment 4 (MPAS) Spiral 1 Delivery	3	2014	3	2015
ISPAN Increment 4 (MPAS) Spiral 2 Delivery	3	2015	3	2016
ISPAN Increment 4 (MPAS) Spiral 3 Delivery	3	2016	4	2017
ISPAN Increment 4 (MPAS) FDD	4	2018	4	2018
ISPAN Increment 4 (MPAS) FD	2	2020	2	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / *Strat War Planning System - USSTRATCOM*	Project (Number/Name) 675368 / *GSIN (Global Integrated Sensor Network)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675368: *GSIN (Global Integrated Sensor Network)*	-	7.302	7.076	-	-	-	-	-	-	-	-	14.378
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, PE 0101313F, Strategic War Planning System, Project 675368, Global Sensor Integrated on Network, efforts were transferred to PE 0301017F, Global Sensor Integrated on Network, Project 675368, Global Sensor Integrated on Network, in order to provide improved transparency.

Project 675368, Global Sensor Integrated on Network, is not an ACAT 1.

A. Mission Description and Budget Item Justification

GSIN 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. GSIN will enable a User Defined Operating Picture (UDOP) to provide a single, unambiguous missile event picture allowing real-time senior collaboration for nuclear C2, improved senior leader situational awareness (SA), and decision-making.

The Nation's strategic C2, sensors and mission planning programs cannot rapidly exchange information across multiple missions, creating ambiguity that delays time critical national C2 decision making processes. GSIN establishes a unified schema integrating disparate Missile Warning/Missile Defense (MW/MD) data into a single exposed data set providing redundant and unambiguous MW/MD data to national leadership. GSIN 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Sensor Data Exposure: NDPP, TPY-2, MASINT	5.764	5.070	-	-	-
Description: Non traditional Data Pre Processor (NDPP): Design, develop, expose and integrate SSA data from Commercial, Owner-Operator, and Allied non-traditional sensors into space production systems, Space Catalog via the Global Information Grid. Develop implementation plans to mature data exposure capabilities. Army Navy Transportable Radar (AN/TPY-2): Design, develop, test, expose and integrate Space Situational Awareness (SSA) data from the missile defense AN/TPY-2 sensor into space production systems and the Global Information Grid. Develop implementation plans to mature data exposure capabilities. Measurement and Signals (MASINT) / Technical Intelligence (TI): Designs, develops, exposes, and integrates data from MASINT and					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675368 / *GSIN (Global Integrated Sensor Network)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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. ***FY 2014 Accomplishments:*** - NDPP: Continue to develop NDPP capability and integrate with space production systems and the Space Catalog. Complete development and testing of operational prototype for delivery to JSpOC. - TPY-2: Continue development of the exposure of SSA data from the missile defense AN/TPY-2 sensor. Design/plan integration with space production systems. - MASINT/TI: Continue development of MASINT/TI Phase 1 exposure capability. ***FY 2015 Plans:*** - NDPP: Continue development of NDPP capability and integration the Space Catalog. Develop implementation plans to mature data exposure capabilities. - TPY-2: Will finalize sensor development and begin verification testing of the exposure of SSA data from the missile defense AN/TPY-2 sensor. Continue development of C2BMC SSA capability to accomodate TPY-2 sensor. Integration development with space production systems. - MASINT: Complete development of MASINT Phase 1 exposure capability. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: Data Integration: Launch Characterization Data Services Net Centric Data Integration Schema Configuration Control Technical Outreach ***Description:*** Develop common XML net-enabled data schemas and configuration management processes and procedures for Missile Warning, Missile Defense, Space, MASINT/Technical Intelligence, 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. Continue modifications to data services. 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 studies and demonstrations of SSA capabilities, data correlation, launch event characterization and assessment services for risk reduction evaluations.	1.538	2.006	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675368 / *GSIN (Global Integrated Sensor Network)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 2014 Accomplishments: - Continue development of launch characterization software to expose additional sensor data. - Begin integration of launch characterization service with visualization. - Continue modifications to data services. - Conduct minor enhancements and modifications to MD and MW data exposure services based on changes to common XML schema and DISA Enterprise Services. ***FY 2015 Plans:*** - Continue to develop common XML net-enabled data schemas to integrate additional sensor data, and continue to develop configuration control processes, technical outreach processes for new GSIN data consumers and providers. - Upgrade GSIN capabilities as DISA Enterprise Services evolve. - Continue modifications to data services. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	7.302	7.076	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

GSIN will use existing contract vehicles to manage, develop and modernize the combined Space Situational Awareness/Missile Warning/Missile Defense data exposure architecture and solution. These contract vehicles are already in place and available.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675368 / *GSIN (Global Integrated Sensor Network)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Data Correlation, Visualization Architecture, Data Filtering Studies	C/CPFF	MIT/LL : Boston, MA	0.000	0.115	Nov 2012	0.230	Nov 2014	-		-		-	-	0.345	-
Common Schema, Configuration and Control	C/CPFF	BAH : Omaha, NE	0.000	0.800	Mar 2014	0.350	Nov 2014	-		-		-	-	1.150	-
CExpose Space Situational Awareness Data--Commercial, Owner/ Operator, Allied	C/CPAF	Lockheed Martin : Colorado Springs, CO	0.000	1.571	Jan 2014	0.900	Jan 2015	-		-		-	-	2.471	-
Expose Space Situational Awareness Data - AN/ TPY-2 Sensor	C/CPAF	Raytheon : Woburn, MA	0.000	0.741	Jan 2014	1.190	Jan 2015	-		-		-	-	1.931	-
Expose Space Situational Awareness Data - AN/ TPY-2 Sensor (2)	C/CPAF	Lockheed Marting : Huntsville, AL	0.000	3.012	Jan 2014	2.420	Jan 2015	-		-		-	-	5.432	-
Expose Space Situational Awareness Data - MASINT/TI	C/CPAF	MIT/LL : Boston, MA	0.000	0.440	Dec 2012	0.570	Jan 2015	-		-		-	-	1.010	-
		Subtotal	0.000	6.679		5.660		-		-		-	-	12.339	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MW, MD, Space Subject Matter Expert Support	C/CPFF	Various : Omaha, NE	0.000	-		0.250	Jan 2015	-		-		-	-	0.250	-
		Subtotal	0.000	-		0.250		-		-		-	-	0.250	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101313F / *Strat War Planning System - USSTRATCOM*	Project (Number/Name) 675368 / *GSIN (Global Integrated Sensor Network)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing	C/CPFF	Various : Omaha, NE	0.000	-		0.591	Oct 2014	-		-		-	-	0.591	-
		Subtotal	0.000	-		0.591		-		-		-	-	0.591	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	C/FFP	Various : Omaha, NE	0.000	0.623	Oct 2013	0.575	Oct 2014	-		-		-	-	1.198	-
		Subtotal	0.000	0.623		0.575		-		-		-	-	1.198	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.302		7.076		-		-		-	-	14.378	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675368 / *GSIN (Global Integrated Sensor Network)*

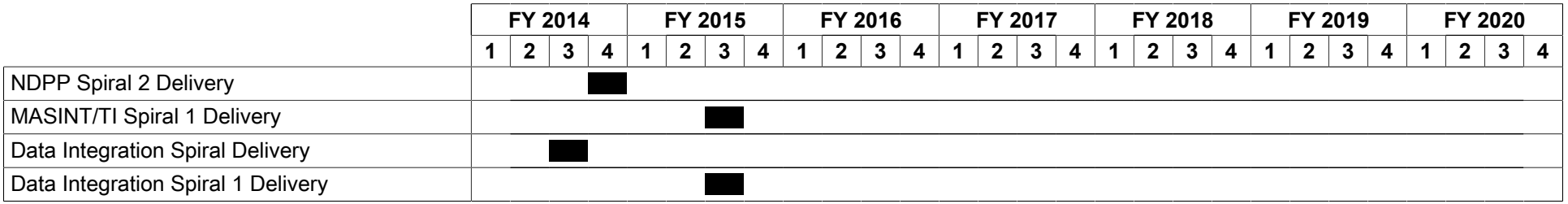

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101313F / *Strat War Planning System - USSTRATCOM*	**Project (Number/Name)** 675368 / *GSIN (Global Integrated Sensor Network)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NDPP Spiral 2 Delivery	4	2014	4	2014
MASINT/TI Spiral 1 Delivery	3	2015	3	2015
Data Integration Spiral Delivery	3	2014	3	2014
Data Integration Spiral 1 Delivery	3	2015	3	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101314F / *Night Fist - USSTRATCOM*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	0.087	-	0.087	0.067	0.068	0.070	0.070	Continuing	Continuing
675152: *NIGHTFIST*	-	-	-	0.087	-	0.087	0.067	0.068	0.070	0.070	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Classified details upon request.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	0.032	-	-	-
Current President's Budget	-	-	0.087	-	0.087
Total Adjustments	-	-0.032	0.087	-	0.087
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-0.032	0.087	-	0.087

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101314F / *Night Fist - USSTRATCOM*	Project (Number/Name) 675152 / *NIGHTFIST*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Misc Analysis	TBD	Not specified. : ,	-	-		-		0.087	Mar 2016	-		0.087	Continuing	Continuing	-
		Subtotal	-	-		-		0.087		-		0.087	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.087		-		0.087	-	-	-

Remarks

Conduct product development.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101314F / *Night Fist - USSTRATCOM*	**Project (Number/Name)** 675152 / *NIGHTFIST*

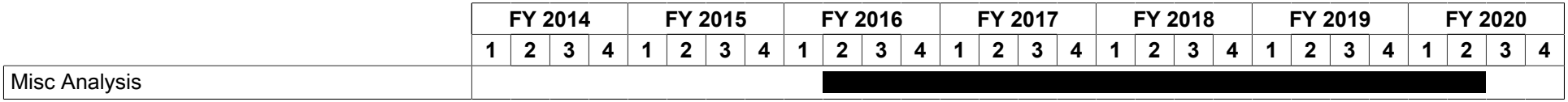

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101314F / *Night Fist - USSTRATCOM*	**Project (Number/Name)** 675152 / *NIGHTFIST*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Misc Analysis	2	2016	2	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101316F / *Worldwide Joint Strategic Communications*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	5.315	-	5.315	6.102	6.347	0.992	2.479	Continuing	Continuing
671820: *Strategic Automated Command and Control System*	-	-	-	5.315	-	5.315	6.102	6.347	0.992	2.479	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, Project 671820, Strategic Automated Command and Control System (SACCS), includes a new start effort for SACCS Replacement.

A. Mission Description and Budget Item Justification

SACCS is a dedicated, high speed, multi-level secure, data transmission, processing, and display system. It provides the primary non-survivable command and control capability for receiving and disseminating secure Emergency Action Messages (EAM), Force Direction Messages (FDM), 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.

The SACCS system 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, the SACCS System Program Office will develop replacement equipment through a phased approach which includes studies, analysis and development.

This program, Strategic Automated Command and Control System, is a new start.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101316F / *Worldwide Joint Strategic Communications*	

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	5.315	-	5.315
Total Adjustments	-	-	5.315	-	5.315
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	5.315	-	5.315

Change Summary Explanation

SACCS funding for FY16 increased for the New Start.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: SACCS Replacement - FY16 New Start	-	-	5.315	-	5.315

Description: Phase I: Design and develop replacement SACCS accountable processors (e.g. Subnet/Base Communication Processor (SCP/BCP)) that disseminate National Command Authority messages to nuclear forces.

Phase II: Design and develop replacement end user equipment to support the nuclear mission.

New equipment will improve Mean Time Between Failure rates, cost savings, reliability, availability, improve user interface, address Diminishing Manufacturing Sources and Material Shortages and obsolecence challenges, and meet Chairman Joint Chief of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).

FY 2014 Accomplishments:

N/A

FY 2015 Plans:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101316F / *Worldwide Joint Strategic Communications*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 Base Plans:*** - Draft SACCS Capability Description Document and technical requirements documents - Award contract to develop Phase I design solution. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	-	5.315	-	5.315

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item #833140: *Strategic Command and Control System*	-	-	0.248	-	0.248	0.248	0.496	1.388	1.289	Continuing	Continuing
• OPAF: BA03: Line Item #861900: *Worldwide Joint Strategic Communications - Spares and Repair Parts*	-	0.610	1.047	-	1.047	0.928	0.827	0.842	0.856	Continuing	Continuing

Remarks

E. Acquisition Strategy

Programmed funds will leverage technology development and architecture analysis conducted by Air Force Research Labs to begin 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / *Worldwide Joint Strategic Communications*	Project (Number/Name) 671820 / *Strategic Automated Command and Control System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Pre-Milestone B Analysis and Preliminary Design Review preparation	TBD	TBD : ,	-	-		-		4.485	Mar 2016	-		4.485	Continuing	Continuing	-
		Subtotal	-	-		-		4.485		-		4.485	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SACCS Development (FFRDC Support)	TBD	TBD : TBD,	-	-		-		0.380	Oct 2015	-		0.380	Continuing	Continuing	-
SACCS Development (A/AS Support)	TBD	TBD : TBD,	-	-		-		0.450	Oct 2015	-		0.450	Continuing	Continuing	-
		Subtotal	-	-		-		0.830		-		0.830	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		5.315		-		5.315	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / *Worldwide Joint Strategic Communications*	Project (Number/Name) 671820 / *Strategic Automated Command and Control System*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101316F / *Worldwide Joint Strategic Communications*	**Project (Number/Name)** 671820 / *Strategic Automated Command and Control System*

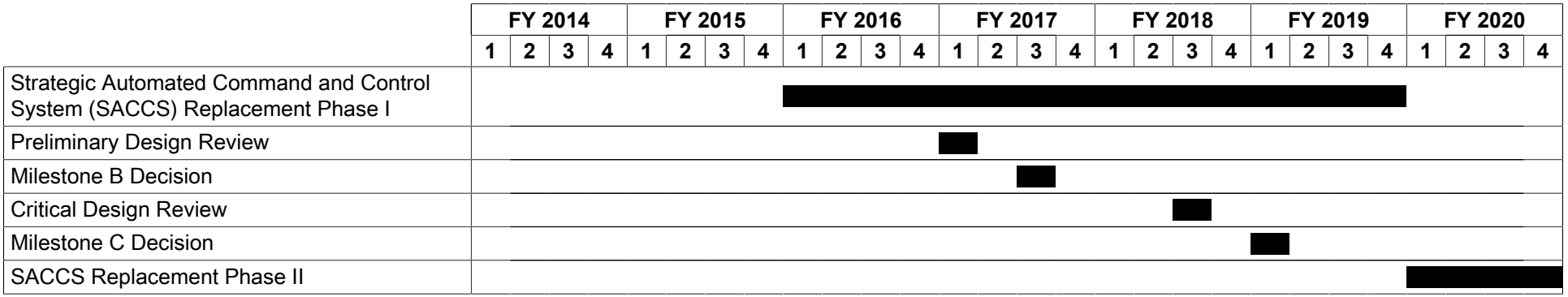

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101316F / *Worldwide Joint Strategic Communications*	**Project (Number/Name)** 671820 / *Strategic Automated Command and Control System*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Strategic Automated Command and Control System (SACCS) Replacement Phase I	1	2016	4	2019
Preliminary Design Review	1	2017	1	2017
Milestone B Decision	3	2017	3	2017
Critical Design Review	3	2018	3	2018
Milestone C Decision	1	2019	1	2019
SACCS Replacement Phase II	1	2020	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0102326F / *Region/Sector Operation Control Center Modernization Program*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	1.570	1.272	-	-	-	-	-	-	-	-	2.842
674592: *R/SAOC MODERNIZATION*	-	1.570	1.272	-	-	-	-	-	-	-	-	2.842
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Efforts in this program element, 0102326F, will complete in FY15.

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

Battle Control System-Fixed (BCS-F) is the operational equipment replacement 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 civil and military defense surveillance systems into a comprehensive, recognized air picture. This integrated air picture enhances the North American Aerospace Defense/Combatant Commander's (NORAD/CC's) capability to conduct peacetime air sovereignty, transition, and warfare. The BCS-F system serves as the Air Force's Homeland Defense battle management, command, and control hub and integrates data from radar sensors, data links, and the supporting communications architecture. It provides the tactical communications and data link capabilities that enable planning, directing, coordinating, and controlling forces for air surveillance, air defense, and control of sovereign US air space. BCS-F is a bi-national program with Canada, ensuring air defense and surveillance capability, including Hawaii. BCS-F achieved Initial Operational Capability in October 2006 and full deployment declaration in Nov 2012. The National Capital Region - Integrated Air Defense System (NCR-IADS) is a post-September 11, 2001 rapidly fielded capability to improve low altitude detection capability in order to prosecute airborne threats to the NCR. The Air Defense Sector (ADS) feeds the Air Picture and Targets of Interest (TOI) to the NCR-IADS. NCR-IADS provides ground-based air defense of the NCR airspace, and provides an integrated air surveillance picture, fire control quality air picture, ground air defense weapons, enhanced regional situational awareness and forensic data collection capabilities for the warfighter.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0102326F / *Region/Sector Operation Control Center Modernization Program*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	1.624	1.522	-	-	-
Current President's Budget	1.570	1.272	-	-	-
Total Adjustments	-0.054	-0.250	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.054	-			
• Other Adjustments	-	-0.250	-	-	-

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Battle Control System Modernization Upgrades	1.570	1.272	-
Description: The development, systems engineering, test and evaluation of the BCS Modernization Upgrades program to include Release 3.2.2 efforts and beyond. ***FY 2014 Accomplishments:*** Performed development, systems engineering, test and evaluation of the BCS Modernization Upgrades program to include Release of 3.2.2 efforts and RM Redundancy. ***FY 2015 Plans:*** Efforts include, but are not limited to, systems engineering and the test and evaluation of the BCS Modernization Upgrades program, such as RM and modification studies like the ADS-B. ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	1.570	1.272	-

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833030: *Battle Control System - Fixed*	14.412	2.704	1.687	-	1.687	6.407	4.006	4.078	4.150	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0102326F / *Region/Sector Operation Control Center Modernization Program*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

E. Acquisition Strategy

Battle Control System-Increment 3: The BCS-Fixed program utilized a sole source contracting strategy that declared full deployment, completing the ACAT 1AC program.

The BCS Modernization Upgrades program used a sole source contracting strategy for the RM redundancy 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BCS Modernization Upgrade	Various	Various : ,	-	0.707	Feb 2014	0.752	May 2015	-		-		-	-	1.459	-
RM Redundancy	SS/CPFF	Thales Raytheon Systems : Fullerton, CA	-	0.533	Feb 2014	-		-		-		-	-	0.533	-
		Subtotal	-	1.240		0.752		-		-		-	-	1.992	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
46th Test Wing/Other Test Act	Various	Various : Various,	-	-		0.186	Nov 2014	-		-		-	-	0.186	-
		Subtotal	-	-		0.186		-		-		-	-	0.186	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management and Administration	Various	AFMC/AFLCMC : Hanscom AFB, MA	-	0.330	Oct 2013	0.334	Oct 2014	-		-		-	-	0.664	-
		Subtotal	-	0.330		0.334		-		-		-	-	0.664	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102326F / *Region/Sector Operation Control Center Modernization Program*	Project (Number/Name) 674592 / *R/SAOC MODERNIZATION*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.570		1.272		-		-		-	-	2.842	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

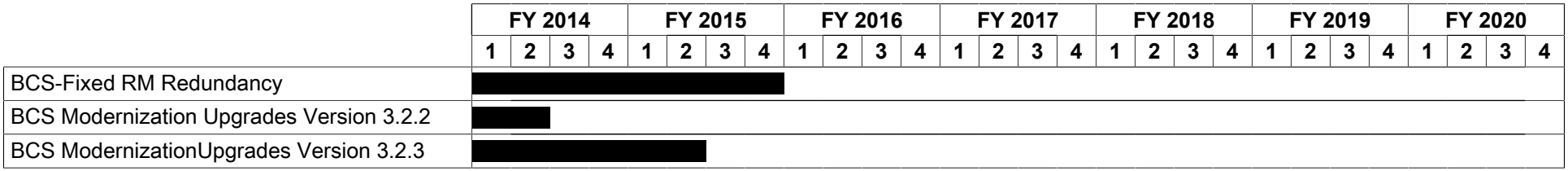

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0102326F / *Region/Sector Operation Control Center Modernization Program*	**Project (Number/Name)** 674592 / *R/SAOC MODERNIZATION*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BCS-Fixed RM Redundancy	1	2014	4	2015
BCS Modernization Upgrades Version 3.2.2	1	2014	2	2014
BCS ModernizationUpgrades Version 3.2.3	1	2014	2	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	3.134	8.090	-	8.090	8.176	8.653	8.703	9.842	Continuing	Continuing
670373: *DCIP*	-	-	-	0.497	-	0.497	0.496	0.496	0.496	0.496	Continuing	Continuing
672486: *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*	-	-	3.134	2.527	-	2.527	3.215	2.702	2.753	2.802	Continuing	Continuing
67A011: *Space Analysis and Application Development*	-	-	-	5.066	-	5.066	4.465	5.455	5.454	6.544	Continuing	Continuing

Note

In FY 2015, Projet 643833 Joint NavWar Center (JNWC) Space Activities, efforts were transferred to PE 0105921F Service Support to STRATCOM - Space Activities, Project 672486 Joint NAVWAR Center in order to align efforts with Budget Activity 7, Operational System Development.

In FY 2016, Project 670373, Defense Critical Infrastructure Program, includes new start efforts.

In FY 2016, Project 67A011, Space Analysis and Application Development, includes new start efforts.

A. Mission Description and Budget Item Justification

The Joint Navigation Warfare Center (JNWC) was established per DepSecDef Memorandum titled, "Navigation Warfare (NAVWAR) Implementation Guidance", dated 17 November 2004. The memorandum directed CDR/USSTRATCOM to "Establish a joint center for NAVWAR that leverages on the expertise and infrastructure of the Joint GPS Combat Effectiveness Joint Test & Evaluation program as part of the foundation to better integrate and coordinate NAVWAR Capabilities across the Department." JNWC's core RDT&E mission is to conduct Positioning Navigation Timing (PNT) Operational Field Assessments (POFA) to provide the essential discovery and basic knowledge building blocks for all other JNWC missions. POFAs use Combatant Command assets employed against representative threats of specific OPLANs, CONPLANs and Defense Planning Scenarios to determine the impact of and/or mitigation measures required to operate in an Anti-Access/Area-Denial A2/AD) Contested PNT Environment. JNWC leverages the $3M/year POFAs to develop national-level NAVWAR guidance, develop joint Tactics Techniques and Procedures (TTPs), non-material solutions and to upgrade capabilities. The intent of POFAs is to provide timely information for near-term TTP development and realistic training in degraded space support environments. POFAs directly benefit and enhance US and coalition capabilities to operate in A2/AD contested PNT environments as those expected in the Air Sea Battle Concept.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	-	3.134	2.544	-	2.544
Current President's Budget	-	3.134	8.090	-	8.090
Total Adjustments	-	-	5.546	-	5.546
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	5.546	-	5.546

Change Summary Explanation

FY16 Funding Increase due to the addition of two new start efforts; DCIP (Project 670373) and Space Analysis and Application Development (Project 67A011).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 670373 / *DCIP*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
670373: *DCIP*	-	-	-	0.497	-	0.497	0.496	0.496	0.496	0.496	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 670373, Defense Critical Infrastructure Program, includes new start efforts.

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. DCIP is directed by the Office of the Assistant Secretary of Defense (Homeland Defense & Americas' Security Affairs) [OASD (HD&ASA)]. DoD Directive 3020.40, 1 July 2010, establishes policy and assigns responsibilities for the DCIP. DCIP manages the identification, prioritization, assessment, and assurance of Defense Critical Infrastructure as a comprehensive program that includes the development of adaptive plans and procedures to mitigate risk, restore capability in the event of loss or degradation, support incident management, and protect Defense Critical Infrastructure related sensitive information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: DCIP ***Description:*** Identification, prioritization, assessment, and assurance of Defense Critical Infrastructure ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** Develop adaptive plans and procedures to mitigate risk, restore capability in the event of loss or degradation, support incident management, and protect Defense Critical Infrastructure related sensitive information. ***FY 2016 OCO Plans:*** N/A	-	-	0.497	-	0.497
Accomplishments/Planned Programs Subtotals	-	-	0.497	-	0.497

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 670373 / *DCIP*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Competitive contracts will be used 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 670373 / *DCIP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Defense Critical Infrastructure Program	TBD	TBD : TBD,	-	-		-		0.497	Jan 2016	-		0.497	Continuing	Continuing	-
		Subtotal	-	-		-		0.497		-		0.497	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.497		-		0.497	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 670373 / *DCIP*

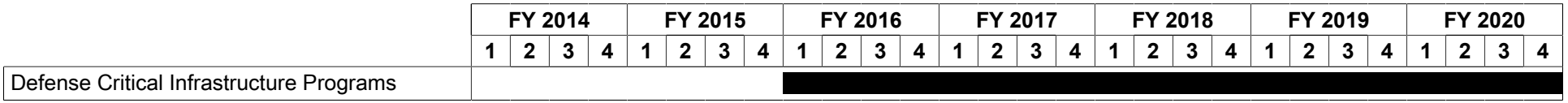

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 670373 / *DCIP*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Defense Critical Infrastructure Programs	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
672486: *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*	-	-	3.134	2.527	-	2.527	3.215	2.702	2.753	2.802	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In 2015, Project 672486 Joint NAVWAR Center (JNWC) Space Activities, efforts were transferred from PE 0105921F Service Support to STRATCOM - Space Activities, Projet 643833 Joint NavWar Center in order to align efforts with Budget Activity 7, Operational System Development.

A. Mission Description and Budget Item Justification

Navigation Warfare (NAVWAR) is deliberate defensive and offensive action to assure and prevent positioning, navigation, and timing (PNT) information through coordinated employment of space, cyberspace, and electronic warfare (EW) operations. The term NAVWAR is sometimes equated with "PNT Superiority." The Joint Navigation Warfare Center (JNWC) was established by DEPSECDEF Memo, 17 November 2004, as the DoD Center of Excellence, tasked to integrate and coordinate NAVWAR PNT capabilities across electronic spectrum, cyberspace, and space operations. NAVWAR leverages various techniques and technologies from these mission areas to negate or prevent hostile use of PNT information and protect unimpeded use of PNT information by U.S., Allied, and Coalition Forces while not unduly disrupting peaceful use outside an area of operation. 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. In recent years, the Global Positioning System (GPS) has become one of the most critical enablers of modern advanced technology warfare. In an era where everything from advanced weapons systems and networks to basic goods and services are tracked, guided or disciplined by PNT systems such as GPS, NAVWAR is an ever increasing capability of interest and concern, especially if PNT systems are interrupted or lost. Likewise, as Global Navigation Satellite Systems (GNSS) proliferate, it becomes necessary to consider not only denying adversary use of GPS but also negating adversary use of alternate GNSS systems for PNT. Recent revisions to National Defense Strategy and Defense Planning Guidance require Combatant Commands to account for denied / degraded PNT environments in deliberate planning. Projecting force in the Asia-Pacific Region and other theaters of operation requires an understanding of how evolving global asymmetric anti-access / area denial (A2/AD) threats may affect joint warfighting functions. JNWC-conducted POFAs are a key element in evaluating 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 four Joint Mission Essential Tasks (JMETS):

1. Enable Defensive PNT Operations: enable operations that will protect blue force PNT capabilities.
2. Enable Offensive PNT Operations: enable PNT superiority capabilities that can take advantage of GNSS vulnerabilities.
3. Establish and Maintain PNT Situational Awareness (SA): assess current and projected blue force and red force PNT related capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

4. Develop and Execute NAVWAR Operational Assessments and Analysis for Future NAVWAR Operations and conduct field assessments to evaluate blue force and red force capabilities and vulnerabilities.

The JNWC executes its assigned mission responsibilities through three lines of operation (LOO):

1. Create Knowledge for PNT Superiority: PNT operational field assessments, studies and analysis, assessment and dissemination of PNT related intelligence, and managing the PNT Superiority data repository
2. Operationalize PNT Superiority: Joint Force and Contingency Operations support to Combatant Commands, Services, and other customers through outreach; creating and demonstrating operational capability for PNT Superiority in the near term
3. Institutionalize PNT Superiority: Acquisition, policy, doctrine, and coalition support; creating the environment for robust PNT Superiority capability in the future

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 fudning in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: PNT Operational Field Assessment (GYPSY)	-	1.721	1.482	-	1.482
Description: The JNWC will investigate, 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, laboratories, employment of competitively selected contractors, universities, other government agencies, and Federally Funded Research and Development Centers (FFRDCs). ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Continue to investigate, 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. ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue to investigate, 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.					
Title: PNT Operational Field Assessments (FORTUNE) ***Description:*** The JNWC will investigate, 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, laboratories, employment of competitively selected contractors, universities, other government agencies, and Federally Funded Research and Development Centers (FFRDCs). ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** The FORTUNE Operational Field Assessments serve as a series of risk mitigation events as a lead up to the FY16 GYPSY Kilo POFA (PNT Operational Field Assessment). 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. ***FY 2016 Base Plans:*** The FORTUNE Operational Field Assessments serve as a series of risk mitigation events as a lead up to the FY16 GYPSY Kilo POFA (PNT Operational Field Assessment). 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.	-	1.413	1.045	-	1.045
Accomplishments/Planned Programs Subtotals	-	3.134	2.527	-	2.527

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PNT Operational Field Assessments (Gypsy and Fortune)	PO	Multiple : Kirtland AFB, NM	-	-		3.134	Oct 2014	2.527	Oct 2015	-		2.527	Continuing	Continuing	-
		Subtotal	-	-		3.134		2.527		-		2.527	-	-	-

Remarks

The JNWC will investigate, 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, laboratories, employment of competitively selected contractors, universities, other government agencies, and Federally Funded Research and Development Centers (FFRDCs).

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		3.134		2.527		-		2.527	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

RDT&E funds are used primarily to support MET #2, Create and maintain NAVWAR knowledge, JMET #4, Develop and Execute NAVWAR Operational Assessments and Analysis for Future NAVWAR Operations, and LOO #1, Create NAVWAR Knowledge. GYPSY POFAs (PNT Operational Field Assessments) are large, often integrated Coalition, assessments conducted to address Combatant Command OPLAN and CONPLAN related PNT capabilities and vulnerabilities in their anticipated theater threat environment. FORTUNE POFAs are smaller PNT capability and vulnerability assessments used as future GYPSY risk reduction events or as stand-alone PNT capability assessments.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

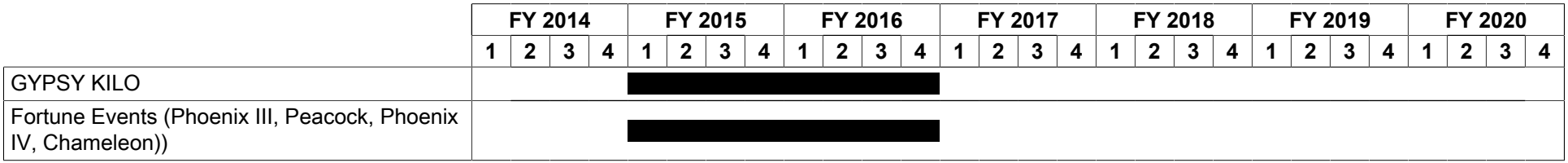

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 672486 / *JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GYPSY KILO	1	2015	4	2016
Fortune Events (Phoenix III, Peacock, Phoenix IV, Chameleon))	1	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 67A011 / *Space Analysis and Application Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
67A011: *Space Analysis and Application Development*	-	-	-	5.066	-	5.066	4.465	5.455	5.454	6.544	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 67A011, Space Analysis and Application Development, includes new start efforts.

A. Mission Description and Budget Item Justification

The Space Analysis and Application Development project develops modeling and simulation tools that Air Force Space Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. Development activities incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Air Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Model Development/Modification/Verification/Validation	-	-	5.066	-	5.066
Description: Develops, modifies, verifies, and validates new models for space mission areas and modifies existing models to portray new capabilities.					
FY 2014 Accomplishments: N/A					
FY 2015 Plans: N/A					
FY 2016 Base Plans: - Upgrade to support Protected comm and ITW/AA analysis - Simulate SSN used on launch folder issues - Improve space/cyber representation in STORM.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 67A011 / *Space Analysis and Application Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Enhance STORM non-lethal effects modeling - Continue modifications to support upcoming AOAs and studies. - Continue integration of Ionospheric scintillation forecast accuracy modifications into mission models and various communications analysis tools. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	-	5.066	-	5.066

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA07: PE 0305174F: *Space Innovation, Integration and Rapid Technology Development*	2.409	2.071	1.543	-	1.543	3.129	2.985	2.649	2.697	Continuing	Continuing

Remarks

D. Acquisition Strategy

Any new projects funded in this program 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0105921F / *Service Support to STRATCOM - Space Activities*	Project (Number/Name) 67A011 / *Space Analysis and Application Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop/modify software tools/models	TBD	TBD : TBD,	-	-		-		5.066	Nov 2015	-		5.066	Continuing	Continuing	-
		Subtotal	-	-		-		5.066		-		5.066	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		5.066		-		5.066	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 67A011 / *Space Analysis and Application Development*

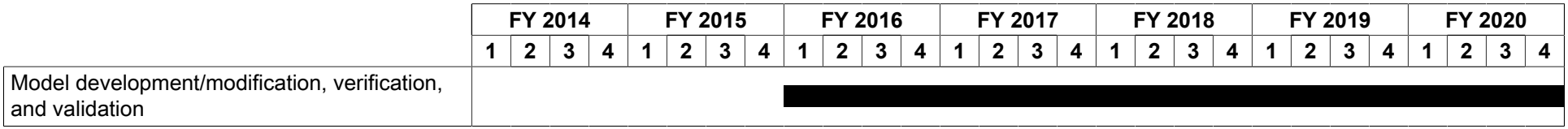

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0105921F / *Service Support to STRATCOM - Space Activities*	**Project (Number/Name)** 67A011 / *Space Analysis and Application Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Model development/modification, verification, and validation	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	713.828	104.000	148.598	123.439	-	123.439	141.969	149.301	144.523	157.023	-	1,682.681
675246: *MQ-9 Development and Fielding*	713.828	104.000	148.598	123.439	-	123.439	141.969	149.301	144.523	157.023	-	1,682.681
Quantity of RDT&E Articles	3	-	-	-	-	-	-	-	-	-		
MDAP/MAIS Code: 424												

A. Mission Description and Budget Item Justification

The basic MQ-9 Reaper system consists of the aircraft, sensors, a ground control station (GCS), communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended. Mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and 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 primarily to prosecute critical, emerging Time-Sensitive-Targets (TSTs) as a 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). In the hunter-killer role, the aircraft employs fused multi-spectral sensor information to find, fix, and track ground targets and assesses post-strike results using Automatic Target Cueing (ATC), high definition EO/IR, Synthetic Aperture Radar and other sensor capabilities. The MQ-9 system is continuing to develop and field capabilities through incremental upgrades. Future capability development activity includes airframe and airframe system improvements such as: increasing the maximum gross takeoff weight capability from 10,500 to 11,700lbs; increasing the operational range and endurance of the baseline MQ-9 aircraft (adding external fuel tanks and/or airframe modifications such as wing extensions); incorporating an anti-ice/de-ice capability to transit light icing conditions (involves wing/tail modifications as well as turbine inlet heating); propulsion system improvements; enhancing MQ-9 systems to include Automatic Takeoff and Landing Capability (ATLC); integrated redundant avionics; modifying the system to include provisions for a Foreign Military Sales (FMS) exportable version of the weapon system; Predator Primary Data Link (PPDL) communication system upgrades and communications upgrades to include data link encryption, Internet Protocol (IP) networking, secure voice and data communications, including SATCOM Beyond Line-of-Sight (BLOS) comm upgrades; navigation system upgrades; electrical system upgrades; incorporation of Elevated Temperature Wet (ETW) materials; sensor/stores management computer improvement; MIL-STD-1760 advanced weapons data bus; Universal Armament and Sensor Interface and Miniature Munitions/Store Interface; advanced sensor and weapon payloads; improved human-machine interface (HMI); integrating precision weapons (e.g. AGM-114 Hellfire missile variants, GBU-12/38/49/54 guided bombs, and Small Diameter Bomb (SDB) variants); hardware and software upgrades to the ground control station for MQ-9 operations; completing airworthiness certification; weapon system certification and accreditation; and producing applicable training devices that emulate weapon system functionality and capabilities. The MQ-9 program will continue to support other payload and capability development activities funded in other program elements (e.g. SIGINT, communications, Wide Area Motion Imagery (WAMI) and Near Vertical Direction Finding (NVDF), leveraging Gorgon Stare Quick Reaction Capability, advanced Counter-Improvised Explosive Device (C-IED), missile defense, hyperspectral, and other required sensors and weapons) and 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, common with the MQ-1 Predator, 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; provides a means for manual control; enables personnel to launch, recover, and monitor aircraft, payloads, and system communications status; incorporates secure data links to send aircraft and payload commands and receive system telemetry and payload data; monitors threats to the aircraft; displays the common operational picture; and provides support functions. Launch and Recovery GCS (LRGCS) allows 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 MQ-9 system capabilities and in response to evolving operational and information assurance/certification and accreditation requirements. Key efforts include GCS upgrades that add new LINUX processors, high definition monitors, ergonomic improvements, improved human-machine interfaces, open systems architecture, and improved crew habitability. In addition, the GCS development efforts also include upgrade of communciation nodes for data flow between GCSs and the rest of the MQ-9 system enterprise and development/integration of the Unmanned Aircraft Systems (UAS) Command and Control (C2) Initiative (UCI) government-owned standard to enable improved capabilities for situational awareness and multi-mission management monitoring and oversight in the GCS. This project will also increase interoperability among developed systems by developing common standards and tools.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	107.338	170.396	124.260	-	124.260
Current President's Budget	104.000	148.598	123.439	-	123.439
Total Adjustments	-3.338	-21.798	-0.821	-	-0.821
• Congressional General Reductions	-	-0.498			
• Congressional Directed Reductions	-	-21.300			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.338	-			
• Other Adjustments	-	-	-0.821	-	-0.821

Change Summary Explanation

Reduction of $21.3 million in FY15 due to FY15 Appropriation Act with comment, "Maintain Program Affordability: System Development and Demonstration."
Reduction of $0.821 million in FY16 due to higher AF priorities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: MQ-9 System Development and Demonstration (SDD)	31.891	36.243	46.372	-	46.372
Description: Complete development to meet MQ-9 Capabilities Production Document (CPD) requirements. ***FY 2014 Accomplishments:*** Continued MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system capability development to include: Developmental test for High Capacity Starter-Generator, Predator Primary Data Link (PPDL)that will lead to Common Data Link (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-sprectral Targeting System (MTS-B), Improved Heavyweight Landing Gear, integration and productionization, Automatic Take-off and Landing, and 904.6 software development. ***FY 2015 Plans:*** Continue MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system capability development to include: 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, Automatic Take-off and Landing, and 904.6 software development. Complete Follow on Operational Test and Evaluation (FOT&E) as required to field Block 5 aircraft and 904.6 software. FY15 also includes the following software development activities: Video Orientented Transceiver for EXchange of Information (VORTEX) Phase 1 data link that will lead to CDL compliance, integration of High Definition Electro-optical Infra-red sensor upgrades, and integration and testing of other communications, sensors and weapons capabilities. ***FY 2016 Base Plans:*** Will continue MQ-9 Block 5 Remotely Piloted Aircraft (RPA) system capability development to include: 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					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Heavyweight Landing Gear, integration and productionization, and 904.6 software development to include integration of numerous approved Software Change Requests (SCRs). Complete Follow on Operational Test and Evaluation (FOT&E) as required to field Block 5 aircraft and 904.6 software following the successful DT completion, Technical Order (Flight Manual and Maintenance Manual development), and training completion. FY16 also includes continuation of the new hybrid strategy software development: Video Orientented Transceiver for EXchange of Information (VORTEX) Phase 1 data link that will lead to CDL compliance, integration of High Definition Electro-optical Infra-red sensor upgrades, and integration and testing of other communications, sensors and weapons capabilities. ***FY 2016 OCO Plans:*** N/A					
Title: Ground Control Station (GCS) Development	39.977	37.048	51.295	-	51.295
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 2014 Accomplishments:*** Began Block 50 GCS design/development and manufacturing. Events in FY14 included upgrading the system software and completing a Cockpit Evaluation Team event. Reduced and eliminated known deficiencies in legacy GCS. ***FY 2015 Plans:*** Continue Block 50 GCS design/development and manufacturing. Events in FY15 will include the hardware and software integration, an Integrated Baseline Review, a Systems Requirement Review, and a Preliminary Design Review. Reduce or eliminate any known deficiencies in legacy GCS. Payload separation will incorporate the required Block 50 GCS architecture. ***FY 2016 Base Plans:*** Will continue Block 50 design / development, manufacturing and test. Events in FY16 include Software Development and Test, A Critical Design Review and completion of 7 GCS assets. ***FY 2016 OCO Plans:***					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Title: MQ-9 Electro-Optic / Infrared (EO/IR) Sensor	0.063	10.740	0.367	-	0.367
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. ***FY 2014 Accomplishments:*** Continued development at reduced level of effort MTS-B all digital High Definition (HD) Target Location Accuracy (TLA) architecture including mechanical electrical design, hardware and software fabrication, integration, and manned flight test/unmanned flight test of prototypes to achieve production readiness. Updated MTS-B production representative software to facilitate integration of MTS-B HD TLA on the MQ-9 aircraft to include software lab test. Continued system qualification and extended reliability testing. Formally released all MTS-B HD design and interface control documents. Prepared and delivered technical order source data and required training materials to facilitate fielding of HD TLA MTS-B. $63K added in FY14 to provide funding for safety evaluation to accomodate AF Laser System Safety Review Board approval of eye safe laser upgrade that is part to the MTS-B TLA upgrade. ***FY 2015 Plans:*** Conduct test readiness review to assure system is ready for production. Complete HD TLA MTS-B system qualification and extended reliability testing. Support backwards compatibility integration and test of completed HD TLA MTS-B system on MQ-9 platform. ***FY 2016 Base Plans:*** Obsolescence management 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. ***FY 2016 OCO Plans:*** N/A					
Title: Operator Simulator	2.046	11.520	7.415	-	7.415
Description: Develop 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. Note: Funding and					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
contracting for this effort is not required every year but is required periodically as changes to aircraft and Ground Control Station hardware/software is developed and fielded. ***FY 2014 Accomplishments:*** Continued updates to Operator Simulator with upgrades to trainers, hi-definition electro-optical/infra-red (EO/IR), Lynx Synthetic Aperture Radar (SAR) enhancements, and Ground Control Station (GCS) Block 50. ***FY 2015 Plans:*** Continue to implement updates which will keep the Operator Simulator current with the aircraft and Ground Control Station. These updates will include, but are not limited to, sensor, databases and weapons upgrades. ***FY 2016 Base Plans:*** Will continue to implement updates which will keep the Operator Simulator current with the aircraft and Ground Control Station. These updates will include, but are not limited to, sensor, databases and weapons upgrades. ***FY 2016 OCO Plans:*** N/A					
Title: Synthetic Aperture Radar (SAR) Enhancements ***Description:*** Improvements in MQ-9 capability to disseminate SAR data via a fleet-wide common architecture, improve Ground Moving Target Indicator (GMTI) tracking, automation of data exploitation via Continuous Look Attack Management for Predator (CLAMP) and improvement of GPS targeting. ***FY 2014 Accomplishments:*** Completed Dismount Moving Target Indication development. Completed Feature Aided Tracker development. Completed Ground Moving Target Indication development. Began development of SAR Stationary Targeting Improvements for GPS-based weapons. Began development for MQ-9 data dissemination common architecture using dual firewall architecture. ***FY 2015 Plans:*** Continue development and begin integration/test for MQ-9 data dissemination common architecture using dual firewall capability. Continue development for SAR Stationary Targeting Improvements for GPS-based weapons. ***FY 2016 Base Plans:***	3.882	8.513	2.751	-	2.751

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Will complete development of MQ-9 data dissemination common architecture using dual firewall capability. Will complete development of SAR Stationary Targeting Improvements for GPS-based weapons. ***FY 2016 OCO Plans:*** N/A					
Title: Test Support ***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. Air Force Test Center executes Flight Operations Authority responsibilities and provides Combined Test Force support, Edwards AFB controlled airspace range time and assets, test scheduling, frequency management and test related munitions support. Naval Air Warfare Center (NAWC) China Lake provides on-site facilities support, controlled airspace range time, assets, and ground targets for weapons testing. Joint Interoperability Test Command provides standards conformance testing and interoperability certification. NAWC Patuxent River provides Electromagnetic Environmental Effects testing. ***FY 2014 Accomplishments:*** Continued test support. ***FY 2015 Plans:*** Continue test support. ***FY 2016 Base Plans:*** Will continue test support. ***FY 2016 OCO Plans:*** N/A	1.565	2.176	1.003	-	1.003
Title: Communications ***Description:*** Develop MQ-9 communications capabilities including encrypted and improved Line of Sight (LoS) data links to ROVER terminals (VORTEX) 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 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	2.269	3.420	0.953	-	0.953

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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. ***FY 2014 Accomplishments:*** Continued the development of communications capabilities including Fixed Site Satellite Terminals (FSSTs)/ Satellite Earth Terminal Sub-Systems (SETSS) and their respective Technical Order (TO) updates, RSO TO development, training course development and various logistics support analysis. Integration of IP-based RSO network infrastructure, and Ground Data Terminals (GDT). ***FY 2015 Plans:*** Continue development of Fixed Site Satellite Terminal (FSST) and Satellite Earth Terminal Sub-Systems (SETSS) and relay site equipment, Technical Orders, training course development, logistics support analysis and integration of Internet Protocol (IP)-based Remote Split Operations (RSO) network infrastructure. Development of advance PPDL and SATCOM capabilities. ***FY 2016 Base Plans:*** Will continue the development of Fixed Site Satellite Terminal (FSST) and Satellite Earth Terminal Sub-System (SETSS) and relay site equipment, TO development, BE-CDL and BE-SATCOM development, RSO TO development, training course development, logistics support analysis, and IP-base network equipment development. ***FY 2016 OCO Plans:*** N/A					
Title: Counter-IED Development and Demonstration ***Description:*** Adding "Step Stare" (converts motion video imagery into still frame imagery for change detection analysis) mode capability to the MTS-B EO/IR sensor; also includes associated GCS development and testing. ***FY 2014 Accomplishments:*** Completed final integration and test of MTS-B Step Stare mode. Completed preparation and execution of Operational Utility Evaluation and 6 month Quick Reaction Capability (QRC) Initial Fielding phase. ***FY 2015 Plans:***	3.530	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: Multi-aircraft Transit Operations (MTO) ***Description:*** Multi-aircraft transit operation is to develop a core functionality to enable one pilot to safely control multiple RPA in non-segregated airspace on an instrument flight rules (IFR) flight plan between airfield and mission area(s) ***FY 2014 Accomplishments:*** Continued development of multi-aircraft transit operations engineering prototype to define and implement needed functionality and associated user interface elements; complete initial integration of prototype with Block 50 Lite GCS to demonstrate control and handoff of MQ-9 aircraft. ***FY 2015 Plans:*** Continue development of multi-aircraft transit operations engineering prototype to fully develop functionality and associated user interface elements to support finalized ACC Functional CONEMP; develop associated systems engineering artifacts to support technology transition to acquisition program of record; begin work with prime contractor to mature prototype for hardware-in-the-loop testing with the MQ-9. ***FY 2016 Base Plans:*** Will continue development of multi-aircraft operations engineering prototype to flight testable system; complete systems engineering artifacts and transition to acquisition program of record. ***FY 2016 OCO Plans:*** N/A	1.327	3.843	1.638	-	1.638
Title: MQ-9 Technology Insertion ***Description:*** Develop program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System. ***FY 2014 Accomplishments:***	3.731	18.555	11.645	-	11.645

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continued development of program protection, Technology Insertion capabilities and functionality for the MQ-9 Weapon System including aircraft, sensors, and Ground Control Station documentation and drawings. ***FY 2015 Plans:*** Continue development of program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System including aircraft, sensors, and Ground Control Station documentation and drawings. ***FY 2016 Base Plans:*** Will continue development of program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System including aircraft, sensors, and Ground Control Station documentation and drawings. ***FY 2016 OCO Plans:*** N/A					
Title: Reliability and Maintainability ***Description:*** Develop MQ-9 modification improvements for aircraft and ground base infrastructure. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** 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 2016 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 2016 OCO Plans:*** N/A	-	1.118	-	-	-
Title: Extended Range ***Description:*** Develop Extended Range capability to increase operational range and endurance of the baseline MQ-9. ***FY 2014 Accomplishments:***	8.387	15.422	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continued development of Extended Range capability to increase operational range and endurance of the baseline MQ-9. Technical solutions included modified wings and incorporating external fuel tanks. Also included were Non-Recurring Engineering, development of technical data (flight manual, maintenance manual, technical orders, and flight test), and addressing any deficiency reports resulting from developmental or operational testing to support fielding recommendations and airworthiness. ***FY 2015 Plans:*** Continue development of Extended Range capability to increase operational range and endurance of the baseline MQ-9. Technical solutions included modified wings and incorporating external fuel tanks. Also included were Non-Recurring Engineering, development of technical data (flight manual, maintenance manual, technical orders, and flight test), and addressing any deficiency reports resulting from developmental or operational testing to support fielding recommendations and airworthiness. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: Urgent Services ***Description:*** Urgent services, engineering change orders, program office support, studies and general research, and other higher level iniatives directed by the Air Force. ***FY 2014 Accomplishments:*** Continued urgent services, engineering change orders, studies and general research, and other higher level iniatives directed by the Air Force. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	4.795	-	-	-	-
Title: Afghan Enablers Development	0.537	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Support Joint Urgent Operational Need (JUON) requirements to rapidly field sensor cross cue (slew-to-cue) functionality to improve track through clouds capability, advanced weapons, and high definition full motion video. ***FY 2014 Accomplishments:*** Completed development, testing, and upgrades to field an initial increment of capability with MQ-9 weapon system sensor cross-cue functionality, integration of GBU-49 weapon with specialized warhead and high definition FMV capability. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	104.000	148.598	123.439	-	123.439

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA04: Line Item # PRDTB1: *MQ-9*	349.217	385.218	552.527	13.500	566.027	496.456	513.061	301.378	143.768	84.637	2,839.762
• APAF: BA06:Line Item # PRDTB1: *MQ-9*	17.711	76.629	134.393	-	134.393	171.179	132.500	114.849	68.089	111.963	827.311
• APAF: BA05: Line Item # PRDTB2: *MQ-9 Mods*	58.970	155.445	115.226	69.000	184.226	207.894	213.038	249.849	252.153	1,164.842	2,486.417
• APAF: BA07: Line Item # PRDTB1: *MQ-9*	87.440	101.020	5.000	-	5.000	43.768	36.601	26.092	26.562	-	326.483
• RDTE: BA07: PE 0305206F: *Airborne Reconnaissance Systems*	10.000	-	-	-	-	-	-	-	-	-	-
• APAF: BA06: PRDTB3: *MQ-9 UAS Payloads*	8.256	6.790	5.554	-	5.554	3.575	0.218	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

E. Acquisition Strategy

The MQ-9 Reaper system will be acquired via sole-source contracts with General Atomics-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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MQ-9 System Development and Demonstration (SDD)	SS/CPIF	GA-ASI : Poway, CA	283.701	29.363	Jan 2014	33.761	Nov 2014	42.583	Nov 2015	-		42.583	353.081	742.489	742.489
Ground Control Station (GCS) Development	SS/CPFF	GA-ASI : Poway, CA	87.890	36.812	Apr 2014	34.510	Nov 2014	47.105	Nov 2015	-		47.105	109.747	316.064	316.064
MQ-9 Electro-Optical / Infrared (EO/IR) Sensor	SS/CPFF	Raytheon : McKinney, TX	98.228	0.058	Apr 2014	10.004	Oct 2014	0.337	Oct 2015	-		0.337	0.723	109.350	109.350
Operator Simulator	SS/CPIF	L3 Comm : Salt Lake City, UT	19.746	2.046	Aug 2014	11.520	Feb 2015	7.415	Jan 2016	-		7.415	43.016	83.743	83.743
Synthetic Aperture Radar (SAR) Enhancements	SS/CPFF	GA-RSG : Poway, CA	36.431	3.575	Mar 2014	7.930	Oct 2014	2.527	Oct 2015	-		2.527	-	50.463	50.463
Communication	SS/CPFF	GA-ASI : Poway, CA	10.508	2.269	Jul 2014	3.420	Jan 2015	0.953	Jan 2016	-		0.953	0.835	17.985	17.985
Counter-IED Development and Demonstration	SS/CPIF	Various : Various,	27.485	3.530	Dec 2013	-		-		-		-	-	31.015	31.015
GCS Multi Transit Ops	SS/CPFF	GA-ASI : Poway, CA	7.377	1.327	Apr 2014	3.843	Feb 2015	1.638	Feb 2016	-		1.638	12.967	27.152	27.152
MQ-9 Program Protection Technology Insertion	SS/CPFF	GA-ASI : Poway, CA	13.753	3.436	Apr 2014	17.283	Oct 2014	10.693	Oct 2015	-		10.693	4.245	49.410	49.410
Reliability and Maintainability	SS/CPFF	GA-ASI : Poway, CA	2.891	-		1.118	Jan 2015	-		-		-	16.867	20.876	20.876
Extended Range	SS/CPFF	GA-ASI : Poway, CA	14.598	7.723	Mar 2014	14.366	Jan 2015	-		-		-	-	36.687	36.687
Urgent Services/Misc Prior	SS/CPFF	GA-ASI : Poway, CA	66.737	4.795	Mar 2014	-		-		-		-	6.538	78.070	78.070
Afghan Enablers Development	SS/CPFF	GA-ASI : Poway, CA	2.500	0.537	Mar 2014	-		-		-		-	-	3.037	3.037
		Subtotal	671.845	95.471		137.755		113.251		-		113.251	548.019	1,566.341	1,566.341

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	Various, Various : ,	15.903	1.565	Apr 2014	2.176	Nov 2014	1.003	Nov 2015	-		1.003	5.084	25.731	25.731
		Subtotal	15.903	1.565		2.176		1.003		-		1.003	5.084	25.731	25.731

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other Government Costs	Various	Various : Various, CA	26.080	6.964	Dec 2013	8.667	Nov 2014	9.185	Nov 2015	-		9.185	39.713	90.609	90.609
		Subtotal	26.080	6.964		8.667		9.185		-		9.185	39.713	90.609	90.609

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	713.828	104.000		148.598		123.439		-		123.439	592.816	1,682.681	1,682.681

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

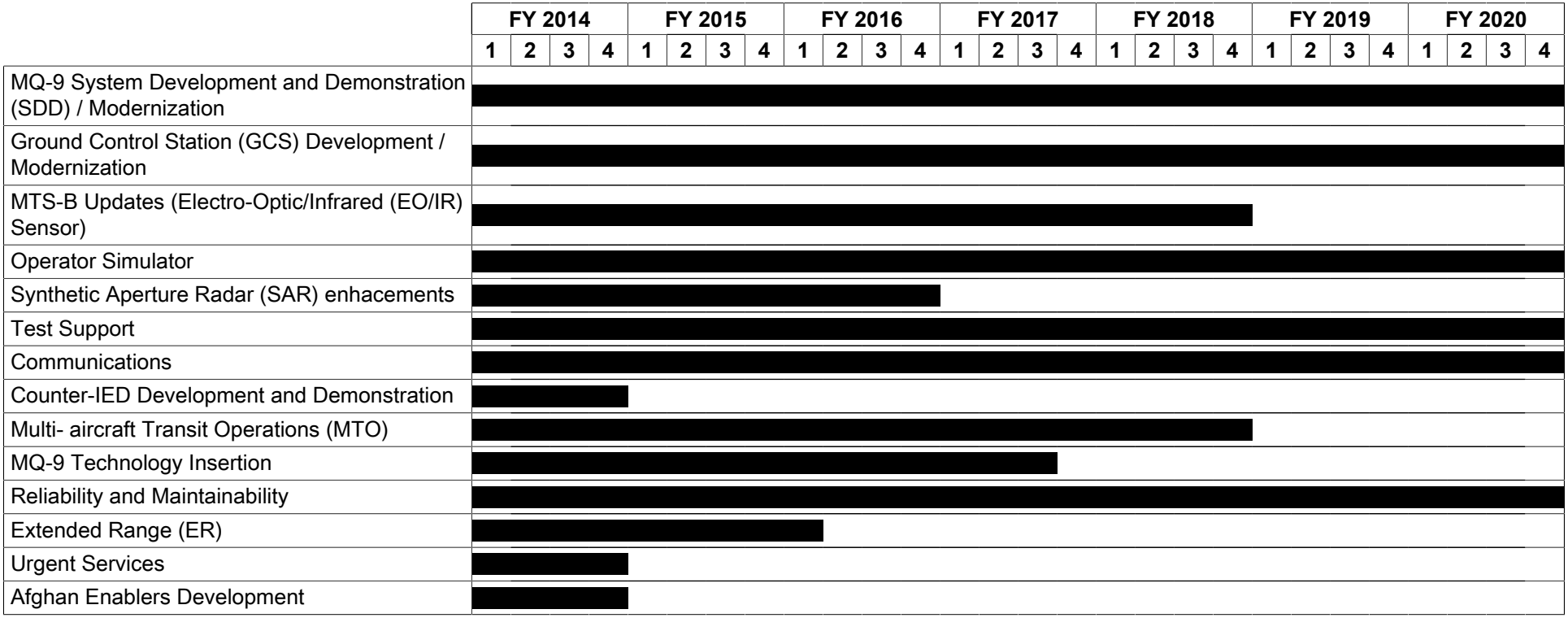

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MQ-9 System Development and Demonstration (SDD) / Modernization	1	2014	4	2020
Ground Control Station (GCS) Development / Modernization	1	2014	4	2020
MTS-B Updates (Electro-Optic/Infrared (EO/IR) Sensor)	1	2014	4	2018
Operator Simulator	1	2014	4	2020
Synthetic Aperture Radar (SAR) enhacements	1	2014	4	2016
Test Support	1	2014	4	2020
Communications	1	2014	4	2020
Counter-IED Development and Demonstration	1	2014	4	2014
Multi- aircraft Transit Operations (MTO)	1	2014	4	2018
MQ-9 Technology Insertion	1	2014	3	2017
Reliability and Maintainability	1	2014	4	2020
Extended Range (ER)	1	2014	1	2016
Urgent Services	1	2014	4	2014
Afghan Enablers Development	1	2014	4	2014

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205671F / *Joint Counter RCIED Electronic Warfare*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	-	0.300	0.300	-	-	-	-	Continuing	Continuing
674518: *JCREW VEHICLE INTEGRATION*	-	-	-	-	0.300	0.300	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 674518, JCREW Vehicle Integration, includes a new start effort for Joint Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW).

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)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	-	0.300	0.300
Total Adjustments	-	-	-	0.300	0.300
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-	0.300	0.300

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JCREW Vehicle Integration	-	-	-	0.300	0.300

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205671F / *Joint Counter RCIED Electronic Warfare*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: CREW device intregration ***FY 2016 Base Plans:*** CREW device integration is FY16 OCO funding only. ***FY 2016 OCO Plans:*** CREW device integration					
Accomplishments/Planned Programs Subtotals	-	-	-	0.300	0.300

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA04: Line Item # 845100: *Engineering and EOD Equipment*	15.736	116.334	17.866	46.790	64.656	-	-	-	-	-	-

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	C/CPFF	NAVSEA PMS-408 : Washington, DC	-	-		-		-		0.300		0.300	-	0.300	0.300
		Subtotal	-	-		-		-		0.300		0.300	-	0.300	0.300

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		-		0.300		0.300	-	0.300	0.300

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205671F / *Joint Counter RCIED Electronic Warfare*	**Project (Number/Name)** 674518 / *JCREW VEHICLE INTEGRATION*

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	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																												

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205671F / *Joint Counter RCIED Electronic Warfare*	**Project (Number/Name)** 674518 / *JCREW VEHICLE INTEGRATION*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JCREW Vehicle Integration	2	2015	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	11.435	-	-	-	-	-	-	-	-	-	11.435
674809: *A-10 Squadrons*	-	11.435	-	-	-	-	-	-	-	-	-	11.435
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Project number 674809, was completed.

A. Mission Description and Budget Item Justification

The A-10 is a twin engine, single seat, close air support aircraft capable of delivering a full range of air-to-ground munitions as well as self-defense air-to-air missiles. The A-10 concept of operations requires a flexible, adaptable and survivable weapon system providing close-air support, combat search and rescue, and special operations capabilities. Current high operational tempo experienced by the Expeditionary Air Force requires the A-10 to perform effectively in a variety of operational roles. The A-10 must conduct around-the-clock air operations under various weather conditions against numerous enemy threats employing a full spectrum of air defense 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)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	9.614	-	-	-	-
Current President's Budget	11.435	-	-	-	-
Total Adjustments	1.821	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.821	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-	-	-

Change Summary Explanation

FY14: $1.821M Reprogramming for A-10 Organic OFP Flight program.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207131F / *A-10 Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: OFP Development	11.435	-	-
Description: A-10C OFP Suite software is updated and released 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 close air support. ***FY 2014 Accomplishments:*** Continue the development and test of Suite 8. Other tasks associated with Suite 8 include flight test both DT and OT. A-10 Full Mission Trainer (FMT) simulator software integration and development must be updated to remain concurrent with the aircraft's OFP software. Suite 8 OFP fielding was delayed from Sep 14 to Mar 15 due to unforeseen problems with the transition from contractor support to organic support. There have been further delays due to the decision to defer Suite 8 in Jan 14 and then the decision to restart Suite 8 in Feb 14. Efforts include the development of a SIL in support of the transition to organic software development. A SIL that can support the Suite 8 baseline will be developed for organic use. This SIL will consist of one Integrated Test Stand (ITS). The unclassified portion of the SIL went operational on 1 Oct 14. Work continues to get the classified portion of the SIL operational and is expected to complete in FY15. This SIL will have no Sub System Test (SST) stands. With no SST's, and only one ITS, this will not allow for development actions, only sustainment. ***FY 2015 Plans:*** Not Applicable			
Accomplishments/Planned Programs Subtotals	11.435	-	-

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # A01000: *A-10 Squardrons, PE 0207131F*	2.298	-	-	-	-	-	-	-	-	-	394.255

Remarks

FY15 Congressional marks -$44.3M (Rescission, 2014)

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
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*

E. Acquisition Strategy

Prior to FY 2009, A-10 OFP development efforts were conducted under the A-10 Prime Contract, awarded to Lockheed Martin Systems Integration in December 1997 through a full-and-open competition. Suite 8 development efforts began in FY12, with System Integration Lab(SIL)development and stand-up beginning in FY11 as A-10 OFP suites development and sustainment efforts transitioned from contractual work by Lockheed Martin to organic work by 309th Software Maintenance Group (SMXG) at Hill AFB. All additional suites beyond 8 will be performed by the 309th SMXG until directed otherwise. The A-10 FMT simulator OFP is managed by the Simulator Division at Wright-Patterson Air Force Base and is contractor developed and integrated.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / *A-10 Squadrons*	Project (Number/Name) 674809 / *A-10 Squadrons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OFP Development (309th SMXG)	PO	309th SMXG : Hill AFB, UT	-	10.590	Jan 2014	-		-		-		-	-	10.590	-
		Subtotal	-	10.590		-		-		-		-	-	10.590	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
USAF (Multiple)	Various	Various : Various,	-	0.318	Jan 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.318		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
USAF (OFP)	Various	Various : Various,	-	-	Jan 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : ,	-	0.527	Jan 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.527		-		-		-		-	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	11.435		-		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207131F / *A-10 Squadrons*	**Project (Number/Name)** 674809 / *A-10 Squadrons*

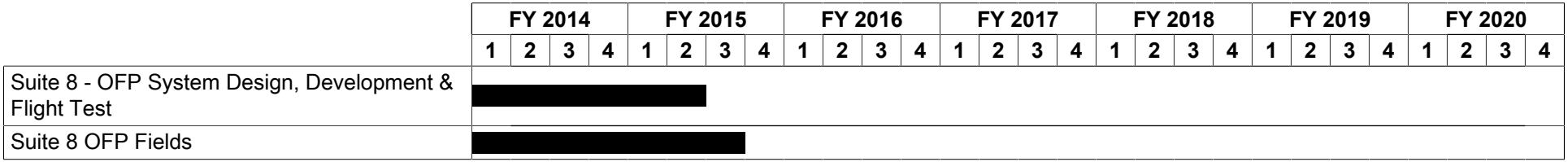

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207131F / *A-10 Squadrons*	**Project (Number/Name)** 674809 / *A-10 Squadrons*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Suite 8 - OFP System Design, Development & Flight Test	1	2014	2	2015
Suite 8 OFP Fields	1	2014	3	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207133F / *F-16 Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	109.887	133.105	148.297	-	148.297	141.118	123.679	116.082	116.461	Continuing	Continuing
672671: *F-16 Squadrons*	-	109.887	133.105	148.297	-	148.297	141.118	123.679	116.082	116.461	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F-16 Fighting Falcon is the world's premier fixed-wing, high performance, single engine multi-mission fighter aircraft 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.

Some of these include: Operational Flight Program (OFP) development on Block 40/42/50/52 OFPs are 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) is a two-phased RDT&E effort which 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 provides 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 short falls 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; JASSM-ER (Extended Range) integrates this advanced weapon on F-16 Blk 40/42/50/52 aircraft, and includes NRE, test assets, SEEK EAGLE, integration, and flight test.

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.

The FY2016 funding request was reduced by $18.524 million to account for the availability of prior year balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	112.667	133.105	162.877	-	162.877
Current President's Budget	109.887	133.105	148.297	-	148.297
Total Adjustments	-2.780	-	-14.580	-	-14.580
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.780	-			
• Other Adjustments	-	-	-14.580	-	-14.580

Change Summary Explanation

FY2014: $2.8M reduction due to SBIRS.

The FY2016 funding request was reduced by $18.524 million to account for the availability of prior year balances.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: OFP Updates Blk 40-52 OFP	71.715	68.964	81.473

Description: OFP M-tapes are updated continually to integrate new weapons, targeting pods, and improved avionics. M6.2+ fielded in FY 2014. 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+ candidates to include AIM-9X Block II. The USAF M6.5+ OFP is not intended to field and is the baseline for the Ogden Air Logistics Complex developed M7+ which will field in FY 2016. M7.2+ OFP is in the early stages of planning and candidate definition to 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.

FY 2014 Accomplishments:

Completed DT/OT and fielded M6.2+ Tape in FY 2014 which incorporated Auto GCAS. Continued M7+ OFP baseline development which incorporates M6.5+ candidates as part of final design, code and unit test and complete Software Integration Lab (SIL) testing. M7.2+ completed Multi-Stage Cockpit Review Team (MCRT)#1 with the user for planning and candidate

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
definition of DoD mandates as well as candidates for color display and advanced Defensive EW Systems. M8+ begins assessment for incorporating MMC upgrade architecture and Display Generator upgrade. Continued PMA support activities. ***FY 2015 Plans:*** M7+ OFP starts DT efforts. M7.2+ will conduct MCRT #2 and #3 for OFP candidate finalization and begin design and code of candidate development. Initiate procurement of M7.2+ test assets to meet OFP Mandates. M8+ will continue assessment for incorporating MMC upgrade architecture, Display Generator Upgrade and other descretionary candidates. Continue PMA support activities. ***FY 2016 Plans:*** M7+ completes DT/OT and fields in FY 2016. M7.2+ continues design and code of candidate development. Finalize procurement of M7.2+ test assets to meet OFP Mandates. M8+ starts SW design and code for rehosting MMC upgrade architecture and Display Generator Upgrade, begins assessment for Design Try Out (DTO) test planning, initiate procurement of test assets. Continue PMA support activities.			
Title: Flight Test ***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. ***FY 2014 Accomplishments:*** Completed Force Development Evaluation (FDE) for M6.2+. ***FY 2015 Plans:*** Continue supporting DTE Infrastructure. Start M7+ DTE testing. ***FY 2016 Plans:*** Continue supporting DTE infrastucture. Completes M7+ DT/OT testing, initiate M8+ DTO test planning. Support out-of-cycle regression testing.	13.521	19.647	17.600
Title: Legacy Service Life Extension Program (SLEP) Structures ***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	16.181	16.002	27.977

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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. ***FY 2014 Accomplishments:*** Completed System Requirements Review (SRR), which establishes initial technical baseline. Preliminary Design Review (PDR) 1 completed on 7 of 13 proposed modifications. Additional key activities include: repair and tool design engineering, kit definition, and source data development for TO, TCTO, and kit proof planning. Began production phase market research and acquisition strategy development efforts. ***FY 2015 Plans:*** FSDT concludes with the completion of cycle testing, aircraft teardown, inspection, final report and recommendation. Pre-EMD risk reduction activities conclude and final requirements defined with completion of PDR 2 and Critical Design Review (CDR) 1. Milestone B approval is planned in 4Q FY 2015. EMD activities finalize engineering designs and analysis of kits and tooling, TO and TCTOs, and procurement of long-lead items to support Kit Proof in FY 2016. Completion allows for release of preliminary Technical Data Package to support initial production acquisition activities and release of a draft Request for Proposal (RFP). Production phase market research, Early Strategy and Issues Session (ESIS) briefs, and acquisition strategy development continue. ***FY 2016 Plans:*** Receive final FSDT tear-down report and submit airworthiness Compliance Report for Kit Proof aircraft. Kit Proof starts and Draft RFP is planned for release to industry.			
Title: EMD HW/Advanced Capabilities Improvements ***Description:*** Funding to develop, test, and qualify aircraft weapons systems including F-16 subsystems replaced or modified due to requirements changes, P3I and DMS and parts obsolescence. ***FY 2014 Accomplishments:*** Supported development, test, and qualification of aircraft weapons systems for Advanced Identification Friend or Foe (IFF) requirement to procure and install Mode 5 on five test aircraft at Nellis AFB. ***FY 2015 Plans:*** 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. ***FY 2016 Plans:***	0.470	0.500	0.200

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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.			
Title: MMC Upgrade / Display Generator Upgrade ***Description:*** The MMC upgrade resolves short falls 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 port facilitates future increments of combat capability with the OFP (e.g., digital targeting pod video). 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. ***FY 2015 Plans:*** Initiate contract activities for NRE, MMC and Display Generator Upgrade asset procurement, design, development, integration, and ground/flight test for fielding with the M8+ OFP. ***FY 2016 Plans:*** Continue contracting activities for NRE, MMC and Display Generator Upgrade asset procurement, design, development, integration, and ground/flight test for fielding with the M8+ OFP.	-	19.992	14.497
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 in conjunction with a future OFP delivery. ***FY 2014 Accomplishments:*** Began NRE contract efforts for procurement of SEEK EAGLE test assets and integration on F-16 Blk 40/42/50/52 aircraft. ***FY 2015 Plans:*** Continue NRE development efforts and procure test assets for integration of JASSM-ER capability on F-16 Blk 40/42/50/52 aircraft. ***FY 2016 Plans:*** Continue NRE development efforts for integration of JASSM-ER capability on F-16 Blk 40/42/50/52 aircraft.	8.000	8.000	4.500
Title: Simulator Trainers	-	-	2.050

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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 upgrade efforts. This effort was previously included within the OFP Updates in the FY15 President's Budget and is not an FY 2016 New Start. ***FY 2016 Plans:*** Contract efforts for managing, maintaining, supporting to include tech order data for F-16 Simulator trainers to include both aircrew and maintenance trainers. This funding supports development, test, and integration of simulator upgrade efforts, such as OFP development.			
Accomplishments/Planned Programs Subtotals	109.887	133.105	148.297

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F01600: *Modifications, PE 0207133F*	9.334	9.042	17.134	-	17.134	34.273	73.271	110.079	138.153	Continuing	Continuing
• APAF: BA07: Line Item # F01600: *Post Production Support,PE 0207133F*	3.238	9.994	14.969	-	14.969	15.290	15.583	15.849	16.245	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 warfigter. The current effort (M7+) is the first software tape to be completely developed at OO-ALC vs. LM-Aero to facilitate an organic software development capability. Subsequent tapes will incorporate DoD approved mandates (Automatic Dependent Surveillance-Broadcast (ADS-B), MIDS, B61-12) and the MMC/PDG architecture.

The Legacy SLEP program is in FSDT to determine the engineering solutions necessary to resolve life-limiting structural issues, and to feed the EMD effort to develop the mod kits and airworthiness certification recommendation.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / *F-16 Squadrons*	Project (Number/Name) 672671 / *F-16 Squadrons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OFP Updates	Various	Various : Various,	-	65.896	Nov 2013	60.994	Nov 2014	73.323	Nov 2015	-		73.323	Continuing	Continuing	TBD
Service Life Extension Program (SLEP Structures	Various	Various : Various,	-	16.181	Feb 2014	16.002	Feb 2015	27.977	Jan 2016	-		27.977	Continuing	Continuing	TBD
MMC Upgrade / Display Generator Upgrade	Various	Various : Various,	-	-		19.992	Sep 2015	14.497	Dec 2015	-		14.497	Continuing	Continuing	TBD
JASSM ER	Various	Various : Various,	-	8.000	Mar 2015	8.000	Mar 2015	4.500	Mar 2016	-		4.500	Continuing	Continuing	24.500
EMD HW / Advanced Capabilities	Various	Various : Various,	-	0.470	May 2014	0.500	May 2015	0.200	May 2016	-		0.200	Continuing	Continuing	TBD
SIM Trainers	Various	Various : Various,	-	-		-		2.050	Mar 2016	-		2.050	Continuing	Continuing	-
		Subtotal	-	90.547		105.488		122.547		-		122.547	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Tests	Various	Various : Various,	-	13.521	Nov 2013	19.647	Nov 2014	17.600	Nov 2015	-		17.600	Continuing	Continuing	TBD
		Subtotal	-	13.521		19.647		17.600		-		17.600	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Administrative (PMA) Support	Various	Various : Various,	-	5.819	Jan 2014	7.970	Jan 2015	8.150	Apr 2016	-		8.150	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / *F-16 Squadrons*	Project (Number/Name) 672671 / *F-16 Squadrons*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	5.819		7.970		8.150		-		8.150	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	109.887		133.105		148.297		-		148.297	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*	**Project (Number/Name)** 672671 / *F-16 Squadrons*

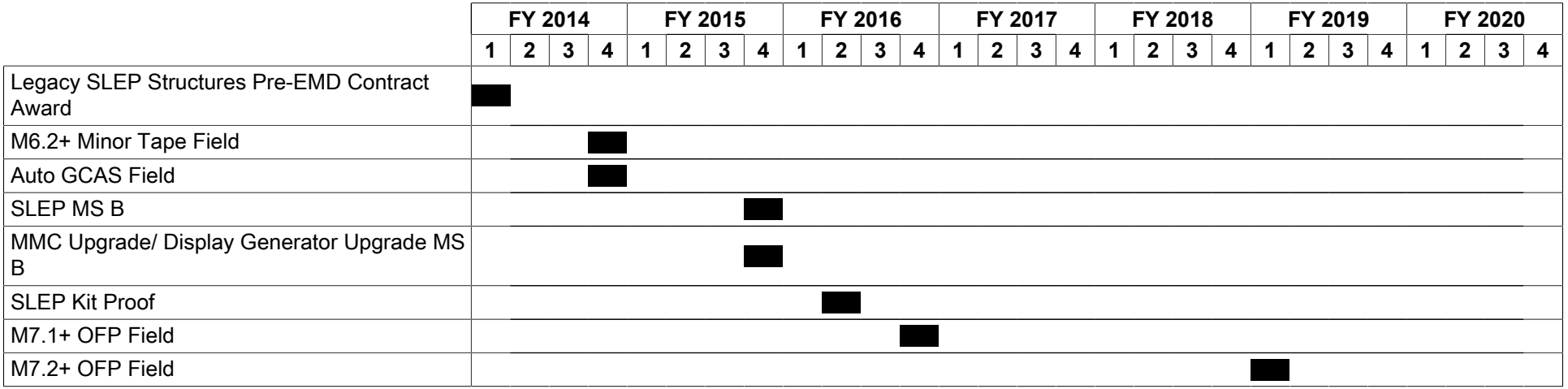

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207133F / *F-16 Squadrons*	**Project (Number/Name)** 672671 / *F-16 Squadrons*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Legacy SLEP Structures Pre-EMD Contract Award	1	2014	1	2014
M6.2+ Minor Tape Field	4	2014	4	2014
Auto GCAS Field	4	2014	4	2014
SLEP MS B	4	2015	4	2015
MMC Upgrade/ Display Generator Upgrade MS B	4	2015	4	2015
SLEP Kit Proof	2	2016	2	2016
M7.1+ OFP Field	4	2016	4	2016
M7.2+ OFP Field	1	2019	1	2019

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207134F / *F-15E Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	227.098	241.969	179.283	-	179.283	255.081	246.006	221.672	227.836	-	1,598.945
670131: *Initial Operational Test and Evaluation*	0.000	62.563	84.350	44.969	-	44.969	9.426	-	-	-	-	201.308
676020: *F-15*	0.000	164.535	157.619	134.314	-	134.314	245.655	246.006	221.672	227.836	-	1,397.637

Note

In FY 2015, PE 0207134F Project 670131 Initial Operation Test and Evaluation, EPAWSS efforts were transferred to PE 0207171F Project 676038 EPAWSS to improve transparency for ACAT I program.

In FY 2016, 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.

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 2035, 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 Head Up Display (HUD), instrumentation digitization and modernization, central computer processing power increases, digital mission event recording systems and an infrared (IR) based fire control system. Funds are also used, as required, to resolve Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. 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 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207134F / *F-15E Squadrons*

The FY2016 funding request was reduced by $39.869 million to account for the availability of prior execution balances.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	234.289	261.969	250.362	-	250.362
Current President's Budget	227.098	241.969	179.283	-	179.283
Total Adjustments	-7.191	-20.000	-71.079	-	-71.079
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.191	-			
• Other Adjustments	-	-	-71.079	-	-71.079

Change Summary Explanation

FY2014: Funding decreased -$7.191 million for SBIR.

FY2015: Funding decreased -$20.000 million for congressional marks; -$15.000 million for "improving funds management: forward financing" and -$5 million for "restoring acquisition accountability: Infrared Search and Track."

In FY 2015, EPAWSS efforts were transferred from Budget Activity 7, Operational Systems Development, PE 0207134F, Project Number 670131 to Budget Activity 7, Operational Systems Development, PE 0207171F, Project Number 676038 per Air Force direction.

The FY2016 $31.21 million was directed to support higher Air Force priorities.

The FY2016 funding request was reduced by $39.869 million to account for the availability of prior execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
670131: *Initial Operational Test and Evaluation*	-	62.563	84.350	44.969	-	44.969	9.426	-	-	-	-	201.308
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This includes development of the F-15C/D and F-15E Advanced Display Core Processor (ADCP) II and the F-15C/D and F-15E Eagle Passive/Active Warning Survivability System (EPAWSS) (EPAWSS funds for FY14 only are in PE 0207134F).

The ADCP II will develop a common mission computer for the F-15C/D 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/D cockpit display to replace an obsolete one.

EPAWSS will replace the obsolete Tactical Electronic Warfare System (TEWS), which will help the aircraft survive in high threat environments.

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.

The FY2016 funding request was reduced by $39.869 million to account for the availability of prior year balances.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Eagle Passive/Active Warning Survivability System (EPAWSS)	9.600	-	-
Description: EPAWSS for FY 14 is under Project Number 670131 and PE 027134F. For FY 15 PB EPAWSS is under Project Number 676038 and PE 027171F. Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition related studies.			
FY 2014 Accomplishments: Continued evaluating EPAWSS integration requirements and interface characteristics, conducting security planning and developing system specifications. Continued acquisition planning for Milestone A. Technical and acquisition related studies.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Not applicable.			
Title: Advanced Display Core Processor (ADCP) II (formerly known as Computer Processor Modernization Program and Advanced Display Core Processor Plus w/Vertical Situation Display. FY12 combined programs) ***Description:*** New central computer for both F-15E and F-15C modernization. Program provides a central computer upgrade for the entire F-15E fleet, replacing the ACDP I. Program also provides a central computer upgrade to the AESA-radar F-15C fleet, replacing the VCC as well the existing F-15C Vertical Situation Display. This includes technical and acquisition-related studies ***FY 2014 Accomplishments:*** Conducted EMD activities. Began delivery of EMD ADCP II Line Replaceable Units. Continued development of initial Common OFP. Continued software development and testing on EMD hardware. ***FY 2015 Plans:*** Conduct EMD activities. Continue software and hardware testing. Begin delivery of display EMD units. Flight Test Readiness Review (FTRR) for DT/OT flight testing. Finalize installation TCTO for flight test. Begin combined DT/OT flight testing on F-15E aircraft. Begin system stability and endurance testing. ***FY 2016 Plans:*** Conduct EMD activities. Complete environmental qualification and Systems Integration Lab activities. Continue delivery of display EMD units. Conduct combined DT/OT flight testing on F-15 aircraft.	52.963	84.350	44.969
Accomplishments/Planned Programs Subtotals	62.563	84.350	44.969

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F01500: *Aircraft Modification: F-15: PEs 0207130/0207134/0207445/0809731*	346.624	387.314	644.336	-	644.336	476.060	489.257	530.457	-	Continuing	Continuing
• APAF: BA07: Line Item # 000071: *Aircraft Replacement Support Equip (BP12)*	-	-	-	-	-	-	-	-	-	Continuing	Continuing
• APAF: BA07: Line Item # F0150P: *F-15 Post Production Support*	2.403	1.122	3.253	-	3.253	3.039	2.583	2.613	-	Continuing	Continuing
• APAF: BA06: Line Item # 000999: *Initial Spares/Repair Parts (BP16)*	20.813	24.785	61.961	-	61.961	58.263	37.805	38.512	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
F-15 ADCP II Contract	SS/CPIF	Boeing : St Louis, MO	0.000	45.582	Nov 2013	69.240	Nov 2014	33.576	Nov 2015	-		33.576	7.226	155.624	-
F-15 ADCP II	Various	Various : Various,	0.000	5.634	Mar 2014	13.981	Mar 2015	10.210	Mar 2016	-		10.210	2.200	32.025	-
F-15 EPAWSS (Pre-MDAP)	TBD	TBD : TBD,	0.000	9.600	Jan 2014	-		-		-		-	-	9.600	-
		Subtotal	0.000	60.816		83.221		43.786		-		43.786	9.426	197.249	-

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.

FY14PB - Project Number 670131 includes ADCP II and EPAWSS only. All other programs funded under Project Number 676020.

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.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support Costs	Various	Various : Various,	0.000	1.747	Sep 2014	1.129	Sep 2015	1.183	Sep 2016	-		1.183	-	4.059	-
		Subtotal	0.000	1.747		1.129		1.183		-		1.183	-	4.059	-

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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	62.563		84.350		44.969		-		44.969	9.426	201.308	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

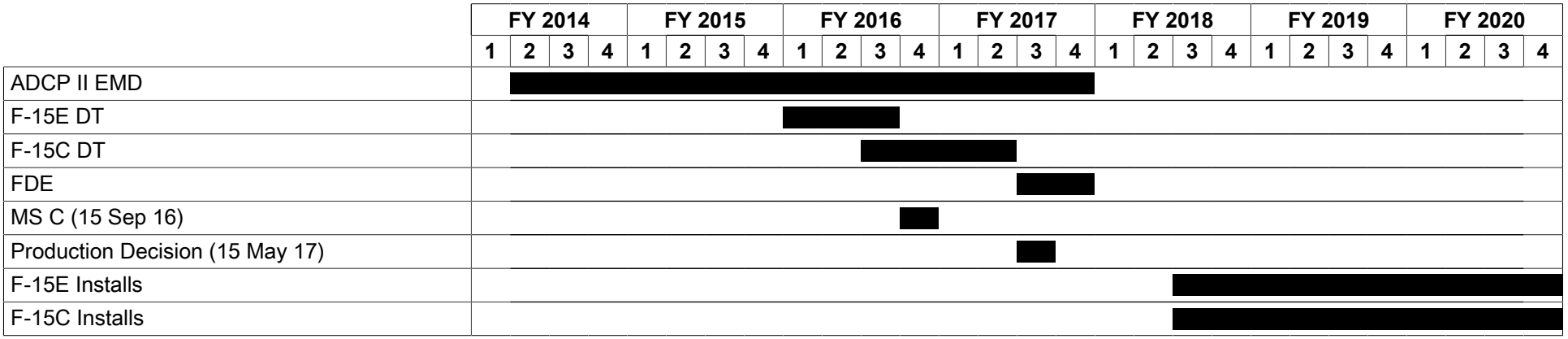

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207134F / *F-15E Squadrons*	**Project (Number/Name)** 670131 / *Initial Operational Test and Evaluation*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ADCP II EMD	2	2014	4	2017
F-15E DT	1	2016	3	2016
F-15C DT	3	2016	2	2017
FDE	3	2017	4	2017
MS C (15 Sep 16)	4	2016	4	2016
Production Decision (15 May 17)	3	2017	3	2017
F-15E Installs	3	2018	4	2020
F-15C Installs	3	2018	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676020: *F-15*	-	164.535	157.619	134.314	-	134.314	245.655	246.006	221.672	227.836	-	1,397.637
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-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 E- and C-model jets.

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 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 2014	FY 2015	FY 2016
Title: Operational Flight Program (OFP) Development Efforts	127.429	110.482	77.200
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 2014 Accomplishments: Completed Suite 7C (S7C) development and operational flight testing, conduct verification and validation of technical publications, prepare for delivery. Began integration of Sniper/Delta 0+ on the F-15C to meet critical PACOM requirements. Continued Suite 8E (S8E)development. Finished coding, conduct bench testing and begin flight testing of S8E. Completed integration of Alpha 2 Lite and begin integration of Joint-Air-to-Surface Standoff Missile-Extended Range (JASSM-ER) Universal Armament Interface (UAI)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
into the OFP. Continue Suite 9 (S9) 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 2015 Plans:*** Deliver S7C to the field. Continue S8E development & flight testing. Continue JASSM-ER development onto the F-15. Continue S9 development. Continuation of organic software support and Special Projects development efforts. Continue funding support for all F-15 trainers. Ongoing Problem Reports (PR) and Deficiency Reports (DR) fixes. ***FY 2016 Plans:*** Finish integration of Sniper on the F-15C to meet critical PACOM requirements. Deliver S7C+ to the field. Continue S8E development. Complete S8E flight testing and accomplish S8E Validation and Verification. Integrate JASSM-ER training mode into the S8E. Continue S9 development and integration of major line items; such as, B61-12 LEP, DTM II, PAD, & EPAWSS. Additionally, MIDS-JTRS will be integrated into F-15 OFPs. Continuation of organic software support and Special Projects development efforts. Continue funding support for all F-15 trainers. Ongoing Problem Reports (PR) and Deficiency Reports (DR) fixes.			
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 2014 Accomplishments:*** F-15 Flight Test Support provided 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, weapons simulators, data reduction/handling equipment. ***FY 2015 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, weapons simulators, data reduction/handling equipment. ***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, weapons simulators, data reduction/handling equipment	18.345	19.858	20.246
Title: F-15 Radar Enhancements	18.761	22.008	18.421

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Description: Improvements to F-15 Radar Enhancements (EP). This includes technical and acquisition related studies. ***FY 2014 Accomplishments:*** Continued implementation of EP into Suite 8E (S8E) & Suite 9 (S9). Began radar integration in support of S9 EP development. Began jammer development. Continued Special Projects testing support. ***FY 2015 Plans:*** Continue implementation of EP into S8E & S9. Continue jammer development. Continue Special Projects testing support. ***FY 2016 Plans:*** Continue implementation of EP into S8E & S9. Continue Special Projects testing support.			
Title: F-15 Infrared Search and Track (IRST) - FY15 New Start ***Description:*** The Infrared Search and Track (IRST) system IRST will provide the F-15Cs with the capability will 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. ***FY 2014 Accomplishments:*** Not applicable ***FY 2015 Plans:*** Initiate technical and acquisition related studies. Early acquisition planning. ***FY 2016 Plans:*** Initiate technical and acquisition related studies. Continued acquisition planning. EMD contract award late FY16. Execute risk reduction activities required to support EMD phase.	-	5.271	18.447
Accomplishments/Planned Programs Subtotals	164.535	157.619	134.314

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F01500: *F-15 Modification of In-Service Aircraft, PEs 0207130/0207134/0207445/0809731*	346.624	387.314	644.336	-	644.336	476.060	489.257	530.457	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA06: Line Item # 000999: *Initial Spares/Repair Parts (BP16)*	20.813	24.785	61.961	-	61.961	58.263	37.805	38.512	-	Continuing	Continuing
• APAF: BA07: Line Item # F0150P: *F-15 Post Production Support*	2.403	1.122	3.253	-	3.253	3.039	2.565	2.613	-	Continuing	Continuing
• APAF: BA07: Line Item # 000071: *Aircraft Replacement Support Equip (BP12)*	-	-	-	-	-	-	-	-	-	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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / *F-15E Squadrons*	Project (Number/Name) 676020 / *F-15*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OFP Suite 7/8/9/10 Development and Test	SS/ Various	Boeing : St. Louis, MO	0.000	101.468	Aug 2014	110.114	Aug 2015	71.263	Aug 2016	-		71.263	396.490	679.335	-
OFP Suite 7/8/9/10 Development and Test Various	Various	Various : Various,	0.000	-		-		-		-		-	-	-	-
F-15 Radar Enhancement	SS/ Various	Boeing : St Louis, MO	0.000	43.823	Aug 2014	21.312	Aug 2015	18.063	Aug 2016	-		18.063	210.912	294.110	-
F-15 Radar Enhancement Various	Various	Various : Various,	0.000	-		-		-		-		-	-	-	-
F-15 Infrared Search and Track	C/Various	TBD : ,	0.000	-		5.271	Aug 2015	18.447	Aug 2016	-		18.447	259.054	282.772	-
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)	SS/ Various	Boeing : St. Louis, MO	0.000	-		-		5.200	Aug 2016	-		5.200	-	5.200	-
		Subtotal	0.000	145.291		136.697		112.973		-		112.973	866.456	1,261.417	-

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Boeing (Contractor Test Support)	SS/CPFF	Boeing : St. Louis, MO	0.000	18.345	Sep 2014	19.858	Sep 2015	20.246	Sep 2016	-		20.246	74.713	133.162	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207134F / *F-15E Squadrons*	**Project (Number/Name)** 676020 / *F-15*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Support	Various	Various : ,	0.000	-		-		-		-		-	-	-	-
		Subtotal	0.000	18.345		19.858		20.246		-		20.246	74.713	133.162	-

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgt Support Costs	Various	Various : Various,	0.000	0.899	Sep 2014	1.064	Sep 2015	1.095	Sep 2016	-		1.095	-	3.058	-
		Subtotal	0.000	0.899		1.064		1.095		-		1.095	-	3.058	-

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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	164.535		157.619		134.314		-		134.314	941.169	1,397.637	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207134F / *F-15E Squadrons*	**Project (Number/Name)** 676020 / *F-15*

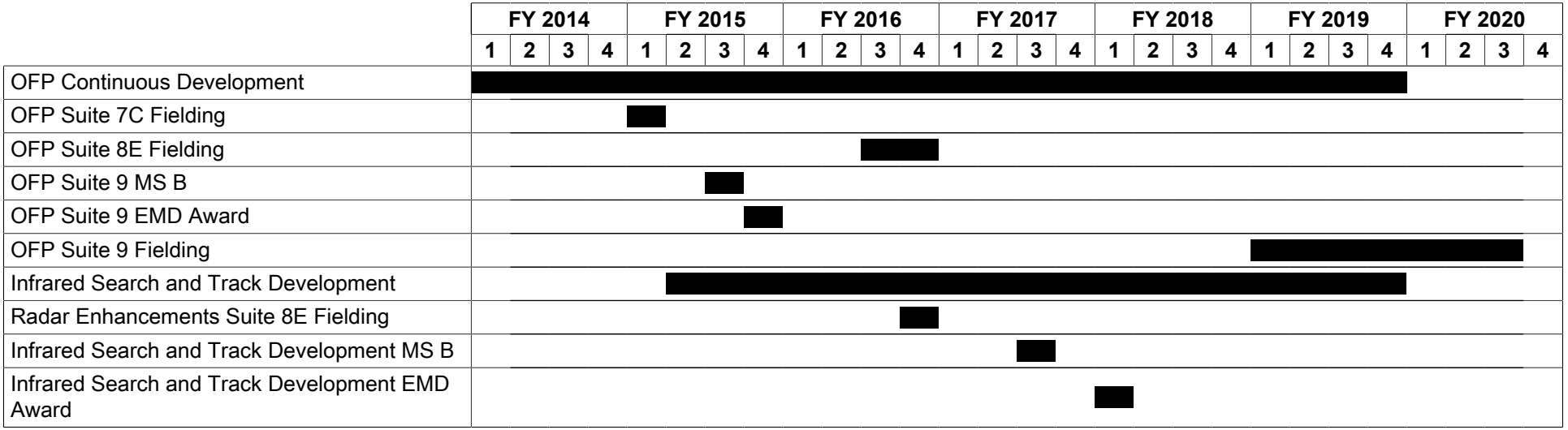

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207134F / *F-15E Squadrons*	**Project (Number/Name)** 676020 / *F-15*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
OFP Continuous Development	1	2014	4	2019
OFP Suite 7C Fielding	1	2015	1	2015
OFP Suite 8E Fielding	3	2016	4	2016
OFP Suite 9 MS B	3	2015	3	2015
OFP Suite 9 EMD Award	4	2015	4	2015
OFP Suite 9 Fielding	1	2019	3	2020
Infrared Search and Track Development	2	2015	4	2019
Radar Enhancements Suite 8E Fielding	4	2016	4	2016
Infrared Search and Track Development MS B	3	2017	3	2017
Infrared Search and Track Development EMD Award	1	2018	1	2018

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207136F / *Manned Destructive Suppression*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	10.724	14.831	14.860	-	14.860	14.921	15.208	15.495	15.772	Continuing	Continuing
674595: *F-16 HARM Targeting System*	-	10.724	14.831	14.860	-	14.860	14.921	15.208	15.495	15.772	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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	11.022	14.831	14.959	-	14.959
Current President's Budget	10.724	14.831	14.860	-	14.860
Total Adjustments	-0.298	-	-0.099	-	-0.099
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.298	-			
• Other Adjustments	-	-	-0.099	-	-0.099

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207136F / *Manned Destructive Suppression*

Change Summary Explanation

No significant program changes.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: P3I R7 Software Upgrade (SWUP)	9.589	12.048	11.660
Description: P3I R7 Software Upgrade (SWUP) ***FY 2014 Accomplishments:*** HTS R7.8 SWUP continued software development. 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 past year were R7.8 SWUP design, code, and preparation for baseline flight testing. ***FY 2015 Plans:*** HTS R7.8 SWUP continues software development and commences baseline flight testing, test data analysis, software fixes, and release of updated software for iterative flight testing. Studies continue on risk reduction efforts for future P3I phase(s). Mission support (i.e., program management for administrative and technical support) continues. The major thrusts of this year are R7.8 SWUP baseline flight testing and preparation for formal development flight testing. ***FY 2016 Plans:*** HTS R7.8 SWUP continues software development and baseline flight testing, test data analysis, software fixes, and release of updated software for iterative flight testing. Studies continue on risk reduction efforts for future P3I phase(s). Risk reduction includes a minor software update (maintenance release) in support of F-16 OFP 7.2+. Mission support (i.e., program management for administrative and technical support) continues. The major thrusts of this year are R7.8 SWUP for formal development flight testing and the start of risk reduction activities for subsequent SWUP upgrades.			
Title: Flight Test	0.500	1.983	2.300
Description: Flight Test ***FY 2014 Accomplishments:*** Government flight test operations continued test planning and risk mitigation plans to address scarcity of resources (i.e., aircraft and ranges). This funding also included test data analysis support and baselining of requirements from actual test data results during HTS SWUP R7.7 flight tests. ***FY 2015 Plans:*** Government flight test operations completes planning phase and enters into baseline 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. Ground testing such as anechoic chamber testing will be conducted, as needed. The test organization will conduct			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207136F / *Manned Destructive Suppression*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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. ***FY 2016 Plans:*** Government flight test operations 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. Ground testing such as anechoic chamber testing will be conducted, 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.			
Title: Mission Planning ***Description:*** Joint Mission Planning System (JMPS) (Formerly Air Force Mission Support System (AFMSS)) ***FY 2014 Accomplishments:*** Continued mission planning in conjunction with HTS R7.8 software upgrade. This effort included development and testing of candidate upgrades and initial engineering releases in support of fielding. ***FY 2015 Plans:*** Continue mission planning in conjunction with HTS R7.8 software upgrade. This effort will include continued development and testing of candidate upgrades and incremental engineering releases in support of fielding. ***FY 2016 Plans:*** Continue mission planning in conjunction with HTS R7.8 software upgrade. This effort will include continued development and testing of candidate upgrades and incremental engineering releases in support of fielding.	0.635	0.800	0.900
Accomplishments/Planned Programs Subtotals	10.724	14.831	14.860

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• No other investment funding: *N/A*	-	-	-	-	-	-	-	-	-	-	-

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207136F / *Manned Destructive Suppression*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / *Manned Destructive Suppression*	Project (Number/Name) 674595 / *F-16 HARM Targeting System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
HTS R7 SWUP/P3I	SS/CPIF	Raytheon Systems Co. : Tucson, AZ	-	8.729	May 2014	11.151	May 2015	10.731	May 2016	-		10.731	Continuing	Continuing	-
JMPS (Formerly AFMSS)	MIPR	Multiple : Multiple,	-	0.635	Jan 2014	0.800	Jan 2015	0.900	Jan 2016	-		0.900	Continuing	Continuing	-
		Subtotal	-	9.364		11.951		11.631		-		11.631	-	-	-

Remarks

HTS R7.8 SWUP risk reduction completed in May 2013. HTS R7.8 development began in May 2013 and is projected to contiue until 2017.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Test	PO	412 TW : Edwards AFB, CA	-	0.500	Jun 2014	1.983	Jan 2015	2.300	Jan 2016	-		2.300	Continuing	Continuing	-
		Subtotal	-	0.500		1.983		2.300		-		2.300	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	C/Various	Multiple : Eglin AFB, FL	-	0.860	Oct 2013	0.897	Jan 2015	0.929	Oct 2015	-		0.929	Continuing	Continuing	-
		Subtotal	-	0.860		0.897		0.929		-		0.929	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / *Manned Destructive Suppression*	Project (Number/Name) 674595 / *F-16 HARM Targeting System*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	10.724		14.831		14.860		-		14.860	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207136F / *Manned Destructive Suppression*	**Project (Number/Name)** 674595 / *F-16 HARM Targeting System*

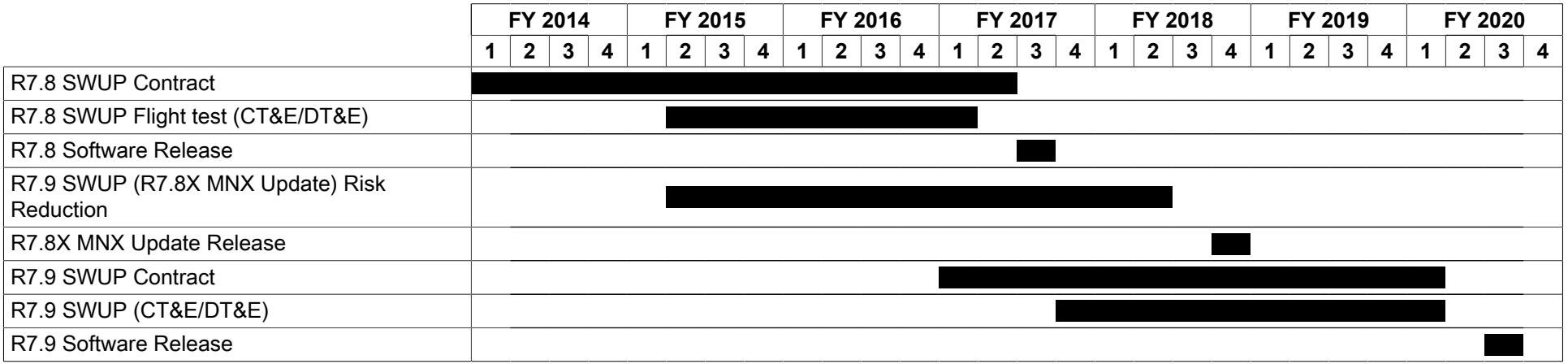

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207136F / *Manned Destructive Suppression*	**Project (Number/Name)** 674595 / *F-16 HARM Targeting System*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
R7.8 SWUP Contract	1	2014	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	2015	2	2018
R7.8X MNX Update Release	4	2018	4	2018
R7.9 SWUP Contract	1	2017	1	2020
R7.9 SWUP (CT&E/DT&E)	4	2017	1	2020
R7.9 Software Release	3	2020	3	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207138F / *F-22A Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	3,261.772	266.431	146.299	262.552	-	262.552	382.198	406.094	415.207	422.636	Continuing	Continuing
674785: *F-22*	3,261.772	266.431	143.336	209.227	-	209.227	270.904	251.397	280.459	285.477	Continuing	Continuing
674788: *F-22 Tactical Mandates*	0.000	-	2.963	53.325	-	53.325	111.294	154.697	134.748	137.159	-	594.186
MDAP/MAIS Code: 265												

Note

Totals include funding for PRCP Program Number, 265 F-22A Squadrons.

In FY13, a separate Program Element (0605213F) was created for Increment 3.2B FY13 milestone B and beyond efforts for greater transparency. 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 represents the USAF's top priority for providing the Joint Force with air dominance, operational access, and homeland and cruise missile defense for the next 20+ years. The F-22 is a first-of-a-kind multi-mission fighter aircraft that combines stealth, supercruise, advanced 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 the pre-planned modernization effort through incremental development phases that enhance the F-22 Global Strike capability. The development program enhances the air vehicle, engine, and training system to improve/enhance F-22 weapons, communications, and Intelligence Surveillance Reconnaissance (ISR) capabilities.

BA7 - 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.

The FY2016 funding request was reduced by $5.633 million to account for the availability of prior execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0207138F / *F-22A Squadrons*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	274.407	156.962	275.230	-	275.230
Current President's Budget	266.431	146.299	262.552	-	262.552
Total Adjustments	-7.976	-10.663	-12.678	-	-12.678
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.600			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.976	-			
• Other Adjustments	-	-0.063	-12.678	-	-12.678

Change Summary Explanation

FY14: $7.976M reduction due to SBIR

FY15: $10.663M reduction due to: $10.600M Congressional Reduction and $0.063M FFRDC

FY16: $12.678M reduction due to: $5.3M rephrased within the F-22 Program and $1.745M inflation adjustments.

The FY2016 funding request was reduced by $5.633 million to account for the availability of prior year balances.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
674785: *F-22*	3,261.772	266.431	143.336	209.227	-	209.227	270.904	251.397	280.459	285.477	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Totals include funding for PRCP Program Number, 265 F-22A Squadrons.

In FY13, a separate Program Element (0605213F) was created for Increment 3.2B FY13 milestone B and beyond efforts for greater transparency. 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 is complete. The remaining program consists of F-22 Operational Flight Program (OFP) updates, capability enhancements, and mandates necessary to keep the F-22 weapon system the world's most capable fighter. The Cost to Complete and Total Cost are entered as "Continuing" due to ongoing individual Reliability and Maintainability Maturation Program (RAMMP) initiatives to improve operational availability.

A. Mission Description and Budget Item Justification

The F-22 Raptor represents the USAF's top priority for providing the Joint Force with air dominance, operational access, homeland and cruise missile defense for the next 20+ years. The F-22 is a first-of-kind 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.

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.

The FY2016 funding request was reduced by $5.633 million to account for the availability of prior year balances.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Increment 3.2A	40.170	2.718	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Description: The F-22 Increment 3.2A Modernization Program consists of the software development necessary to provide Increment 3.2A capabilities including improvements to Electronic Protection, Combat Identification and Link-16 Receive. ***FY 2014 Accomplishments:*** Increment 3.2A software development, integration, and test continued. Developmental test was conducted. ***FY 2015 Plans:*** Complete Increment 3.2A software development, integration, and test. Developmental and operational test will be conducted and completed. Increment 3.2A Operational Flight Program (OFP) upgrade on combat coded F-22 aircraft will begin. ***FY 2016 Plans:*** Not Applicable			
Title: Update 5 ***Description:*** Update 5 is a part of F-22's ongoing software updates that develop, test, and field new capabilities and capability enhancements. Software updates include changes driven by real world evolving threats, emergency/safety of flight issues, and deficiency reports. The Update 5 Operational Flight Program (OFP) includes Automatic Ground Collision Avoidance System (AGCAS), Intra Flight Data Link Mode 5th to 4th generation IFDL capability (IFDL GWY Mode), and basic Block I AIM-9X missile launch capability. ***FY 2014 Accomplishments:*** The Update 5 Operational Flight Program (OFP) to include AGCAS, IFDL GWY Mode, and AIM-9X Basic tested in the Raptor Integration Lab (RAIL) and the Avionics Integration Lab (AIL). Developmental flight test was conducted by the Combined Test Force (CTF). ***FY 2015 Plans:*** Complete Update 5 OFP developmental and operational flight test. ***FY 2016 Plans:*** Release the Update 5 OFP for fielding on the F-22 aircraft.	47.785	17.011	4.073
Title: Update 6 Interoperability ***Description:*** Update 6 (U6) Interoperability is an upgrade previously documented under the Major thrust "Software Support" and has been separated out for better clarity and insight and is not a New Start. U6 will develop, test and field new capabilities and capability enhancements including changes driven by real world evolving threats, emergency/safety of flight issues, and deficiency reports. U6 Interoperability provides cryptographic updates required by the National Security Agency (NSA) to IFDL, Link-16, and Tactical Secure Voice (TSV) and development to maintain interoperability with the enhancements to Link-16 and Secure	19.229	17.106	52.691

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Voice networks. The U6 Interoperability program will absorb and build upon the development work already accomplished in the KOV-20 Cryptographic Modernization Program and integrate that development into a single Operational Flight Program (OFP) for fleet release. In addition, U6 Interoperability will develop and deliver software fixes identified as critical to the operational community. ***FY 2014 Accomplishments:*** Update 6 Interoperability Materiel Development Decision (MDD) in 2QFY14. Released the program Request for Proposal (RFP) for development contract. KOV-20 Crypto Modernization completed requirements analysis at System Design Review (SDR) and continued design for a Critical Design Review (CDR) in 1QFY15. Began development, integration, and test on the KOV-20 module firmware to position the module for NSA recertification. ***FY 2015 Plans:*** Prepare for contract award of remaining OFP content development. Complete Crypto Modernization CDR. ***FY 2016 Plans:*** Update 6 Interoperability will begin design, code, test for IFDL/Link 16 interoperability and TSV modernization, and complete Preliminary Design Review (PDR) and Milestone B. Continue integration and test of Crypto Modernization.			
Title: Software Support ***Description:*** Software Support includes Pilot Training Systems (PTS) software development and Integrated Maintenance Information System (IMIS) software development to include Integrated Maintenance Data System (IMDS) and Reliability and Maintainability Information System (REMIS) interface development. Software support develops, tests and fields new capabilities and capability enhancements for training devices and IMIS software in order to maintain concurrency with aircraft configuration and capability. ***FY 2014 Accomplishments:*** Pilot Training Systems (PTS) software development continued software upgrades for the field -- software enhancements, which include pilot, maintenance and training device reliability improvement, software upgrades, modernization program integration, Distributed Mission Operations (DMO) integration, IMIS integration, and safety critical items. IMIS completed Ada to C++ conversion of several applications and continued its focus on the Present Tech Order (PTO) and Air Vehicle Interface (AVI) modules. Integrated Engine Usage Based Lifeing (UBL) algorithms into IMIS to support Update 5 OFP; Provided capability to record actual aircraft flight time within IMIS. ***FY 2015 Plans:***	14.572	2.221	4.083

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
IMIS will continue the Ada to C++ conversion of Present Tech Order (PTO), Air Vehicle Interface (AVI), and Wind Swept Surfaces (WSS). ***FY 2016 Plans:*** Integrate Advanced Diagnostic Interface Tool (ADIT) and Multiplex Bus Fault Isolation (MBFI) capability within IMIS.			
Title: Advanced Technology Development ***Description:*** Technology maturation, risk reduction, studies, and demonstrations of Classified F-22 related development efforts. ***FY 2014 Accomplishments:*** Continued support for technology development and maturation of projects. Established contracts to perform studies of several new technology candidates to determine feasibility for integration onto F-22. Completed study for candidate C24. ***FY 2015 Plans:*** Continue support of technology development and maturation of projects. Wing seal development and flight testing. Candidate C24 development ongoing. ***FY 2016 Plans:*** Continue support for technology development and maturation of projects.	20.925	15.634	45.261
Title: Virtual Address eXtension Migration ***Description:*** The VAX Migration program develops, integrates, tests, and deploys computer infrastructure and software tools to replace existing VAX-based resources used to develop, field, and sustain F-22 capabilities. The current VAX architecture is obsolete, resulting in increased program risk, and delays in development due to reliance upon increasingly unreliable and unsupportable infrastructure. ***FY 2014 Accomplishments:*** Completed site-by-site replacement of VAX systems through deployment of PC-based systems, compilers and software support tools including: Dimensions, Cradle, Quicksilver; Deployment of Instrumentation Tools, Simulations Tools and User Unique Tools. Completed full migration of F-22 development efforts from legacy VAX-dependent architecture; Re-hosted essential software tools to a PC environment without loss of capability, reliability, or degradation of the existing functionality. Shut-down VAX per requirement. ***FY 2015 Plans:*** Not Applicable ***FY 2016 Plans:***	4.960	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Not Applicable			
Title: System Engineering/Program Management Support ***Description:*** Provides for F-22 program-wide planning and execution to include studies, analysis, and requirements definition. ***FY 2014 Accomplishments:*** Provided for F-22 program-wide planning and execution comprised of, but not limited to, the following: Future Capabilities Planning and F-22 Mandates Requirements Definition, Cost Estimating Data, and Systems Engineering Process Management. ***FY 2015 Plans:*** Provides for F-22 program-wide planning and execution comprised of, but not limited to, the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management. ***FY 2016 Plans:*** Provides for F-22 program-wide planning and execution comprised of, but not limited to, the following: Strategic Analysis and Support, Cost Estimating Data, and Systems Engineering Process Management.	5.471	6.192	9.139
Title: Reliability and Maintainability Maturation Program (RAMMP) ***Description:*** The Reliability, Availability, and Maintainability Maturation Program (RAMMP) provides for the development and integration of 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 provides for the development of urgent response requirements for the aircraft, for example Automatic Back-Up Oxygen System (ABOS). ***FY 2014 Accomplishments:*** Provided for development of multiple efforts to improve Mean Time Between Maintenance (MTBM), Maintainability, and reduce F-22 Weapon System Life Cycle Costs. FY 2014 active RAMMP development projects included, but are not limited to: Mighty Tough Boot Development, Aircraft Mounted Nozzle Shield (AMNS) Liner Redesign, Integrated Forebody (IFB) Rain Erosion Nose Cap, Canopy Topcoat Redesign, Gland Redesign. ***FY 2015 Plans:*** Provides for development of multiple efforts to improve Mean Time Between Maintenance (MTBM), Maintainability, and reduce F-22 Weapon System Life Cycle Costs. FY2015 active RAMMP development projects include, but are not limited to: Mighty Tough Boot, AMNS Liner Redesign. ***FY 2016 Plans:***	16.695	0.880	1.098

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
In FY 2016: Development of efforts to improve Mean Time Between Maintenance (MTBM), Maintainability, and reduce F-22 Weapon System Life Cycle Costs.			
Title: F-22 Small Projects ***Description:*** Provides for F-22 modernization activities including, but not limited to: technology studies and demonstrations, Low Observable (LO) Signature Management, EN/Threat Modeling Support, Developmental Test (DT) Weapon Assets, Pilot Training (PT), Dynamic Synthetic Apeture Radar (SAR), Flight Test Engine Refurbishment, Support Equipment Development, XP Migration and Government Furnished Equipment (GFE). ***FY 2014 Accomplishments:*** Continued F-22 modernization development and support activities including, but not limited to: DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, Scorpion Helmet Mounted Display Demo, Common Range Integrated Instrumentation System (CRIIS) Network development, PT, Dynamic SAR, AIM-9X Risk Reduction, XP Migration and GFE. ***FY 2015 Plans:*** Continue F-22 modernization development and support activities including, but not limited to: DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, Scorpion Helmet Mounted Display Demo, CRIIS Network development, PT Dynamic SAR, Flutter Excitation System (FES), XP Migration and GFE. ***FY 2016 Plans:*** Continue F-22 modernization development and support activities including, but not limited to: DT Weapons Assets, Threat Modeling Support, Test Support, Test Aircraft Modifications, continue to assess helmet mounted display technology and requirements definition, CRIIS Network development, PT Dynamic SAR, Flutter Excitation System (FES), Wing Covers, and GFE.	3.187	4.090	11.127
Title: Combined Test Force ***Description:*** The F-22 Combined Test Force (CTF), located at Edwards Air Force Base, conducts full-up weapons system testing to assess the synergistic effect of the F-22 combined characteristics of stealth, speed, maneuverability, and integrated avionics in 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. ***FY 2014 Accomplishments:*** The significant programs that underwent flight test at AFTC include: Inc 3.2A OFP, AIM-9X Seek Eagle Separation completing the highest angle of attack (AoA). AIM-9X Launch to date, AIM-9X Basic, Update 5, Line-in-the-Sky Automated Ground Collision Avoidance System (LIS-AGCAS), TA-02, 3.2B OFP Test Bed support, MIT Lincoln Labs Airborne Countermeasures Test System 2 (ACTS 2) and planning for the Wing Pylon Covers testing. ***FY 2015 Plans:***	52.839	38.715	39.981

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
The significant programs undergoing flight test at AFTC include: Inc. 3.2A, Inc. 3.2B, AIM 9X Seek Eagle support, Update 5, and Pylon Wing Covers. Also, early planning will be accomplished for KC-46 Refueling Certification, Tactical Mandates, Update 6 and Common Range Integration Instrumentation System (CRIIS). ***FY 2016 Plans:*** The significant programs undergoing flight test at AFFTC include: Inc 3.2B, KC-46 Refueling Certification, F-22 Tactical Mandates, Update 6, and Common Range Integration Instrumentation System (CRIIS).			
Title: Laboratory Test & Operations (LTO) ***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. ***FY 2014 Accomplishments:*** Maintained lab availability in support of F-22 programs. Updated critical systems as required to support new aircraft configurations and capabilities. Accomplished 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 Warfare Center operational mission data updates. The significant programs that underwent lab test were Increment 3.2A, Increment 3.2B, Update 5, and AFWC Mission Data Loads. ***FY 2015 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 Air Warfare Center operational mission data updates. The significant programs planned for lab test are Increment 3.2B and AFWC Mission Data Loads. ***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 Air	40.598	38.769	41.774

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Warfare Center operational mission data updates. The significant programs planned for lab test are Increment 3.2B, F-22 Tactical Mandates, Update 6, and AFWC Mission Data Loads.			
Accomplishments/Planned Programs Subtotals	266.431	143.336	209.227

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F02200: *F-22A Squadrons, PE 0207138F**	358.268	301.426	129.251	-	129.251	285.014	218.692	222.923	275.407	Continuing	Continuing
• RDT&E: BA07: PE 0605213F: *Increment 3.2B, RDT&E***	88.268	173.647	140.640	-	140.640	72.467	1.399	1.426	1.452	23.348	613.079
• APAF: BA05: Line Item # F2232B: *F-22 Increment 3.2B, PE 0207138F****	-	28.500	72.259	-	72.259	83.561	152.613	13.187	20.529	-	370.649
• MILCON: PE 0207138F: *MILCON*	13.900	11.000	-	-	-	-	-	-	-	-	24.900
• RDT&E: BA07: PE 0207163F: *AIM-120D, AMRAAM, RDT&E*****	20.830	23.940	5.820	-	5.820	-	-	-	-	-	50.590

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.

D. Acquisition Strategy

The Raptor Enhancement Development & Integration (REDI) contract is an Indefinite Delivery/Indefinite Quantity 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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674785 / *F-22*

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 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 (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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / *F-22A Squadrons*	Project (Number/Name) 674785 / *F-22*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Increment 3.2A	SS/CPIF	Lockheed Martin : Fort Worth, TX	356.107	40.170	Nov 2013	2.718	Jan 2015	-		-		-	-	398.995	-
Update 5	SS/ Various	Lockheed Martin : Fort Worth, TX	44.776	47.785	Dec 2013	17.011	Jan 2015	-		-		-	-	109.572	-
Update 6 Interoperability	SS/ Various	Lockheed Martin : Fort Worth, TX	15.197	19.229	Jun 2014	17.106	Jan 2015	48.691	Dec 2015	-		48.691	86.625	186.848	-
Software Support	SS/ Various	Lockheed Martin : Fort Worth, TX	275.932	14.572	Mar 2014	2.221	Jan 2015	4.083	Nov 2015	-		4.083	Continuing	Continuing	-
Advanced Technology Development	Various	Various : Various,	52.357	20.925	Mar 2014	15.634	Mar 2015	45.261	Dec 2015	-		45.261	Continuing	Continuing	-
VAX Migration	SS/CPIF	Lockheed Martin : Fort Worth, TX	173.764	4.960	Mar 2014	-		-		-		-	-	178.724	-
System Engineering / Program Management	SS/CPFF	Lockheed Martin : Fort Worth, TX	201.651	5.471	Aug 2014	6.192	Jan 2015	9.139	Jan 2016	-		9.139	Continuing	Continuing	-
RAMMP	SS/CPFF	Lockheed Martin : Fort Worth, TX	151.006	16.695	Apr 2014	0.880	Feb 2015	1.098	Jan 2016	-		1.098	Continuing	Continuing	-
F-22 Small Projects	Various	Various : Various,	547.723	3.187	Nov 2013	4.090	Dec 2014	11.127	Nov 2015	-		11.127	Continuing	Continuing	-
		Subtotal	1,818.513	172.994		65.852		119.399		-		119.399	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combined Test Force	Various	Various : Various,	729.997	52.839	Nov 2013	38.715	Dec 2014	39.981	Nov 2015	-		39.981	Continuing	Continuing	-
Laboratory Test & Operations (LTO)	SS/ Various	Lockheed Martin : Ft Worth, TX	583.891	40.598	Nov 2013	38.769	Dec 2014	49.847	Nov 2015	-		49.847	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / *F-22A Squadrons*	Project (Number/Name) 674785 / *F-22*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	1,313.888	93.437		77.484		89.828		-		89.828	-	-	-

Remarks

The Combined Test Force and Laboratory Test & Operations costs appear to decrease significantly FY2013-2015 due to Increment 3.2B test costs which have been segregated beginning FY13 and subsequently captured in the PE 0605213F documentation. Upon completion of Increment 3.2B testing, costs will again be captured in this PE 0207138F, F-22A Squadrons documentation.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Support	Various	Various : Various,	129.371	-		-		-		-		-	-	129.371	-
		Subtotal	129.371	-		-		-		-		-	-	129.371	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,261.772	266.431		143.336		209.227		-		209.227	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674785 / *F-22*

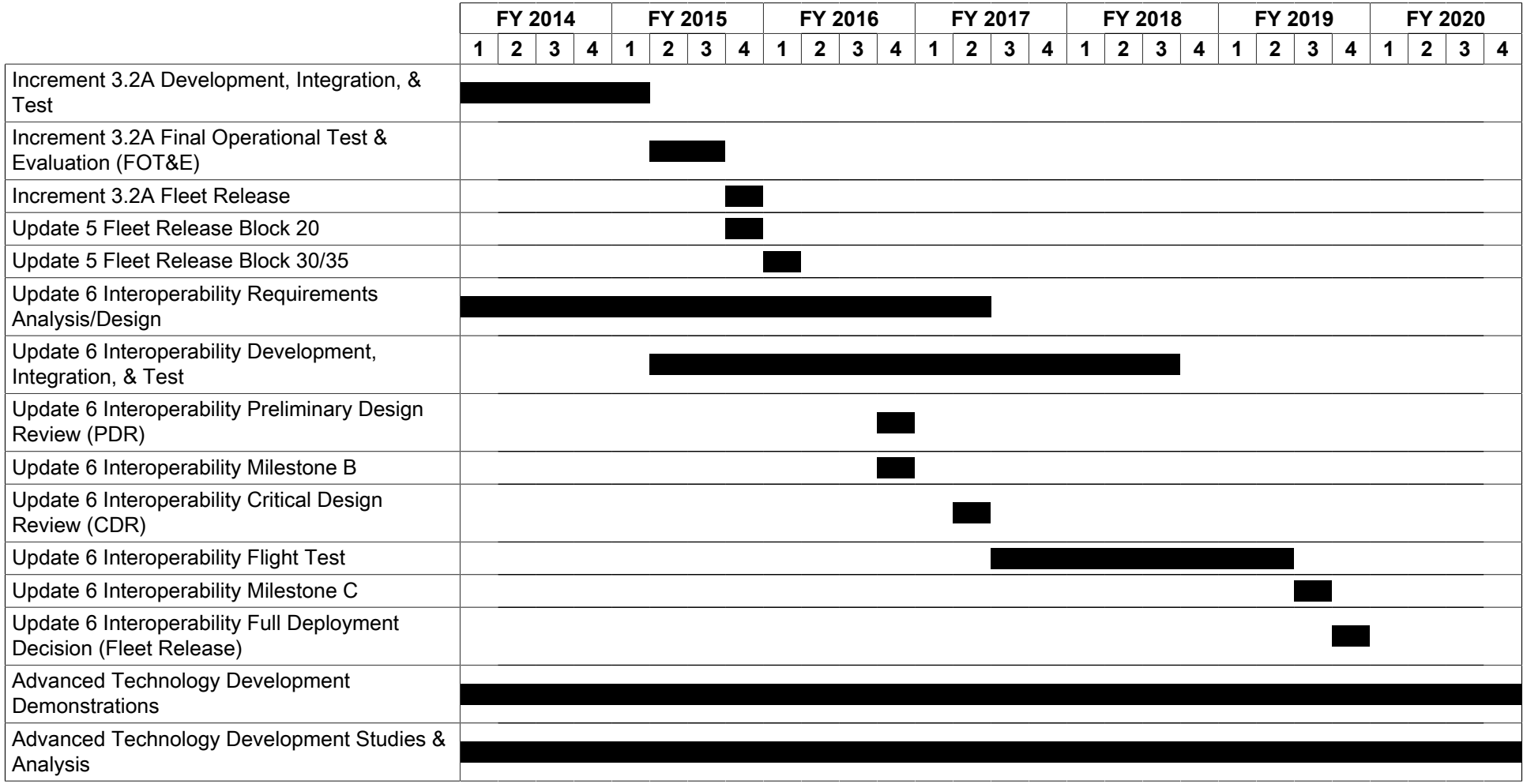

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674785 / *F-22*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Increment 3.2A Development, Integration, & Test	1	2014	1	2015
Increment 3.2A Final Operational Test & Evaluation (FOT&E)	2	2015	3	2015
Increment 3.2A Fleet Release	4	2015	4	2015
Update 5 Fleet Release Block 20	4	2015	4	2015
Update 5 Fleet Release Block 30/35	1	2016	1	2016
Update 6 Interoperability Requirements Analysis/Design	1	2014	2	2017
Update 6 Interoperability Development, Integration, & Test	2	2015	3	2018
Update 6 Interoperability Preliminary Design Review (PDR)	4	2016	4	2016
Update 6 Interoperability Milestone B	4	2016	4	2016
Update 6 Interoperability Critical Design Review (CDR)	2	2017	2	2017
Update 6 Interoperability Flight Test	3	2017	2	2019
Update 6 Interoperability Milestone C	3	2019	3	2019
Update 6 Interoperability Full Deployment Decision (Fleet Release)	4	2019	4	2019
Advanced Technology Development Demonstrations	1	2014	4	2020
Advanced Technology Development Studies & Analysis	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
674788: *F-22 Tactical Mandates*	-	-	2.963	53.325	-	53.325	111.294	154.697	134.748	137.159	-	594.186
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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. This is not a new start of FY15.

A. Mission Description and Budget Item Justification

The F-22 Tactical Mandates program is the follow-on modernization effort to Increment 3.2B. This program includes Link 16 Transmit and Mode 5 Identification Friend or Foe (IFF) Transpond/Interrogate. Integration will be accomplished using Open Systems Architecture, to enable future life cycle savings opportunities for the platform. The program will require hardware and software modifications to the Block 30/35 combat-coded F-22 fleet.

Mode 5 IFF is a Joint Requirements Oversight Council (JROC) mandated blue force identification capability that will directly improve the combat effectiveness of the Raptor as well as reducing fratricide risk DoD-wide.

Link 16 Transmit enables 5th-to-5th and 5th-to-4th tactical information exchange - a top Air Force priority. The Raptor's superior 5th Gen sensor suite will now aid the situational awareness of all participants, in any battle space, while further reducing fratricide risk.

BA07 - 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. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: F-22 Tactical Mandates	-	2.963	51.566
Description: The F-22 Tactical Mandates program (previously documented as F-22 Mandates; PE 0207138F, BPAC 674785) consists of the software and hardware development necessary to provide tactical Mode 5 and Link 16 Transmit on the F-22. The mandate for Mode 5 is required by the Joint Requirements Oversight Council (JROC). Includes Mission Support of the F-22 Program Office: travel, computer costs, and other miscellaneous contract support.			
FY 2014 Accomplishments: Not Applicable			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674788 / *F-22 Tactical Mandates*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
F-22 Tactical Mandates will begin capabilities analysis and selection, requirements development, design maturity, and early software modeling and test. Initiate design efforts. ***FY 2016 Plans:*** F-22 Tactical Mandates will continue capabilities analysis and selection, requirements development, design, and early software modeling and test.			
Title: F-22 Tactical Mandates Test Execution ***Description:*** The F-22 Combined Test Force (CTF), located at Edwards Air Force Base, conducts testing to assess performance and military utility of Tactical Mandates. The CTF uses operationally relevant ground and flight test scenarios to conduct thorough developmental testing in order to identify possible Tactical Mandates deficiencies. Tactical Mandates Lab Tests and Operations will plan and conduct software build, integration and testing of the F-22 system at the system and sub-system laboratories. ***FY 2014 Accomplishments:*** Not Applicable ***FY 2015 Plans:*** Not Applicable ***FY 2016 Plans:*** The CTF will conduct initial test planning activities for Tactical Mandates developmental flight testing. The Labs will conduct test planning activities in the laboratories in order to prepare for full prototype and system level testing.	-	-	1.759
Accomplishments/Planned Programs Subtotals	-	2.963	53.325

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDT&E: BA07: PE 0207138F: *F-22A Squadrons**	266.431	143.336	209.227	-	209.227	270.904	251.398	280.459	285.477	Continuing	Continuing
• APAF: BA05: Line Item #F02200: *F-22A Squadrons, PE 0207138F***	358.268	301.426	129.251	-	129.251	285.014	218.692	222.923	275.407	Continuing	Continuing
• RDT&E, BA05, PE 0605213F: *F-22A Increment 3.2B****	88.268	173.647	140.640	-	140.640	72.462	1.399	1.426	1.452	23.348	613.079
• APAF: BA05: Line Item #F2232B: *F-22A Increment 3.2B, PE 0207138F*****	-	28.500	72.259	-	72.259	83.561	152.613	13.187	20.529	-	370.649

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674788 / *F-22 Tactical Mandates*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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 (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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / *F-22A Squadrons*	Project (Number/Name) 674788 / *F-22 Tactical Mandates*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
F-22 Tactical Mandates	SS/CPIF	Lockheed Martin : Ft Worth, TX	0.000	-		2.963	Sep 2015	51.566	Nov 2015	-		51.566	459.626	514.155	-
		Subtotal	0.000	-		2.963		51.566		-		51.566	459.626	514.155	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Execution	Various	Various : Various,	0.000	-		-		1.759	Nov 2015	-		1.759	78.272	80.031	-
		Subtotal	0.000	-		-		1.759		-		1.759	78.272	80.031	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		2.963		53.325		-		53.325	537.898	594.186	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674788 / *F-22 Tactical Mandates*

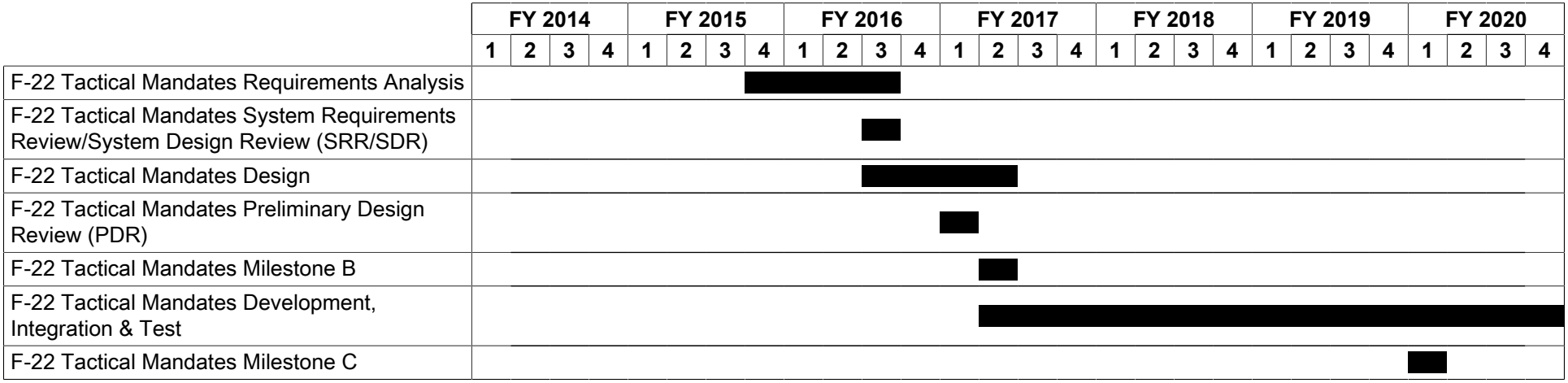

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207138F / *F-22A Squadrons*	**Project (Number/Name)** 674788 / *F-22 Tactical Mandates*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
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	2	2017
F-22 Tactical Mandates Preliminary Design Review (PDR)	1	2017	1	2017
F-22 Tactical Mandates Milestone B	2	2017	2	2017
F-22 Tactical Mandates Development, Integration & Test	2	2017	4	2020
F-22 Tactical Mandates Milestone C	1	2020	1	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	9.682	3.000	40.092	115.395	-	115.395	269.315	339.246	371.797	389.668	Continuing	Continuing
675346: *F-35*	0.000	3.000	24.477	110.428	-	110.428	243.520	311.476	334.116	340.093	Continuing	Continuing
676011: *JSF DUAL CAPABLE AIRCRAFT*	9.682	-	15.615	4.967	-	4.967	25.795	27.770	37.681	49.575	Continuing	Continuing
MDAP/MAIS Code: 198												

A. Mission Description and Budget Item Justification

The F-35 Lightning II Fighter program is developing a family of highly common, affordable, next generation, multi-role aircraft to meet the needs of the USMC, USN, USAF and international partners. The three variants are the F-35A Conventional Takeoff and Landing (CTOL); F-35B Short Takeoff and Vertical Landing (STOVL); and the F-35C Carrier Variant (CV). Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize life cycle costs.

F-35 Follow-on Development (FoD) provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. The FoD acquisition strategy is based upon incremental block development of capabilities with each increment consisting of two development cycles. FoD will provide capability enhancements, required systems upgrades and cost improvements through an incremental acquisition approach. FoD capability planning includes an efficient transition from F-35 System Development and Demonstration (SDD) to FoD. As SDD development activities ramp down, the FoD program will assume responsibility for new development and the maintenance of associated developmental infrastructure. FoD capability planning includes Block 4A and 4B Engineering and Manufacturing Development efforts from FY16 through FY20 followed by DT and OT testing in 2020/2021 with IOC of capabilities in 2022.

Additionally, the F-35 JSF ORD calls for the F-35A (CTOL) Variant Air Vehicle 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 DCA capability planning and design will begin in Block 4A and continue through testing and certification in Block 4B.

The United Kingdom, other International Partner nations, and Foreign Military Sales customers are also participants in the JSF program. 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 services and partners as these activities support all aircraft variants.

The FY2016 funding request was reduced by $1.65 million to account for the availability of prior 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	3.000	43.666	117.812	-	117.812
Current President's Budget	3.000	40.092	115.395	-	115.395
Total Adjustments	-	-3.574	-2.417	-	-2.417
• Congressional General Reductions	-	-3.574			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-2.417	-	-2.417

Change Summary Explanation

FY2015 Congressional reduction: -$3.574M for Acquisition Decision Memorandum limiation.

FY2016 reduction: -$767 million for proper program alignment and funding for higher Air Force priorities.

The FY2016 funding request was reduced by $1.65 million to account for the availability of prior execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675346: *F-35*	-	3.000	24.477	110.428	-	110.428	243.520	311.476	334.116	340.093	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Total cost including USN, USMC, and USAF funding: FY2014 $6.000M; FY15 $55.698M; FY16 $261.772M

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

A. Mission Description and Budget Item Justification

F-35 FoD provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. The FoD acquisition strategy is based upon incremental block development of capabilities with each increment consisting of two development cycles. FoD capability planning includes an efficient transition from F-35 SDD to Follow-on Development. As SDD development activities ramp down, the FoD program will assume responsibility for new development and the maintenance of associated developmental infrastructure. FoD capability planning includes Block 4A and 4B Engineering and Manufacturing Development efforts from FY16 through FY19 followed by DT and OT testing in 2020/2021 with IOC of capabilities in 2022.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Air Vehicle Follow-on Development (Capability Planning) (F-35 JSF)	4.333	48.698	239.435
Description: Capability planning effort will focus on mission requirements analysis, early engineering, risk reduction and preparations leading to formal acquisition approval of Block 4. Program planning will consist of engineering and development support for defining, managing and the acquisition of capability enhancements required to address threats indicated in the Electronic Warfare ICD, the Fifth Generation Fighter Modernization ICD.			
FY 2014 Accomplishments: FoD activity supports development and validation of Follow-on Development Increment 1 Capability Development Document (CDD).			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and System Functional Review is planned followed by development of the Block 4 preliminary design. ***FY 2016 Plans:*** The results from the FoD Systems Requirements Review and the Systems Functional Review are incorporated into Block 4 preliminary designs.			
Title: Development Support ***Description:*** Technical and Analytical Support ***FY 2014 Accomplishments:*** Technical and Analytical Support ***FY 2015 Plans:*** Initiate development support for defining, managing and acquiring the envisioned F-35 capability enhancements identified in approved requirements documents. ***FY 2016 Plans:*** Continue development support for defining, managing and acquiring the envisioned F-35 Block 4 new capability enhancements identified in approved requirements documents.	1.667	7.000	22.337
Accomplishments/Planned Programs Subtotals	6.000	55.698	261.772
Other Service Program Funding Adjustment	3.000	31.221	151.344
Air Force Subtotals	3.000	24.477	110.428

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604800F: *JSF SDD, BPAC 653831*	600.360	535.296	517.980	-	517.980	323.446	114.595	5.291	5.365	-	22,006.092
• RDTE:BA05: PE 0604800F: *JSF Deployability and Suitability Enhancements, BPAC 653832*	16.200	32.593	71.461	-	71.461	-	-	-	-	-	-
• RDTE: BA07: PE 207142F: *Dual Capable Aircraft (DCA), BPAC 676011*	-	15.615	4.967	-	4.967	25.795	27.770	37.681	49.575	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 675346 / *F-35*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN: BA05: PE 604800N: *JSF SDD (CV), BPAC 2261*	409.421	485.263	467.759	-	467.759	443.185	45.436	0.574	0.615	-	19,832.613
• RDTEN: BA05: PE 604800M: *JSF SDD (STOVL), BPAC 2262*	394.248	487.068	505.949	-	505.949	398.976	87.145	8.014	8.473	-	3,692.657
• International: *International SDD*	10.311	15.000	17.000	-	17.000	22.000	27.450	-	-	Continuing	Continuing
• International 3: *International FoD*	0.610	21.086	79.318	-	79.318	128.965	157.602	169.315	171.636	Continuing	Continuing
• APAF: BA01: ATA000: *JSF CTOL, PE 0207142F, BP10*	2,889.602	3,691.046	5,260.212	-	5,260.212	5,356.041	6,109.330	6,023.688	5,526.504	-	-
• APAF: BA01:ATA000: *JSF CTOL Advance Procurement, PE 207142F, BP10*	339.533	291.880	460.260	-	460.260	528.560	522.180	497.720	506.000	19,787.624	24,451.221
• APN: BA01: BP0147: *JSF (CV), PE 0204146N*	1,028.415	848.552	897.542	-	897.542	848.056	1,217.562	1,496.303	1,606.088	32,734.961	51,085.532
• APN: BA01: BP0147C: *JSF Advance Procurement (CV), PE 204146N*	79.016	29.400	48.630	-	48.630	91.908	111.898	126.003	204.132	3,733.206	5,719.322
• APN: BA01:BP0152: *JSF (STOVL), PE 0204146M*	1,172.248	1,184.410	1,483.414	-	1,483.414	2,049.754	2,713.087	2,796.129	2,810.155	26,147.806	43,146.851
• APN: BA01: BP0152C: *JSF Advance Procurement (STOVL), PE 204146M*	103.195	143.885	203.060	-	203.060	226.148	136.872	139.562	142.353	2,900.408	4,834.934
• International 2: *International Production*	1,954.600	2,975.641	4,175.668	-	4,175.668	6,006.257	7,809.829	7,962.298	7,166.485	Continuing	Continuing
• MILCON: *F-35B Milcon*	-	71.704	21.960	-	21.960	219.100	64.660	121.990	119.800	642.400	1,966.114
• OPN: BA03: BP4267: *JSF Logistics Information System (ALIS), PE 204261N*	3.389	-	-	-	-	-	-	-	-	-	19.105
• OPN: BP4268: *Aviation Support Equipment ALIS Ship Alts*	-	5.516	3.893	-	3.893	2.136	3.909	3.774	3.854	Continuing	Continuing
• OPN: BP902010: *ALIS Spares and Repair Parts*	1.010	1.576	2.946	-	2.946	1.948	1.940	1.957	1.995	Continuing	Continuing
• APAF: BA06: ATA000: *JSF Initial Spares, PE 0207142F, BP16*	91.414	236.418	238.673	-	238.673	245.991	326.971	368.702	372.588	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 675346 / *F-35*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APN: BA06:ATA000: *Initial Spares (CV), PE 0204146N, BP0605*	25.809	28.200	59.914	-	59.914	58.795	42.726	35.247	38.394	-	-
• APN: BA06: ATA000: *Initial Spares (STOVL), PE 0204146M, BP0605*	88.304	64.194	111.569	-	111.569	76.703	29.756	100.362	136.763	-	-
• MILCON: BA01: PE 207597F: *JSF Military Construction*	-	-	65.400	-	65.400	34.000	18.900	21.000	-	-	139.300
• MILCON: BA01: PE 0207142F: *JSF Military Construction*	56.000	66.700	132.850	-	132.850	124.000	-	-	-	1,328.000	2,238.050
• APAF: BA05: ATA000: *JSF Modifications, PE 0207142F, BP11*	126.777	187.646	70.167	-	70.167	310.237	294.229	260.071	259.791	Continuing	Continuing
• OPAF: BA01: 821800: *Joint Strike Fighter, PE 0207142F*	1.431	4.463	3.858	-	3.858	2.333	2.374	2.415	-	Continuing	Continuing
• APN: BA05: BP0593: *Modifications (CV), PE 204146N*	29.950	20.502	68.527	-	68.527	47.294	50.707	17.214	17.484	Continuing	Continuing
• APN: BA05: BP0592: *Modifications (STOVL), PE 204146M*	111.158	215.819	256.106	-	256.106	170.624	175.250	16.752	17.641	Continuing	Continuing
• RDTEN: BA05:PE 604810N: *F-35C Follow-on Development (CV), BPAC 2936*	-	10.622	47.579	-	47.579	103.564	134.250	145.580	148.975	Continuing	Continuing
• RDT&EN:BA05: PE 604800N: *F-35C Sustainment/Capability Enhancements (CV),BPAC 3352*	14.419	16.997	36.977	-	36.977	-	-	-	-	-	68.393
• RDT&EN: BA05: PE 604800M: *F-35B Sustainment/ Capability Enhancements (STOVL),BPAC 3350*	14.332	11.980	31.952	-	31.952	-	-	-	-	-	58.264
• RDTE: BA07: PE 604810M: *F-35B Follow-on Development (STOVL), BPAC 2935*	-	10.399	59.265	-	59.265	120.028	157.257	168.502	171.946	Continuing	Continuing
• MILCON: USN:: *F-35C MILCON*	-	60.200	72.460	-	72.460	11.800	-	-	-	-	-
• RDTEN: USN: BA05: PE604800N: *CV RDTE FOD CDD*	1.500	-	-	-	-	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 675346 / *F-35*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RETEN: USMC: BA05: PE604800M: *STOVL, RDTE, FOD, CDD*	1.500	-	-	-	-	-	-	-	-	-	-

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 and other International countries 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 includes funds provided under the Italy and Netherlands Bilateral agreements.

RELATED RDT&E: Funding prior to F-35 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 $4,229,896.

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 primarily use CPFF 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 675346 / *F-35*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements Analysis, Systems Engineering and Risk Reduction	SS/CPFF	Lockheed Martin : Ft Worth, TX	0.000	2.463		46.017	Feb 2015	238.654	Feb 2016	-		238.654	Continuing	Continuing	TBD
Prime LM IDIQ 13-D-0005	C/CPAF	Lockheed Martin : Ft Worth, TX	0.000	1.600		-		-		-		-	-	1.600	1.600
Product Development System Engineering	C/CPAF	Lockheed Martin : Ft Worth, TX	0.000	-		0.781		0.781		-		0.781	-	1.562	1.600
		Subtotal	0.000	4.063		46.798		239.435		-		239.435	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical and Analytic Support LM	SS/CPFF	Lockheed Martin : Ft Worth, TX	0.000	-		-		-		-		-	Continuing	Continuing	10.062
Product Development / Primary H/W Development	Various	Lockheed Martin : Ft Worth, TX	0.000	1.667		-		-		-		-	-	1.667	-
Eglin	C/CPAF	Lockheed Martin : Ft Worth, TX	0.000	-		4.000		10.982		-		10.982	-	14.982	-
Pax	C/CPAF	Lockheed Martin : Ft Worth, Tx	0.000	-		3.000		11.355		-		11.355	-	14.355	-
		Subtotal	0.000	1.667		7.000		22.337		-		22.337	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 675346 / *F-35*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Functional Wyle	TBD	Wyle : Arlington, VA	0.000	0.270	Dec 2014	1.900	Dec 2015	-		-		-	-	2.170	-
		Subtotal	0.000	0.270		1.900		-		-		-	-	2.170	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	0.000	6.000		55.698		261.772		-		261.772	-	-	-
Other Service Program Funding Adjustment	0.000	3.000		31.221		151.344		-		151.344	-	185.565	-
Project Cost Totals	0.000	3.000		24.477		110.428		-		110.428	-	-	-

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. FY 2013 Risk Reduction conducted with Partner funding to maintain planned schedule for integration and delivery of Block 4 Capabilities. Funding was contributed by Partner nations in anticipation of U.S. funding in FY 2014.

FY 2014 reflects $3.000M USAF/$1.500 USN/$1.500M USMC/$0.000M International/Total $6.000M

FY 2015 reflects $24.477 USAF/$10.622 USN/$10.399M USMC/$10.200M International/Total $55.698M

FY 2016 reflects $110.428 USAF/$47.579 USN/$59.2655M USMC/$44.500M International/Total $261.772M

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

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 675346 / *F-35*

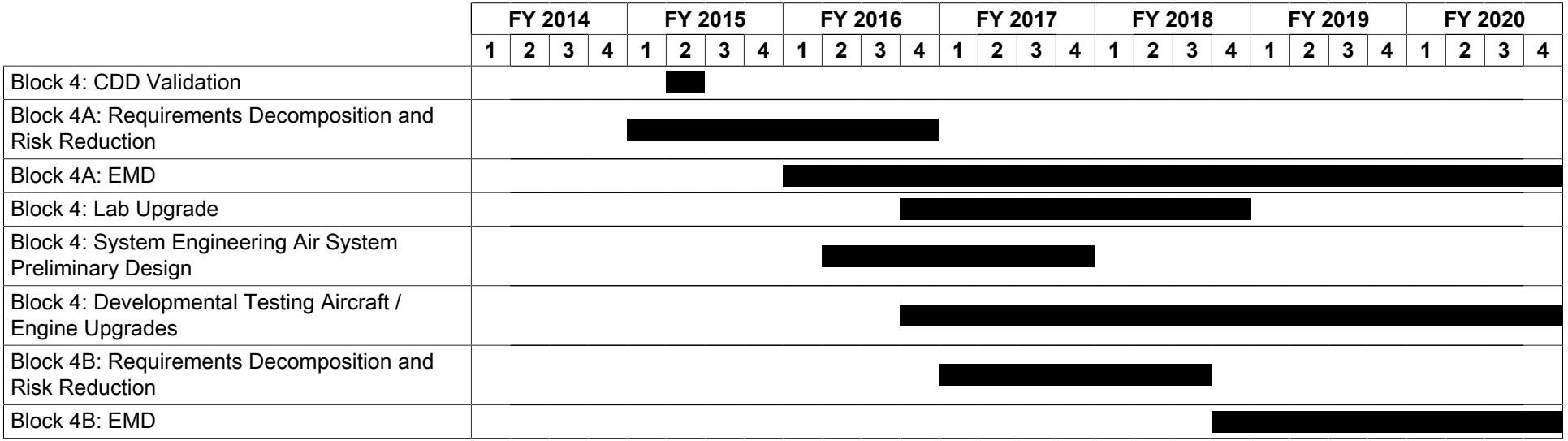

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 675346 / *F-35*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Block 4: CDD Validation	2	2015	2	2015
Block 4A: Requirements Decomposition and Risk Reduction	1	2015	4	2016
Block 4A: EMD	1	2016	4	2020
Block 4: Lab Upgrade	4	2016	4	2018
Block 4: System Engineering Air System Preliminary Design	2	2016	4	2017
Block 4: Developmental Testing Aircraft / Engine Upgrades	4	2016	4	2020
Block 4B: Requirements Decomposition and Risk Reduction	1	2017	3	2018
Block 4B: EMD	4	2018	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
676011: *JSF DUAL CAPABLE AIRCRAFT*	9.682	-	15.615	4.967	-	4.967	25.795	27.770	37.681	49.575	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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

The F-35 Lightning II Fighter program is developing a family of highly common, affordable, next generation, multi-role aircraft to meet the needs of the USMC, USN, USAF and international partners. The three variants are the F-35A Conventional Takeoff and Landing (CTOL); F-35B Short Takeoff and Vertical Landing (STOVL); and the F-35C Carrier Variant (CV). Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize life cycle costs. FY2015 continues development and testing of the F-35. As the initial capabilities are being delivered from the System Development and Demonstration (SDD) program, planning for Follow-on Development (FoD) continues. Capability requirements are being matured and FoD planning continues based upon the approved Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), an approved Electronic Warfare ICD, and the results of an OSD Tiger Team Review. FY14 F-35 FoD activity includes drafting of Follow-on Development Increment 1 Capability Development Document (CDD) and further risk reduction. Follow-on Development will provide capability enhancements, required systems upgrades and cost improvements through an incremental acquisition approach.

Based on JROCM 091-03, the JSF ORD Change stated that F-35A design must incorporate dual-capability. Dual-Capable Aircraft (DCA) operations refers to the capability to carry and employ conventional and non-conventional weapons. Extensive Certification process, DCA certification tasks, integration planning, environmental testing, and design compatibility work began in FY15 and continue through testing and certification. Initial Certification will be acheived on the earliest feasible increment.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 676011 / *JSF DUAL CAPABLE AIRCRAFT*

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 2014	FY 2015	FY 2016
Title: Dual Capable Aircraft (DCA)(F-35 JSF)	-	15.615	4.967
Description: This effort provides for the assessment of Dual Capable Aircraft (DCA) weapon integration impacts on the Joint Strike Fighter (JSF) aircraft, early in the weapon design phase. It identifies and avoids potential technical and cost risks, as well as defining the integration and certification trade-space to field the DCA capability with the B61 weapon. This effort also supports follow-on risk reduction efforts that will ensure future integration alignment with the first feasible post SDD block upgrade, and is expected to include full integration efforts pending Service decisions. ***FY 2015 Plans:*** Initiate Nuclear Certification and environmental flight test efforts to integrate dual-capability on F-35A (CTOL). 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. ***FY 2016 Plans:*** Continue Nuclear Certification efforts to integrate dual-capability on F-35A (CTOL).			
Accomplishments/Planned Programs Subtotals	-	15.615	4.967

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604800F: *JSF SDD, BPAC 653831*	600.360	535.296	517.980	-	517.980	323.446	114.595	5.291	5.365	-	22,011.826
• RDTE: BA04: PE 0604800F: *JSF SDD, BPAC 653831*	-	4.976	4.979	-	4.979	-	-	-	-	-	-
• RDTEN: BA05: PE 604800N: *JSD SDD (CV), BPAC 2261*	409.421	485.263	467.759	-	467.759	443.185	45.436	574.000	615.000	-	19,848.894
• RDTEN: BA05: PE 604800M: *JSD SDD (STOVL), BPAC 2262*	394.248	487.068	505.949	-	505.949	398.976	87.145	8.014	8.473	-	3,702.962
• APN: BA01:BP0152C: *JSF Advance Procurement (STOVL), PE 204146M*	103.195	143.885	203.060	-	203.060	226.148	136.872	139.562	142.353	2,900.408	4,834.934

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 676011 / *JSF DUAL CAPABLE AIRCRAFT*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN:BA05: PE 604800N: *USRL, BPAC 3194*	-	-	-	-	-	-	-	-	-	-	144.769
• International R&D: *International R&D (SDD/FOD)*	10.311	15.000	17.000	-	17.000	22.000	27.450	-	-	Continuing	Continuing
• APAF: BA01: ATA000: *JSF CTOL, PE 207142F, BP10*	2,889.602	3,691.046	5,260.212	-	5,260.212	5,356.041	6,109.330	6,023.688	5,526.504	156,549.821	206,804.043
• APAF:BA01: ATA000: *JSF CTOL Advance Procurement, PE 207142F, BP10 AP*	339.533	291.880	460.260	-	460.260	528.560	522.180	497.720	506.000	19,787.624	24,451.221
• APN: BA01: BP0147: *JSF (CV), PE 204146N*	1,028.415	848.552	897.542	-	897.542	848.056	1,217.562	1,496.303	1,606.088	32,654.887	50,468.174
• APN: BA01: BP0147C: *JSF Advance Procurement (CV) PE 204146N*	79.016	29.400	48.630	-	48.630	91.908	111.898	126.003	204.132	3,733.258	5,719.374
• APN: BA01: BP0152: *JSF (STOVL), PE 204146M*	1,172.248	1,184.410	1,483.414	-	1,483.414	2,049.754	2,713.087	2,796.129	2,810.155	25,958.968	43,041.456
• International Production: *JSF International Production*	1,954.600	2,975.641	4,175.668	-	4,175.668	6,006.257	7,809.829	7,962.298	7,166.485	Continuing	Continuing
• OPAF: BA01: 821800: *Joint Strike Fighter, PE 0207142F*	1.431	4.463	3.858	-	3.858	2.333	2.374	2.415	-	Continuing	Continuing
• OPN: BA04: BP4265: *JSF Other Procurement, PE 204261N*	-	-	-	-	-	-	-	-	-	-	5.665
• OPN: BA03: BP4267: *JSF Logistics Information System (ALIS),PE 204261N*	3.389	-	-	-	-	-	-	-	-	-	-
• OPN BA03: BP4268: *JSF Logistics Information Systems (ALIS) Ship Alts*	-	5.516	3.893	-	3.893	2.136	3.909	3.774	3.854	Continuing	Continuing
• OPN: BA03:902010: *ALIS Spares and Repair Parts*	1.010	1.576	2.946	-	2.946	1.948	1.940	1.957	1.995	Continuing	Continuing
• APAF: BA06: PE 207142F, BP16: *JSF Initial Spares*	91.414	236.418	238.673	-	238.673	245.991	326.971	368.702	372.588	12,115.975	14,919.962

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 676011 / *JSF DUAL CAPABLE AIRCRAFT*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APN: BA06: PE 204146N, BP0605: *Initial Spares (CV)*	25.809	28.200	59.914	-	59.914	58.795	42.726	35.247	38.394	2,115,809.000	2,883.975
• APN: BA06: PE 204146M, BP0605: *Initial Spares (STOVL)*	88.304	64.194	111.569	-	111.569	76.703	29.756	100.362	136.763	2,487,705.000	3,323.290
• MILCON: BA01: PE 207142F: *JSF Military Construction*	56.000	66.700	50.400	-	50.400	14.700	135.900	91.500	134.600	1,844.500	2,408.317
• USN MILCON: BA01: *USN JSF MILCON*	-	60.200	72.460	-	72.460	11.800	-	-	-	-	60.200
• APAF: BA05: PE 20742F, BP11: *JSF Modifications*	126.777	187.646	70.167	-	70.167	310.237	294.229	260.071	259.791	Continuing	Continuing
• APN: BA05: BP0593: *Modifications (CV),PE 204146N*	29.950	20.502	68.527	-	68.527	47.294	50.707	17.214	17.484	Continuing	Continuing
• APN: BA05: BP0592: *Modifications (STOVL), PE 204146M*	111.158	215.819	256.106	-	256.106	170.624	175.250	16.752	17.641	Continuing	Continuing
• RDTE: BA07: PE 207142F: *JSF Follow-on Development (FoD), BPAC 675346*	3.000	24.477	110.428	-	110.428	243.520	311.476	334.116	340.093	Continuing	Continuing
• RDTE:BA05: PE 0604800F: *JSF Deployability and Suitability Enhancements, BPAC 653832*	14.491	16.997	36.977	-	36.977	-	-	-	-	-	-
• RDTEN: BA05: PE 604800N: *F-35C Follow-on Development (CV),BPAC 3353*	-	10.622	47.579	-	47.579	103.564	134.250	145.580	148.975	Continuing	Continuing
• RDT&EN: BA05: PE 604800N: *F-35C Sustainment/Capability Enhancements (CV), BPAC 3352*	14.419	16.997	16.977	-	16.977	-	-	-	-	-	48.966
• RDTE: BA05: PE 604800M: *F-35B Follow-on Development (STOVL), BPAC 3351*	-	10.399	59.265	-	59.265	120.028	157.257	168.502	171.946	Continuing	Continuing
• RDT&EN: BA05: PE 604800M: *F-35B Sustainment/ Capability Enhancements (STOVL), BPAC 3350*	14.332	11.980	31.952	-	31.952	-	-	-	-	-	38.836

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 676011 / *JSF DUAL CAPABLE AIRCRAFT*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA07: PE 207142(AF): *DCA*	-	15.615	4.967	-	4.967	25.795	27.770	37.681	49.575	-	-
• MILCON: USAF 27142F: *MILCON Operations*	56.000	66.700	132.850	-	132.850	124.000	-	-	-	-	-
• RDTEN: USMC: 05 PE 604800M: *STOVL, RDTE, FOD CDD*	1.500	-	-	-	-	-	-	-	-	-	-
• MILCON: USAF 27597F: *MILCON Training*	-	-	65.400	-	65.400	34.000	18.900	21.000	-	-	-
• MILCON: USAF 52635F: *MILCON Air National Guard*	-	-	-	-	-	-	4.500	-	-	-	-
• RDTEN: USN: 05 PE 604800N: *CV RDTE, FOD, CDD*	1.500	-	-	-	-	-	-	-	-	-	-
• MILCON: USMC: *F-35B MILCON*	-	71.704	21.960	-	21.960	219.100	64.660	121.990	119.800	-	-
• INTL:: *INTL R&D FOD*	610.000	21.068	79.318	-	79.318	128.965	157.602	169.315	171.636	-	-

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 and other International countries 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 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 $4,229,896.

D. Acquisition Strategy

The DCA effort will be procured via a cost type contract. It is anticipated that fee provisions will be used to target and motivate the 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 676011 / *JSF DUAL CAPABLE AIRCRAFT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Lockheed Martin - DCA Integration	SS/CPFF	Lockheed Martin : Ft. Worth, TX	9.682	-		15.615	Mar 2015	4.967	Mar 2016	-		4.967	Continuing	Continuing	19.682
		Subtotal	9.682	-		15.615		4.967		-		4.967	-	-	19.682

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.682	-		15.615		4.967		-		4.967	-	-	19.682

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / *F-35 Squadrons*	Project (Number/Name) 676011 / *JSF DUAL CAPABLE AIRCRAFT*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

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

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 676011 / *JSF DUAL CAPABLE AIRCRAFT*

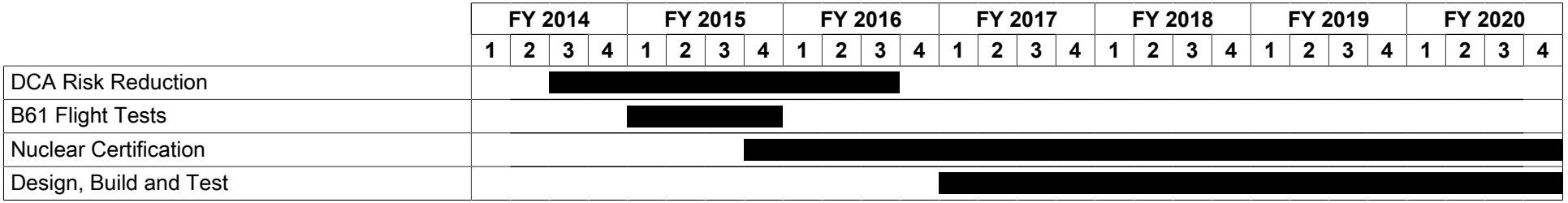

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207142F / *F-35 Squadrons*	**Project (Number/Name)** 676011 / *JSF DUAL CAPABLE AIRCRAFT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DCA Risk Reduction	3	2014	3	2016
B61 Flight Tests	1	2015	4	2015
Nuclear Certification	4	2015	4	2020
Design, Build and Test	1	2017	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207161F / *Tactical AIM Missiles*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	54.914	12.376	29.739	43.360	-	43.360	52.836	13.984	13.244	13.481	1.620	235.554
674132: *AIM-9 Product Improvement*	54.914	12.376	29.739	43.360	-	43.360	52.836	13.984	13.244	13.481	1.620	235.554
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 FY13 and prior are $54.914M.

A. Mission Description and Budget Item Justification

The AIM-9X (Sidewinder) short-range air-to-air missile is a long-term evolution of the AIM-9 series of fielded missiles. The AIM-9X missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile (AMRAAM). 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). Anti-Tamper features have been incorporated to protect improvements inherent in this design. AIM-9X is a Post Milestone III, Acquisition Category 1C (ACAT 1C) joint-service program with Navy lead.

The Block II program is in Low Rate Initial Production (LRIP) and the LRIP-4 contract was awarded in June 2014. This budget line item continues to fund the development, test and integration of software updates to the missile, redesign of obsolete missile components, insensitive munitions improvements and aircraft platform integration to ensure these capabilities perform in accordance with established requirements as documented in the Capabilities Production Document. Beginning in FY 2016, Navy will join the US Air Force efforts already in progress to develop missile software improvements for the next incremental version 9.4 (v9.4) as well as hardware updates to improve Insensitive Munitions performance.

AIM-9X Block I concluded in FY2011 and all funding/quantity data in the documents are associated with Block II activities.

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.

The FY2016 funding request was reduced by $2.484 million to account for the availability of prior execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*	

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.760	29.739	46.133	-	46.133
Current President's Budget	12.376	29.739	43.360	-	43.360
Total Adjustments	-0.384	-	-2.773	-	-2.773
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.384	-			
• Other Adjustments	-	-	-2.773	-	-2.773

Change Summary Explanation

The FY2016 funding request was reduced by $2.484 million to account for the availability of prior execution balances.

The FY2016 funding request was reduced by $0.289 million to fund higher Air Force priorities.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Air Intercept Missile - 9X, Product Development	12.376	25.481	39.174
Description: Continuation of Primary Hardware Development/Pre-Planned Product Improvement (P3I) 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 threshhold aircraft platforms. Also, includes efforts to redesign missile components in order to resolve Block II common 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. The program will implement improvements to the warhead developed by Navy Research Laboratory, to incorporate into the AIM-9X Block II production missile. Beginning in FY2016, the Navy will join in the Air Force efforts that began in FY2015 to develop software improvements for the next incremental version 9.4 (v9.4x) to incorporate into the FY2017 AIM-9X Block II production missile.			
FY 2014 Accomplishments: Continued support of AIM-9X Block II integration. Continued support of Operational Test anomaly resolution. Identified missile component obsolescence redesign critical to maintaining production for the Block II missile system in accordance with the program Capabilities Production Document (CPD) objectives.			
FY 2015 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Continue support of Block II integration and OT. 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. Continue Engineering Manufacturing Development (EMD) required to redesign, integrate, test and qualify components due to obsolescence and implement cost reduction initiatives. ***FY 2016 Plans:*** Continue development of v9.4 Block II software and integration efforts with threshold aircraft platforms including improvements associated with the F-15 suite 9 Operational Flight Program (OFP) to utilize full capability of the Block II missile. Continue study on IM alternatives and risk reduction methods to enhance IM performance. Continue EMD required to redesign, integrate, test and qualify components due to obsolescence and implement cost reduction initiatives.			
Title: Air Intercept Missile - 9X, Test and Evaluation ***Description:*** Funding required for Test & Evaluation (T&E) and associated governmental support required to ensure AIM-9X missile integration with threshhold aircraft platforms. ***FY 2014 Accomplishments:*** Continued Block II Operational Testing (OT-C1) and engineering efforts to integrate the Block II+ on F-15 arcraft. ***FY 2015 Plans:*** Complete OT-C1 (Operational Test) and await final Initial OT&E (IOT&E) and Beyond LRIP reports. Begin Developmental Test (DT-D1) of v9.4 Block II software as well as improvements associated with the F-15 to utilize full capability of the Block II missile. ***FY 2016 Plans:*** Continue DT-D1 (Developmental Test) and IT-D1 (Integrated Testing) of v9.4 Block II software including improvements associated with the F-15 suite 9 OFP to utilize full capability of the Block II missile.	-	4.258	4.186
Accomplishments/Planned Programs Subtotals	12.376	29.739	43.360

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA02: Line Item # M09HAI: *Sidewinder (AIM-9X)*	105.190	129.121	200.777	-	200.777	212.377	204.524	115.491	117.572	323.107	1,645.532
• MPAF: BA04: Line Item # 000999: *Replen Spares, USAF*	10.838	10.720	10.755	-	10.755	11.106	11.290	11.456	11.661	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA04: Line Item # 000999: *Inital Spares, USAF*	1.650	1.717	0.604	-	0.604	2.447	2.254	1.834	1.868	17.266	34.294
• RDTE: BA07: PE 0207161N: *Tactical AIM Missile*	17.518	37.258	76.016	-	76.016	60.772	36.489	33.189	0.213	3.965	319.139
• WPN: BA02: Line Item # 2209: *Sidewinder*	96.689	68.178	96.427	-	96.427	103.644	107.375	75.623	76.045	682.974	1,485.017

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

In June 2011, the Milestone Decision Authority (MDA) established the AIM-9X Block II missile program for entry at Milestone C and LRIP. The 2366 A/B certification and Acquisition Program Baseline for AIM-9X Block II was signed 23 Dec 2011 and the Block I program was completed. The LRIP-1 (Lot 11) contract was awarded in Sep 2011, LRIP-2 (Lot 12) was awarded in Dec 2011, LRIP-3 (Lot 13) was awarded August 2013, and LRIP-4 (Lot 14) was awarded in June 2014. Full Rate Production (FRP) decision is planned for FY 2015.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / *Tactical AIM Missiles*	Project (Number/Name) 674132 / *AIM-9 Product Improvement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RMS Software/OFP Upgrade	SS/CPFF	RMS : Tucson, AZ	25.435	10.815	Mar 2014	12.391	Aug 2015	27.566	Mar 2016	-		27.566	61.420	137.627	137.627
Munitions Improvement Study (RG)	SS/CPFF	RMS : Tucson, AZ	0.000	1.174	Mar 2014	2.170	Jun 2015	3.000	Mar 2016	-		3.000	12.947	19.291	19.291
Munitions Improvement Study (USG)	MIPR	NAWC WD : China Lake, CA	1.903	-		2.170	Mar 2015	3.148	Mar 2016	-		3.148	11.923	19.144	19.144
Aircraft Integration	SS/CPFF	Boeing : St. Louis, MO	0.000	-		8.200	Jun 2015	4.900	Jun 2016	-		4.900	1.600	14.700	14.700
RMS P3I Contract	Various	Various : ,	9.381	-		-		-		-		-	-	9.381	9.381
		Subtotal	36.719	11.989		24.931		38.614		-		38.614	87.890	200.143	200.143

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E/OT&E for P3I	MIPR	Various : Various,	14.967	-		1.558	Mar 2015	1.586	Mar 2016	-		1.586	4.930	23.041	23.041
DT&E/OT&E for F-15	MIPR	Various : Various,	0.000	-		2.700	Apr 2015	2.600	Apr 2016	-		2.600	-	5.300	5.300
		Subtotal	14.967	-		4.258		4.186		-		4.186	4.930	28.341	28.341

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	MIPR	PMA-259 : Patuxent River, MD	3.228	0.387	Feb 2014	0.550	Mar 2015	0.560	Mar 2016	-		0.560	2.345	7.070	7.070

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / *Tactical AIM Missiles*	Project (Number/Name) 674132 / *AIM-9 Product Improvement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			3.228	0.387		0.550		0.560		-		0.560	2.345	7.070	7.070

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.914	12.376		29.739		43.360		-		43.360	95.165	235.554	235.554

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*	**Project (Number/Name)** 674132 / *AIM-9 Product Improvement*

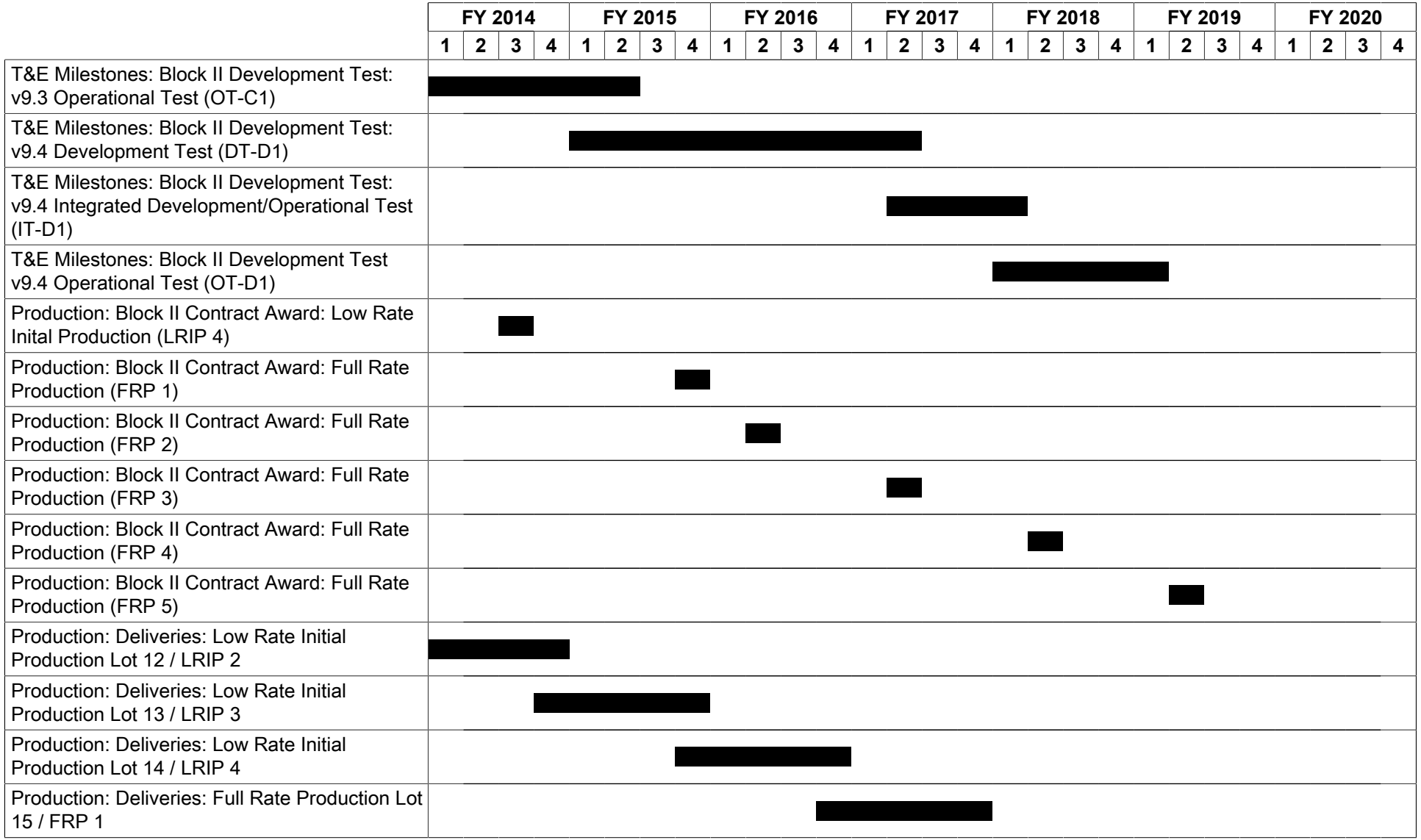

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*	**Project (Number/Name)** 674132 / *AIM-9 Product Improvement*

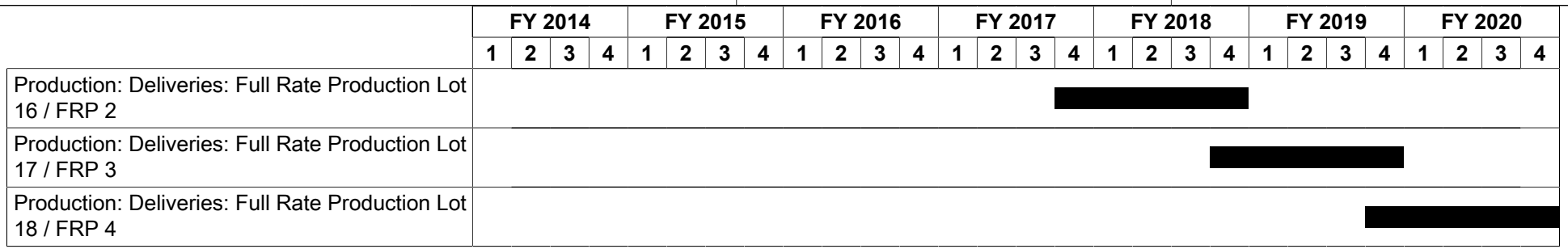

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207161F / *Tactical AIM Missiles*	**Project (Number/Name)** 674132 / *AIM-9 Product Improvement*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
T&E Milestones: Block II Development Test: v9.3 Operational Test (OT-C1)	1	2014	2	2015
T&E Milestones: Block II Development Test: v9.4 Development Test (DT-D1)	1	2015	2	2017
T&E Milestones: Block II Development Test: v9.4 Integrated Development/Operational Test (IT-D1)	2	2017	1	2018
T&E Milestones: Block II Development Test v9.4 Operational Test (OT-D1)	1	2018	1	2019
Production: Block II Contract Award: Low Rate Inital Production (LRIP 4)	3	2014	3	2014
Production: Block II Contract Award: Full Rate Production (FRP 1)	4	2015	4	2015
Production: Block II Contract Award: Full Rate Production (FRP 2)	2	2016	2	2016
Production: Block II Contract Award: Full Rate Production (FRP 3)	2	2017	2	2017
Production: Block II Contract Award: Full Rate Production (FRP 4)	2	2018	2	2018
Production: Block II Contract Award: Full Rate Production (FRP 5)	2	2019	2	2019
Production: Deliveries: Low Rate Initial Production Lot 12 / LRIP 2	1	2014	4	2014
Production: Deliveries: Low Rate Initial Production Lot 13 / LRIP 3	4	2014	4	2015
Production: Deliveries: Low Rate Initial Production Lot 14 / LRIP 4	4	2015	4	2016
Production: Deliveries: Full Rate Production Lot 15 / FRP 1	4	2016	4	2017
Production: Deliveries: Full Rate Production Lot 16 / FRP 2	4	2017	4	2018
Production: Deliveries: Full Rate Production Lot 17 / FRP 3	4	2018	4	2019
Production: Deliveries: Full Rate Production Lot 18 / FRP 4	4	2019	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	311.325	68.564	82.195	46.160	-	46.160	55.444	61.612	65.733	66.910	86.000	843.943
673777: *AMRAAM*	311.325	68.564	82.195	46.160	-	46.160	55.444	61.612	65.733	66.910	86.000	843.943
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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, a two-way datalink capability for enhanced aircrew survivability and improved network compatibility, and incorporates new guidance software which improves kinematic performance and weapon effectiveness. The AIM-120D Operational Test Readiness Review was conducted in May 2012. Operational Testing (OT) was completed in July 2014. The aircraft integration program maintains compatibility/ performance of the missile with changes occurring on threshold AMRAAM platforms per CPD (Capability Production Document). 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	70.614	82.195	46.467	-	46.467
Current President's Budget	68.564	82.195	46.160	-	46.160
Total Adjustments	-2.050	-	-0.307	-	-0.307
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.050	-			
• Other Adjustments	-	-	-0.307	-	-0.307

Change Summary Explanation

No Significant Program Changes

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: System Improvement Program (SIP)/Electronic Protection Improvement Program (EPIP)	34.053	44.050	29.662
Description: Provide system improvements/electronic protection improvements			

FY 2014 Accomplishments:

1. EPIP Basic: Continued Basic EPIP C-7 dedicated OT flight test program. Activities underway to release the tactical software to reprogram fielded missiles. Completed Basic EPIP C-3 thru C-6 IT live fire missions.

EPIP Advanced: Continued Advanced EPIP implementation effort to address advanced threats in AIM-120C-7 missiles. Continuing advanced EPIP DT captive carry program. In addition, completed upgrades to China Lake Hardware-in-the-Loop (HWIL) facility to support the Advanced EPIP program.

2. AIM-120D SIP: Continued SIP-1 design implementation and released engineering software to begin captive flight testing of the first 120D improvement software tape. Awarded the contract for SIP-2 risk reduction through Preliminary Design Review (PDR), completed a System Requirement Review, and continued candidate evaluation and preliminary design activities. Continued study of efficient/effective integration of other system improvements resulting from parts obsolescence issues and cost reduction initiatives to keep pace with evolving threats.

FY 2015 Plans:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
1. EPIP Basic: Completes Basic EPIP dedicated OT flight test program for AIM-120C-3 through C-6 configurations and releases software to the field. EPIP Advanced: Continues implementation effort to address advanced threats in AIM-120C-7 missiles. Continues Tape 1 DT captive flight test and begins IT live fire shots. Continues Tape 2 development and DT captive flight test. Tape 2 CDR is conducted. 2. AIM-120D SIP: Continues SIP-1 design implementation and released engineering software to begin captive flight testing of the first AIM-120D improvement software tape. Completes development, Functional Configuration Audit (FCA), Operational Test Readiness Review (OTRR), and operational test of AIM-120D SIP 1 tactical software. Continues SIP-2 risk reduction which will culminate with a Preliminary Design Review (PDR), complete a System Functional Review, and continue candidate evaluation and preliminary design activities. Activities underway to award the Engineering, Manufacturing and Development (EMD) phase of SIP 2. ***FY 2016 Plans:*** 1. EPIP Advanced: Completes Tape 1 final IT live-fire shots and then the dedicated OT live-fire shots. Continues Tape 2 development efforts and captive flight test. 2. AIM-120D SIP: Fields SIP 1 tactical software at the completion of a successful OT program. Continues candidate evaluation/ selection and preliminary design activities, collects and assesses lab and/or captive flight tests data to evaluate performance and feasibility of potential upgrades. Continues the EMD phase and conducts a Critical Design Review (CDR) for the first SIP 2 increment. Begins the risk reduction activities for SIP 2, Increment 2 design candidates.			
Title: Test and Evaluation ***Description:*** Test and evaluation; Provides support to DT/OT ***FY 2014 Accomplishments:*** Completed dedicated AIM-120D OT. Accomplished OT Readiness Review (OTRR), certified the missile ready for dedicated OT, and dedicated OT captive carry and free flight on F/A-18E/F and F-15C/D. Continued infrastructure investments to support AIM-120D OT, SIP, and EPIP activities. Completed EPIP Basic C-7 dedicated OT live fire program. Completed Basic EPIP C-3 thru C-6 IT live fire program. Continued Advanced EPIP DT captive carry program. ***FY 2015 Plans:*** Completes Basic EPIP dedicated OT flight test program for AIM-120C-3 through C-6 configurations and releases software to the field. Continues Advanced EPIP Tape 1 DT captive flight test and begins IT live fire shots. Continues Advanced EPIP Tape 2	10.618	9.250	6.878

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
development and DT captive flight test. Continues infrastructure investments to support test activities. Continues SIP 1 captive and IT shots, followed by dedicated OT. ***FY 2016 Plans:*** Completes Advanced EPIP Tape 1 final IT live-fire shots and then the dedicated OT live-fire shots. Continues Advanced EPIP Tape 2 development efforts and captive flight test. Completes AIM-120D SIP 1 OT and begins SIP 2 DT/captive flight testing during EMD. Continues infrastructure investments to support test activities.			
Title: Aircraft Integration ***Description:*** Aircraft Integration - Integrate AIM-120D on multiple aircraft platforms ***FY 2014 Accomplishments:*** Continued integration and testing of AIM-120D on multiple threshold aircraft platforms. ***FY 2015 Plans:*** Continues integration and testing of AIM-120D on multiple threshold aircraft platforms. ***FY 2016 Plans:*** Continues integration and testing of AIM-120D on multiple threshold aircraft platforms.	23.893	28.895	9.620
Accomplishments/Planned Programs Subtotals	68.564	82.195	46.160

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA02: Line Item # MAMRA0: *Missile Procurement, Air Force*	318.415	329.600	390.112	-	390.112	373.798	451.265	486.862	475.166	1,681.799	12,559.878
• MPAF: BA04: Line Item # 00099K: *Initial Spares/Repair Parts*	0.084	2.062	1.996	-	1.996	2.089	2.080	2.060	2.097	-	-
• WPN: BA02: Line Item # 2206: *Weapons Procurement, Navy*	82.529	2.165	192.873	-	192.873	207.280	265.491	275.970	272.424	1,454.516	4,809.777
• RDTE: BA07: Line Item # 0981: *RDTE, Navy*	2.575	10.210	32.172	-	32.172	44.094	46.007	32.156	32.828	139.573	456.234

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*

E. Acquisition Strategy

Post-OT missile improvements are underway as part of the AIM-120D upgrade program. The SIP, Increment 1 (SIP-1) continues and is expected to field in early FY16. Additional SIP increments are in the planning phase and will further improve the AIM-120D to meet emerging warfighter requirements. SIP 2 EMD contract award is planned for 3rd Qtr FY15 to incorporate Basic EPIP into AIM-120D, with forecasted fielding in FY18. SIP increment 3 EMD contract award is planned for FY17 with fielding in FY20.

The EPIP is also underway to keep AIM-120C missiles capable against the growing electronic attack threat environment. EPIP Basic capability for the C-7 missile will field in early FY15. EPIP Basic capability for the C-3 thru C-6 missiles will field later in FY15. Additional capabilities (EPIP Advanced) are in the development stage with initial fielding projected for FY17 for tape 1 and FY18 for tape 2.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*	**Project (Number/Name)** 673777 / *AMRAAM*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Improvement Program (SIP)/Electronic Protection (EP)	SS/CPFF	Raytheon : Tucson, AZ	141.602	33.147	Mar 2014	42.777	Mar 2015	28.381	Mar 2016	-		28.381	193.934	439.841	TBD
F-22 Aircraft Integration	MIPR	Wright-Patterson AFB : Dayton, OH	66.572	20.830	Jan 2014	23.940	Jan 2015	5.820	Jan 2016	-		5.820	-	117.162	TBD
RMS Aircraft Integration	SS/CPFF	Raytheon : Tucson, AZ	0.000	3.063	Jan 2014	4.955	Jan 2015	3.800	Jan 2016	-		3.800	39.500	51.318	TBD
		Subtotal	208.174	57.040		71.672		38.001		-		38.001	233.434	608.321	-

Remarks

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Test	Various	Various : Various,	14.723	1.678	Jan 2014	3.927	Jan 2015	1.136	Jan 2016	-		1.136	46.521	67.985	-
RMS Test	SS/CPFF	Raytheon : Various, AZ	77.917	8.940	Jan 2014	5.323	Jan 2015	5.742	Jan 2016	-		5.742	44.740	142.662	TBD
		Subtotal	92.640	10.618		9.250		6.878		-		6.878	91.261	210.647	-

Remarks

Various = T&E activities take place at numerous locations across the US. Too many activities and locations to list.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*	**Project (Number/Name)** 673777 / *AMRAAM*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various,	10.511	0.906	Jan 2014	1.273	Jan 2015	1.281	Jan 2016	-		1.281	11.004	24.975	-
		Subtotal	10.511	0.906		1.273		1.281		-		1.281	11.004	24.975	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	311.325	68.564		82.195		46.160		-		46.160	335.699	843.943	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*	**Project (Number/Name)** 673777 / *AMRAAM*

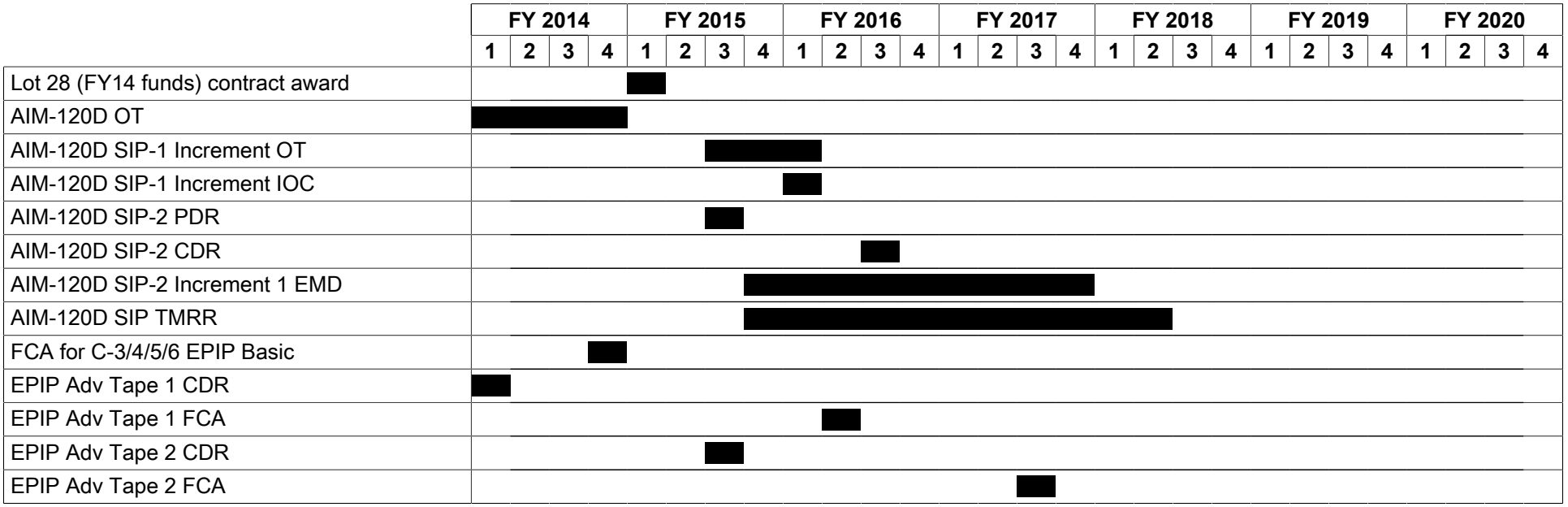

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207163F / *Advanced Medium Range Air-to-Air Missile (AMRAAM)*	**Project (Number/Name)** 673777 / *AMRAAM*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Lot 28 (FY14 funds) contract award	1	2015	1	2015
AIM-120D OT	1	2014	4	2014
AIM-120D SIP-1 Increment OT	3	2015	1	2016
AIM-120D SIP-1 Increment IOC	1	2016	1	2016
AIM-120D SIP-2 PDR	3	2015	3	2015
AIM-120D SIP-2 CDR	3	2016	3	2016
AIM-120D SIP-2 Increment 1 EMD	4	2015	4	2017
AIM-120D SIP TMRR	4	2015	2	2018
FCA for C-3/4/5/6 EPIP Basic	4	2014	4	2014
EPIP Adv Tape 1 CDR	1	2014	1	2014
EPIP Adv Tape 1 FCA	2	2016	2	2016
EPIP Adv Tape 2 CDR	3	2015	3	2015
EPIP Adv Tape 2 FCA	3	2017	3	2017

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force												Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207171F / *F-15 EPAWSS*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	38.944	-	-	-	-	-	-	-	-	38.944
676038: *EPAWSS*	0.000	-	38.944	-	-	-	-	-	-	-	-	38.944
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Project 676038 EPAWSS efforts were transferred from PE 0207134F, F-15 EPAWSS, Project 670131, Initial Operation Test and Evaluation to improve transparency for ACAT I program.

In FY 2016, PE 0207171F, F-15 EPAWSS, Project 676038 was transferred to PE 0207171F, F-15 EPAWSS, Project 657108 BA05 to align BA with stage of development.

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 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207171F / *F-15 EPAWSS*

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	68.944	160.521	-	160.521
Current President's Budget	-	38.944	-	-	-
Total Adjustments	-	-30.000	-160.521	-	-160.521
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-30.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-160.521	-	-160.521

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Eagle Passive/Active Warning Survivability System (EPAWSS)	-	38.944	-
Description: Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition related studies. ***FY 2014 Accomplishments:*** Included in PE 027134F, Project Number 670131.Completed requirements development and obtained JROC approval of CDD. Completed SRD development and released RFP for TMRR design contract. ***FY 2015 Plans:*** Award and execute TMRR design contract. Develop and release Request for Proposal for EMD contract. Continue acquisition planning for EMD and Milestone B. Continue acquisition and technical related studies.			
Accomplishments/Planned Programs Subtotals	-	38.944	-

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F15EWS: *Aircraft Modification*	-	-	-	-	-	-	-	-	-	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207171F / *F-15 EPAWSS*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / *F-15 EPAWSS*	Project (Number/Name) 676038 / *EPAWSS*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
F-15 EPAWSS TMRR	TBD	TBD : TBD,	0.000	-		28.779	Aug 2015	-		-		-	-	28.779	28.088
F-15 EPAWSS (EMD Effort)	TBD	TBD : TBD,	0.000	-		-		-		-		-	-	-	-
F-15 EPAWSS	Various	Various : Various,	0.000	-		8.913	Aug 2015	-		-		-	-	8.913	9.764
		Subtotal	0.000	-		37.692		-		-		-	-	37.692	-

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.

FY14PB - Project 670131 includes EPAWSS.

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.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207171F / *F-15 EPAWSS*	Project (Number/Name) 676038 / *EPAWSS*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support Costs	Various	Various : Various,	0.000	-		1.252	Sep 2015	-		-		-	-	1.252	-
		Subtotal	0.000	-		1.252		-		-		-	-	1.252	-

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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		38.944		-		-		-	-	38.944	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207171F / *F-15 EPAWSS*	**Project (Number/Name)** 676038 / *EPAWSS*

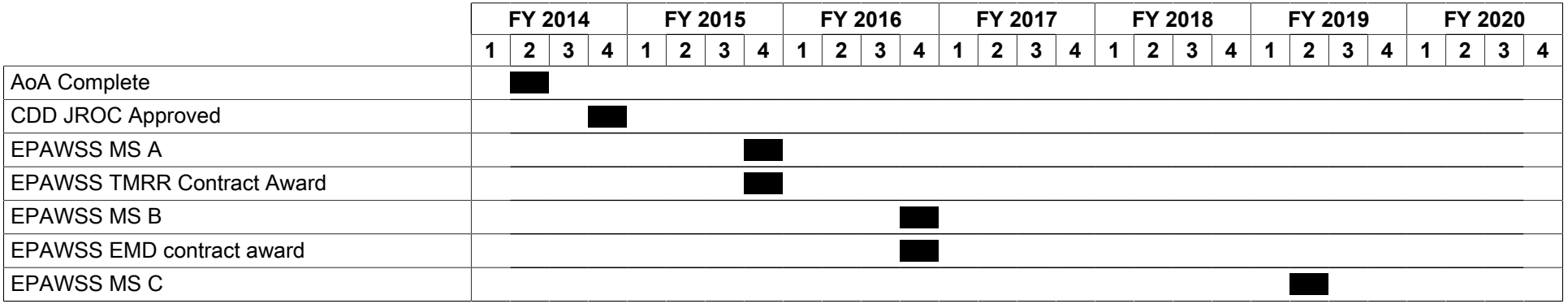

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207171F / *F-15 EPAWSS*	**Project (Number/Name)** 676038 / *EPAWSS*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AoA Complete	2	2014	2	2014
CDD JROC Approved	4	2014	4	2014
EPAWSS MS A	4	2015	4	2015
EPAWSS TMRR Contract Award	4	2015	4	2015
EPAWSS MS B	4	2016	4	2016
EPAWSS EMD contract award	4	2016	4	2016
EPAWSS MS C	2	2019	2	2019

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207224F / *Combat Rescue and Recovery*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	2.582	5.095	0.412	-	0.412	-	-	-	-	-	8.089
676016: *Avionics Development and Integration*	-	2.582	5.095	0.412	-	0.412	-	-	-	-	-	8.089
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 676016, Avionics Development and Integration will complete.

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)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	2.582	5.095	0.415	-	0.415
Current President's Budget	2.582	5.095	0.412	-	0.412
Total Adjustments	-	-	-0.003	-	-0.003
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.003	-	-0.003

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Avionics Development and Integration	2.582	5.095	0.412	-	0.412

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207224F / *Combat Rescue and Recovery*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Program focuses on developing and integrating technologies that will increase the situational awareness of helicopter crews in a degraded visibility environment. ***FY 2014 Accomplishments:*** Provided integration contracting support, program management, engineering, simulation, software support, and second developmental flight test. Completed integrated payload design. Completed Military Utility Assessment. ***FY 2015 Plans:*** Provided program management, engineering, software support to build and qualify integrated Forward Looking InfraRed/Laser Radar Turrets for HH-60G. ***FY 2016 Base Plans:*** Provides program management to advance Laser Radar development and landing guidance symbology integration. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	2.582	5.095	0.412	-	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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207224F / *Combat Rescue and Recovery*	Project (Number/Name) 676016 / *Avionics Development and Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	C/CPFF	Raytheon Space and Airborne Systems : El Segundo, CA	-	1.018	Mar 2014	4.100	Nov 2014	-		-		-	Continuing	Continuing	-
		Subtotal	-	1.018		4.100		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test	MIPR	Aero Flight Dynamics Directorate : Moffett Field, CA	-	1.118	Jun 2014	0.885	Feb 2015	-		-		-	Continuing	Continuing	-
		Subtotal	-	1.118		0.885		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	AFRL : Eglin AFB, FL	-	0.446	Feb 2014	0.110	Jan 2015	0.412	Jan 2016	-		0.412	Continuing	Continuing	-
		Subtotal	-	0.446		0.110		0.412		-		0.412	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207224F / *Combat Rescue and Recovery*	Project (Number/Name) 676016 / *Avionics Development and Integration*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	2.582		5.095		0.412		-		0.412	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207224F / *Combat Rescue and Recovery*	**Project (Number/Name)** 676016 / *Avionics Development and Integration*

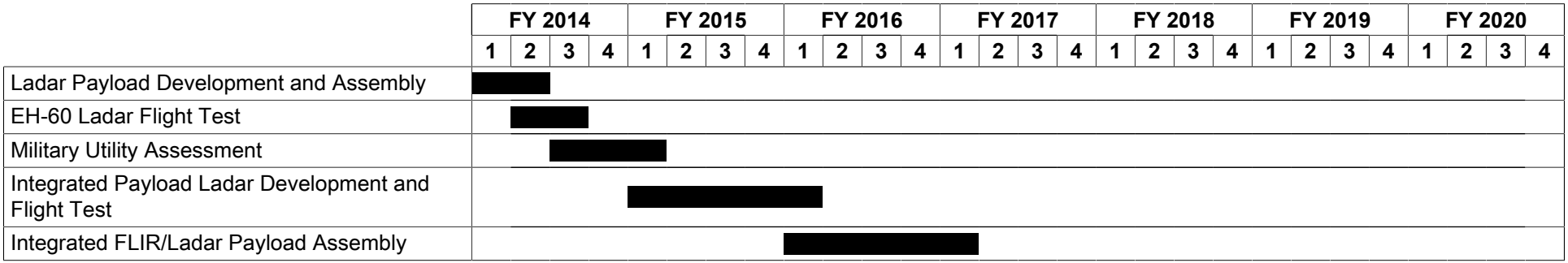

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207224F / *Combat Rescue and Recovery*	**Project (Number/Name)** 676016 / *Avionics Development and Integration*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ladar Payload Development and Assembly	1	2014	2	2014
EH-60 Ladar Flight Test	2	2014	3	2014
Military Utility Assessment	3	2014	1	2015
Integrated Payload Ladar Development and Flight Test	1	2015	1	2016
Integrated FLIR/Ladar Payload Assembly	1	2016	1	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207227F / *Combat Rescue - Pararescue*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.350	0.883	0.657	-	0.657	0.708	0.697	0.657	0.669	Continuing	Continuing
675352: *Guardian Angel RDT&E*	-	0.350	0.883	0.657	-	0.657	0.708	0.697	0.657	0.669	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 Guardian Angel Air Operations Kit. The Guardian Angel weapon system development activities also include studies, analysis, 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.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	0.350	0.883	0.791	-	0.791
Current President's Budget	0.350	0.883	0.657	-	0.657
Total Adjustments	-	-	-0.134	-	-0.134
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.134	-	-0.134

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207227F / *Combat Rescue - Pararescue*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Guardian Angel Family of Systems (FoS)	0.350	0.883	0.657
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 infill/exfill, and ground recovery operations. ***FY 2014 Accomplishments:*** Completed development of software plug-ins, software updates, and integration for inclusion of Medical 9 Line and CSAR 15 Line form templates in GAO Kit software for greater battlefield situational awareness and patient care. In addition, additional training was required to be developed and conducted to support government testing events for the GAO Kit software and equipment. Continued development efforts and studies for Remote Patient Monitoring and Digital Enhanced Vision Devices as tools for use within the GAO Kit. Continued exploration and studies of an upgraded Fire Suppression System for Technical Recovery that will increase pararescue capabilities for extraction of personnel and equipment. ***FY 2015 Plans:*** Continue execution and development of previous year's acquisition activities. Complete test, study, strategic planning, and development activities for increased capability and address Engineering Change Proposals as needed. 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 2016 Plans:*** Will continue execution and development of previous year's acquisition activities. Will complete test, study, strategic planning, and development activities for increased capability and address Engineering Change Proposals as needed. 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	0.350	0.883	0.657

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA04: Line Item # 842990: *Items Less than $5M (Safety)*	19.593	24.174	11.924	-	11.924	28.551	25.828	22.025	22.415	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207227F / *Combat Rescue - Pararescue*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA02: Line Item# 823230: *Security and Tactical Vehicles*	0.580	3.719	3.911	-	3.911	3.983	4.054	4.126	4.200	Continuing	Continuing
• OPAF: BA04: Line Item# 842140: *Night Vision Goggles*	2.430	2.409	0.801	-	0.801	-	-	-	-	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 one). The program will also address future requirements for the weapon system that will encompass the needs of all three GA career fields (Phase two).

Phase two of the GA program is an incremental evolutionary acquisition effort in which requirements are fullfilled through further sub-system development and integration. These requirements are being identified in an ongoing study conducted 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / *Combat Rescue - Pararescue*	Project (Number/Name) 675352 / *Guardian Angel RDT&E*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GA Family Of Systems	Various	Various : Various,	-	-		0.883	Jan 2015	0.657	Jan 2016	-		0.657	Continuing	Continuing	TBD
		Subtotal	-	-		0.883		0.657		-		0.657	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GAO Kit Software	C/Various	413 TS : WPAFB, OH	-	0.300	Sep 2014	-		-		-		-	Continuing	Continuing	TBD
Test Agency Support	RO	46TS : Eglin AFB, FL	-	0.050	Mar 2014	-		-		-		-	Continuing	Continuing	TBD
		Subtotal	-	0.350		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.350		0.883		0.657		-		0.657	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207227F / *Combat Rescue - Pararescue*	**Project (Number/Name)** 675352 / *Guardian Angel RDT&E*

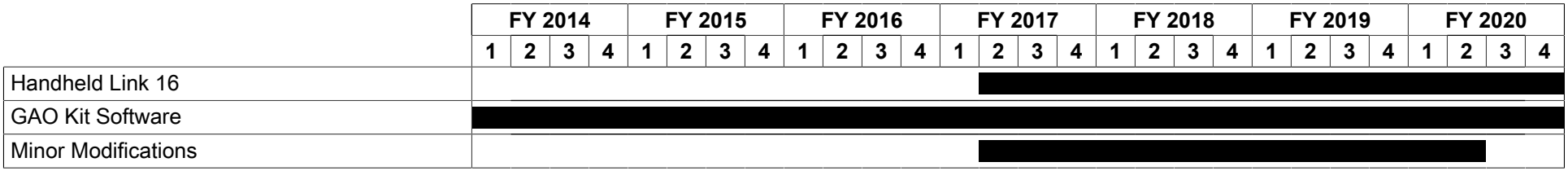

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207227F / *Combat Rescue - Pararescue*	**Project (Number/Name)** 675352 / *Guardian Angel RDT&E*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Handheld Link 16	2	2017	4	2020
GAO Kit Software	1	2014	4	2020
Minor Modifications	2	2017	2	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207247F / *AF TENCAP*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	114.816	5.812	31.428	-	31.428	24.197	18.042	18.382	18.710	Continuing	Continuing
670001: *Air Force TENCAP*	-	114.816	5.812	31.428	-	31.428	24.197	18.042	18.382	18.710	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 future air, space, cyber, national and global ISR and NTISR while providing awareness to warfighters and 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.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	89.816	5.812	31.637	-	31.637
Current President's Budget	114.816	5.812	31.428	-	31.428
Total Adjustments	25.000	-	-0.209	-	-0.209
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	25.000	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.209	-	-0.209

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*

Change Summary Explanation

FY14 - $25M Military Intelligence Program (MIP) Omnibus request for Talon HATE.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Exploitation Applications	11.995	5.812	31.428
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. NOTE: Based on available funding and requirements, number of Talon projects could fluctuate each year. ***FY 2014 Accomplishments:*** Continued rapid prototype development of AF TENCAP portfolio comprised of 31 Talon projects across the Air Force's twelve core function mission areas. (Talon is an approved and funded AF TENCAP effort). ***FY 2015 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). Continuing to execute projects which provided continued support to the National Warfighter, Operational and Tactical Warfighter, and Special Operations Forces. ***FY 2016 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.			
Title: Talon Hate	74.000	-	-
Description: In support of PACOM requirement, Talon HATE is a technology demonstration 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 targeting, situational awareness, and an enhanced decision-maker Common Operational Picture. This effort will increase interoperability between joint (Air Force, Navy) forces in contested environments. ***FY 2014 Accomplishments:*** Continued development of four multi-domain fused information pods on F-15s. Cost of all ancillary equipment including antennas is included. ***FY 2015 Plans:***			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Using FY14 funding; continuing development, testing, and fielding of four multi-domain fused information pods on F-15s. ***FY 2016 Plans:*** N/A			
Title: Increased Lethality in a Contested Environment (Talon Hate II) ***Description:*** Technology demonstrations to evaluate the military utility of providing additional capability to Talon HATE next-generation capability for the F-15C. This effort provides enhanced multi-domain fused information to tactical users, targeting, situational awareness, and an enhanced decision-maker Common Operational Picture. This effort will increase interoperability between joint (Air Force, Navy) forces in contested environments. ***FY 2014 Accomplishments:*** Developed and built capability to provide enhanced multi-domain fused information to tactical users, targeting, situational awareness, and an enhanced decision-maker Common Operational Picture. This effort increased interoperability between joint (Air Force, Navy) forces in contested environments. ***FY 2015 Plans:*** Using FY14 funding; developing, testing, integrating, and evaluating capability to provide enhanced multi-domain fused information to tactical users, targeting, situational awareness, and an enhanced decision-maker Common Operational Picture. Effort continuing to increase interoperability between joint (Air Force, Navy) forces in contested environments. ***FY 2016 Plans:*** N/A	28.821	-	-
Accomplishments/Planned Programs Subtotals	114.816	5.812	31.428

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• Not applicable: *N/A*	-	-	-	-	-	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

Projects are selected for development based upon needs identified by the program's customers - DOD Departments, Combatant Commands, Components, MAJCOMs, and/or National Intelligence Agencies. Acquisition strategies are developed using a segmented gate strategy to limit and control risks. 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

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*

Announcements. The U.S. government organization sponsoring a project is responsible for assuming acquisition, deployment, logistics, 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / *AF TENCAP*	Project (Number/Name) 670001 / *Air Force TENCAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Exploitation Applications	Various	Various : Various,	-	11.292	Dec 2013	5.462	Dec 2014	30.178	Dec 2015	-		30.178	-	46.932	-
Talon Hate	MIPR	Boeing/Various : Huntington Beach/ Various, CA	-	72.960	Dec 2013	-		-		-		-	-	72.960	-
Increased Lethality in a Contested Environment (Talon Hate II)	MIPR	Lockheed Martin : Orlando, FL	-	28.821	Dec 2013	-		-		-		-	-	28.821	-
		Subtotal	-	113.073		5.462		30.178		-		30.178	-	148.713	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Oversight (PMA)	Various	Various : Various,	-	0.703	Dec 2013	0.350	Dec 2014	1.250	Dec 2015	-		1.250	-	2.303	-
Program Support - Talon Hate	Various	Various : Various,	-	1.040	Dec 2013	-		-		-		-	-	1.040	-
		Subtotal	-	1.743		0.350		1.250		-		1.250	-	3.343	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / *AF TENCAP*	Project (Number/Name) 670001 / *Air Force TENCAP*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	114.816		5.812		31.428		-		31.428	-	152.056	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*	**Project (Number/Name)** 670001 / *Air Force TENCAP*

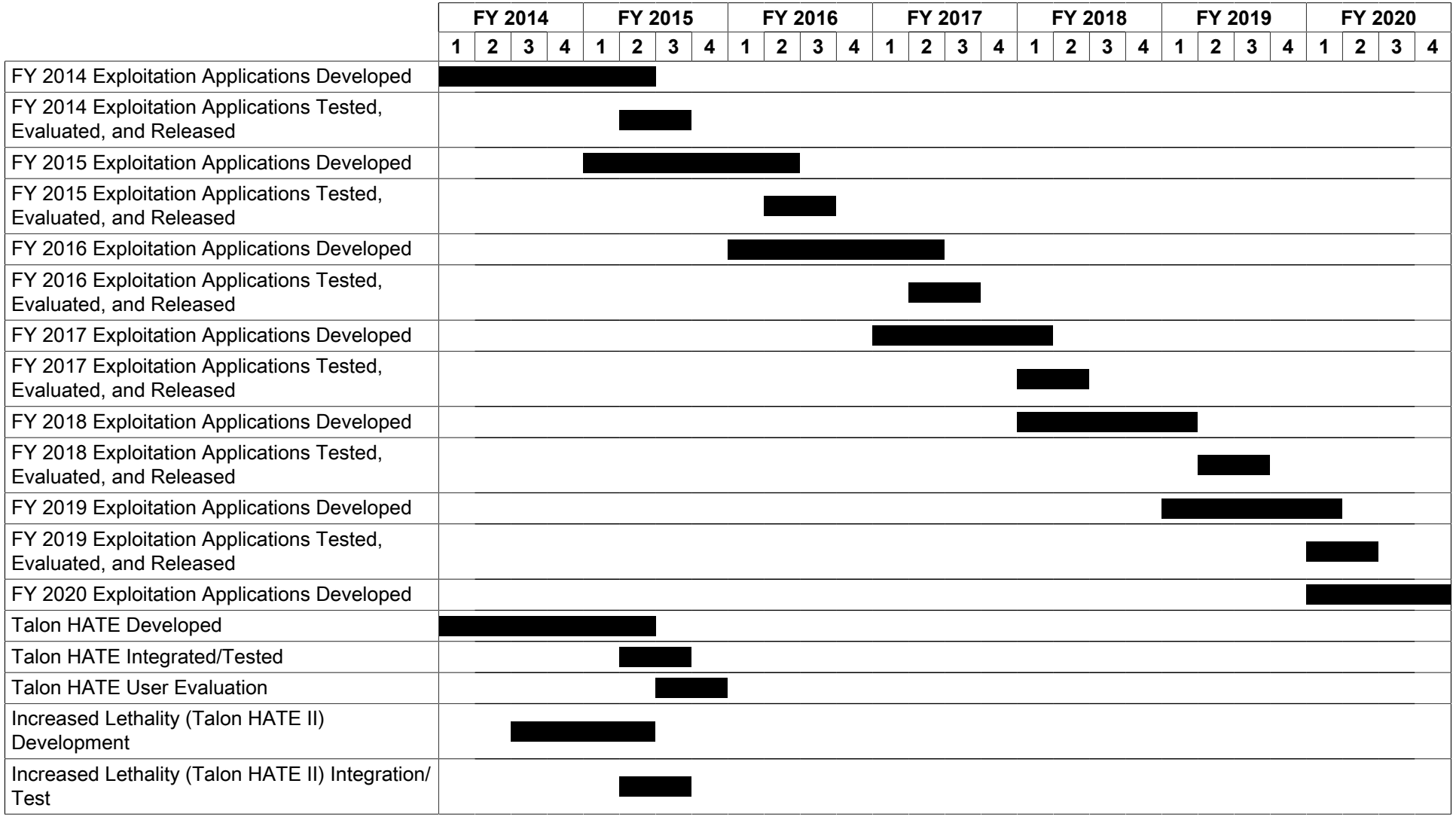

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*	**Project (Number/Name)** 670001 / *Air Force TENCAP*

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increased Lethality (Talon HATE II) User Evaluation							[redacted]																					

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207247F / *AF TENCAP*	**Project (Number/Name)** 670001 / *Air Force TENCAP*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FY 2014 Exploitation Applications Developed	1	2014	2	2015
FY 2014 Exploitation Applications Tested, Evaluated, and Released	2	2015	3	2015
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	1	2018
FY 2017 Exploitation Applications Tested, Evaluated, and Released	1	2018	2	2018
FY 2018 Exploitation Applications Developed	1	2018	1	2019
FY 2018 Exploitation Applications Tested, Evaluated, and Released	2	2019	3	2019
FY 2019 Exploitation Applications Developed	1	2019	1	2020
FY 2019 Exploitation Applications Tested, Evaluated, and Released	1	2020	2	2020
FY 2020 Exploitation Applications Developed	1	2020	4	2020
Talon HATE Developed	1	2014	2	2015
Talon HATE Integrated/Tested	2	2015	3	2015
Talon HATE User Evaluation	3	2015	4	2015
Increased Lethality (Talon HATE II) Development	3	2014	2	2015
Increased Lethality (Talon HATE II) Integration/Test	2	2015	3	2015
Increased Lethality (Talon HATE II) User Evaluation	3	2015	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207249F / *Precision Attack Systems Procurement*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	2.000	1.081	1.105	-	1.105	1.114	1.135	1.157	1.178	Continuing	Continuing
675347: *Advanced Targeting Pod*	-	2.000	1.081	1.105	-	1.105	1.114	1.135	1.157	1.178	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.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	2.000	1.081	1.112	-	1.112
Current President's Budget	2.000	1.081	1.105	-	1.105
Total Adjustments	-	-	-0.007	-	-0.007
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.007	-	-0.007

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207249F / *Precision Attack Systems Procurement*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Advanced Targeting Pod - Sensor Enhancement (ATP-SE) Requirements	2.000	1.081	1.105	-	1.105
Description: ATP-SE technology improvements, requirements definition (studies, analysis and assessments). ***FY 2014 Accomplishments:*** Developed ATP-SE digital video interface for Air National Guard. ***FY 2015 Plans:*** Accomplishing ATP-SE technology improvements,requirements definition, studies, analysis and assessments. ***FY 2016 Base Plans:*** Accomplish further ATP-SE technology improvements,requirements definition, studies, analysis and assessments. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	2.000	1.081	1.105	-	1.105

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA07: LINE ITEM# OTHACF: *PE 0207249F, Precision Attack Systems*	25.517	21.036	16.543	-	16.543	17.653	17.897	18.100	18.425	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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / *Precision Attack Systems Procurement*	Project (Number/Name) 675347 / *Advanced Targeting Pod*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Improvement, Tech Analysis, Studies & Assessments	C/FFP	Multiple : ,	-	2.000	Jun 2014	1.081	Feb 2015	1.105	Feb 2016	-		1.105	Continuing	Continuing	-
		Subtotal	-	2.000		1.081		1.105		-		1.105	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	2.000		1.081		1.105		-		1.105	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207249F / *Precision Attack Systems Procurement*	**Project (Number/Name)** 675347 / *Advanced Targeting Pod*

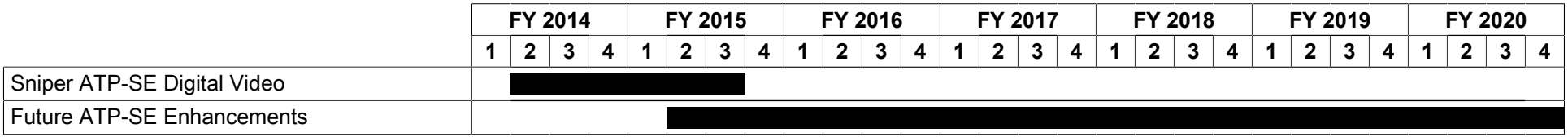

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207249F / *Precision Attack Systems Procurement*	**Project (Number/Name)** 675347 / *Advanced Targeting Pod*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Sniper ATP-SE Digital Video	2	2014	3	2015
Future ATP-SE Enhancements	2	2015	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207253F / *Compass Call*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	10.745	14.315	14.249	-	14.249	13.860	14.132	14.400	14.658	Continuing	Continuing
674804: *Compass Call*	-	10.745	14.315	14.249	-	14.249	13.860	14.132	14.400	14.658	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 configuration. 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 EC-130H COMPASS CALL is a level of effort funded program and employs an incremental development and fielding strategy that puts capability into the warfighter's hands as soon as practical and ensures each iteration of the weapon system is effective against the highest priority threats. 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 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 (glass cockpits), network centric operations, phased array transmit and receive apertures and other classified hardware and software developments necessary to counter military and commercial communications evolutions, command and control operations enhancements, and new/emerging sensor developments. Funding in FY 2016 is required to support RDT&E efforts for Baseline 3 (BL3) upgrades to the EC-130H COMPASS CALL fleet and ground systems/simulators. The BL2 and BL3 programmed requirements have advanced significantly over the two previously fielded baselines. BL2 and BL3 upgrades will help cover the electronic attack shortfall in the foreseeable future. Obsolescence and diminishing manufacturing sources (DMS)/Vanishing Vendor Items (VVI) are addressed with each baseline upgrade as well as annually as part of the sustainment responsibilities. The two COMPASS CALL Mission Crew Simulators (CCMCS) 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) will mirror the capabilities of the fielded aircraft's cockpit avionics and communications equipment as well.

Activities also include studies and analysis to support both current and future program planning and execution.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207253F / *Compass Call*

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	10.745	14.411	14.344	-	14.344
Current President's Budget	10.745	14.315	14.249	-	14.249
Total Adjustments	-	-0.096	-0.095	-	-0.095
• Congressional General Reductions	-	-0.096			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.095	-	-0.095

Change Summary Explanation

FY 2016 (-0.095M) adjustment required to fund other AF higher priorities

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Baseline Upgrade Development	10.745	14.315	14.249

Description: Supports Baseline development, integration and test, plus Special Purpose Emitter Array (SPEAR) Generation 3 for Baseline 2, and Baseline 3 non-recurring engineering (NRE).

FY 2014 Accomplishments:

Continued Baseline 3 development of new IR counter-measures and counter-radar technologies, new receiver technologies, Human-Machine Interface, New Array, New Target Development, Advanced Commercial and Military Communications, Counter Radar and Counter Satellite Navigation Techniques, and Target Development.

FY 2015 Plans:

Continue Baseline 3 development of new counter-radar technologies, new receiver technologies, Human Machine Interface, New Array, New Target Development, Advanced Commercial and Military Communications, Counter Radar and Counter Satellite Navigation Techniques, Target Development, and Digital Avionics (glass cockpit) enhancements.

FY 2016 Plans:

Plans to continue Baseline 3 development of new counter-radar technologies, new receiver technologies, Human Machine Interface, New Array, New Target Development, Advanced Commercial and Military Communications, and initiate Mid-Baseline

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207253F / *Compass Call*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
3 development to include Counter Radar and Counter Satellite Navigation Techniques, Target Development, and Digital Avionics (glass cockpit) enhancements.			
Accomplishments/Planned Programs Subtotals	10.745	14.315	14.249

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line item# CALL00: *Compass Call Mods*	29.494	82.628	68.415	-	68.415	35.315	36.262	36.920	37.544	Continuing	Continuing
• APAF: BA06: Line item# CALL00: *Compass Call Mod Spares*	10.222	12.458	10.529	-	10.529	11.015	11.014	10.792	10.974	Continuing	Continuing

Remarks

FY 2015 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). 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 (COCOM) 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / *Compass Call*	Project (Number/Name) 674804 / *Compass Call*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Mission Equipment	SS/CPFF	BAE Sytems : Nashua, NH	-	10.745	Nov 2013	14.315	Dec 2014	14.249	Dec 2015	-		14.249	Continuing	Continuing	TBD
		Subtotal	-	10.745		14.315		14.249		-		14.249	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	10.745		14.315		14.249		-		14.249	-	-	-

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.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207253F / *Compass Call*	**Project (Number/Name)** 674804 / *Compass Call*

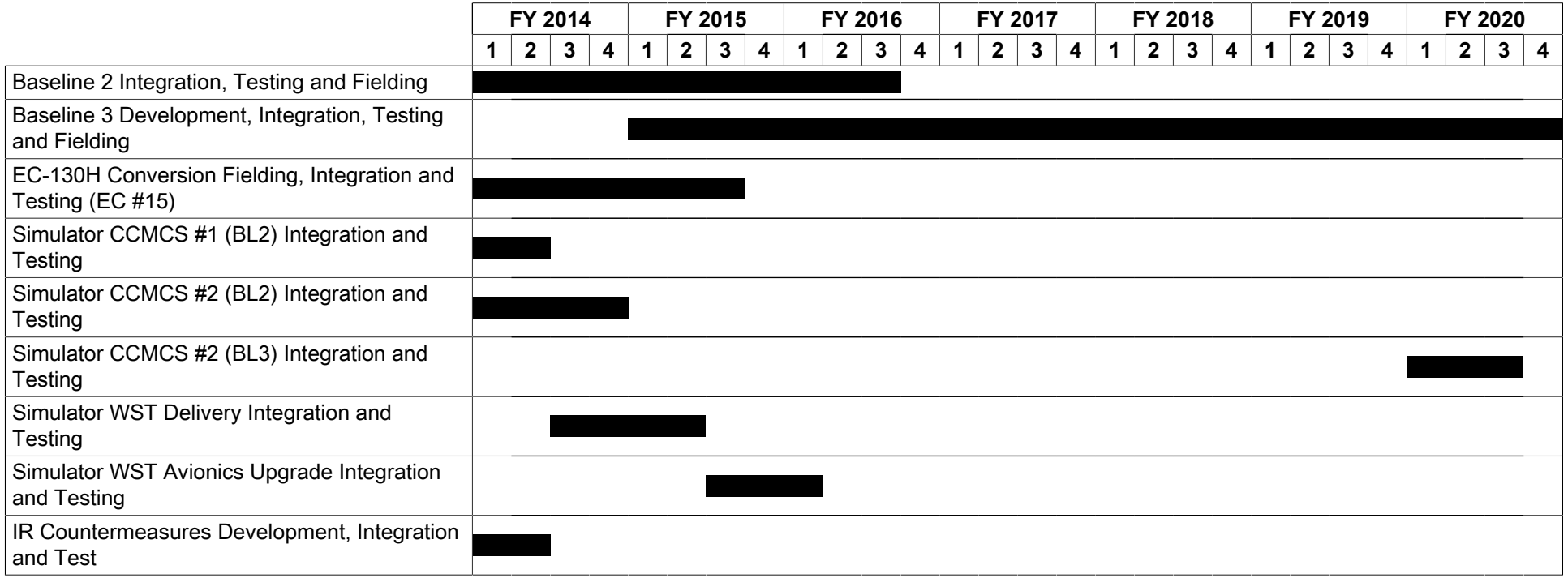

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207253F / *Compass Call*	**Project (Number/Name)** 674804 / *Compass Call*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Baseline 2 Integration, Testing and Fielding	1	2014	3	2016
Baseline 3 Development, Integration, Testing and Fielding	1	2015	4	2020
EC-130H Conversion Fielding, Integration and Testing (EC #15)	1	2014	3	2015
Simulator CCMCS #1 (BL2) Integration and Testing	1	2014	2	2014
Simulator CCMCS #2 (BL2) Integration and Testing	1	2014	4	2014
Simulator CCMCS #2 (BL3) Integration and Testing	1	2020	3	2020
Simulator WST Delivery Integration and Testing	3	2014	2	2015
Simulator WST Avionics Upgrade Integration and Testing	3	2015	1	2016
IR Countermeasures Development, Integration and Test	1	2014	2	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	86.467	94.177	103.942	-	103.942	110.954	109.981	148.013	152.546	Continuing	Continuing
671012: *Aircraft Engine Component Improvement Program*	-	70.069	78.690	72.603	-	72.603	79.073	77.489	114.907	118.848	Continuing	Continuing
675365: *F-35*	-	16.398	15.487	31.339	-	31.339	31.881	32.492	33.106	33.698	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct 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. Without Engine CIP, out year support funding would have to be significantly increased.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*			**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	89.369	109.664	148.286	-	148.286
Current President's Budget	86.467	94.177	103.942	-	103.942
Total Adjustments	-2.902	-15.487	-44.344	-	-44.344
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-15.487			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.902	-			
• Other Adjustments	-	-	-44.344	-	-44.344

Change Summary Explanation

FY2015 - Congressionally directed reduction of $15.487 million from the F-135 engine program (BPAC 675365)

FY2016 - Reduction - $44.344 million due to higher Air Force Priorities

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
671012: *Aircraft Engine Component Improvement Program*	-	70.069	78.690	72.603	-	72.603	79.073	77.489	114.907	118.848	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct 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. Without Engine CIP, out year support funding would have to be significantly increased.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Aircraft Engine Component Improvement Program	70.069	78.690	72.603	-	72.603
Description: Aircraft Engine Component Improvement Program (CIP) provides critical sustainment engineering support for approximately 20,300 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 2014 Accomplishments:*** - Executed tasks across 13+ engine types. Majority of the budget addressed engine issues associated with the A-10, B-1, B-2, C-130, F-15, F-16, and F-22 aircraft. - Addressed safety of flight, engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- 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. ***FY 2015 Plans:*** - Execute tasks across 15+ engine types. Majority of the budget addressed engine issues associated with the A-10, B-1, B-2, C-130, F-15, F-16, and F-22 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, 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. ***FY 2016 Base Plans:*** - Execute tasks across 15+ engine types. Majority of the budget addressed engine issues associated with the A-10, B-1, B-2, C-130, F-15, F-16, and F-22 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, 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. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	70.069	78.690	72.603	-	72.603

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Other APPN RELATED ACTIVITIES

(U) - PEs 0604268A and 0604268N, Army/Navy Aircraft Engine CIPs, prior to FY1996

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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*

C. Other Program Funding Summary ($ in Millions)

(U) - PEs 0203752A and 0205633N, Army/Navy Aircraft Engine CIPs, FY1996-present

D. Acquisition Strategy

Contracts within this program are awarded sole source to engine manufacturers. Engine CIP tasks are generally assigned to original engine manufacturers based on available funding and prioritization of candidates.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP:Develop aircraft engine improvements	SS/CPFF	GE : Evendale, OH	-	12.188	Jan 2014	15.469	Dec 2014	12.628	Dec 2015	-		12.628	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	29.887	Jan 2014	48.200	Dec 2014	33.872	Dec 2015	-		33.872	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements	SS/CPFF	GE : Lynn, MA	-	3.111	Jan 2014	5.086	Dec 2014	3.224	Dec 2015	-		3.224	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements	SS/CPFF	Rolls Royce : Indianapolis, IN	-	1.725	Jan 2014	1.258	Dec 2014	1.788	Dec 2015	-		1.788	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft auxiliary power unit improvements	SS/CPFF	Honeywell : Phoenix, AZ	-	2.001	Jan 2014	2.610	Dec 2014	2.073	Dec 2015	-		2.073	Continuing	Continuing	-
		Subtotal	-	48.912		72.623		53.585		-		53.585	-	-	-

Remarks

Contracts are CPIF until 31 December 2014. 1 January 2015 and thereafter, contracts are CPFF.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Non-OEM CIP Tasks	Various	Various : Various,	-	0.946	Oct 2013	0.841	Oct 2014	0.980	Oct 2015	-		0.980	Continuing	Continuing	-
		Subtotal	-	0.946		0.841		0.980		-		0.980	-	-	-

Remarks

Non-OEM CIP Tasks refer to work in support of Engine CIP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	16.693	Oct 2013	3.940	Oct 2014	14.393	Oct 2015	-		14.393	Continuing	Continuing	-
		Subtotal	-	16.693		3.940		14.393		-		14.393	-	-	-

Remarks

Fuel costs for contractor-performed T&E are included in the applicable contract.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: PMA	Various	Various : Various,	-	0.888	Oct 2013	1.286	Oct 2014	0.920	Oct 2015	-		0.920	Continuing	Continuing	-
Aircraft Engine CIP: In House Support/Misc	Various	Various : Various,	-	2.630	Oct 2013	-	Oct 2014	2.725	Oct 2015	-		2.725	Continuing	Continuing	-
		Subtotal	-	3.518		1.286		3.645		-		3.645	-	-	-

Remarks

PMA Description: Program Management support, travel, and A&AS.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	70.069		78.690		72.603		-		72.603	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

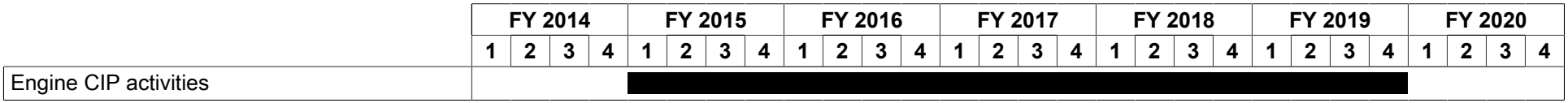

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*	**Project (Number/Name)** 671012 / *Aircraft Engine Component Improvement Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Engine CIP activities	1	2015	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675365: *F-35*	-	16.398	15.487	31.339	-	31.339	31.881	32.492	33.106	33.698	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 systems. It provides the only source of critical sustaining engineering support for in-service Air Force propulsion systems. Engine 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 systems throughout the 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 Engine CIP provides the means to develop fixes for these field problems. Engine CIP funding is driven by field events and type/maturity of the propulsion systems, 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 propulsion systems operational. Engine CIP, through "Lead the Fleet" operational use and accelerated mission testing, identifies and fixes propulsion-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 propulsion systems. Engine CIP ensures continued improvements in R&M, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year O&M and spares costs. Without Engine CIP, out year support funding would have to be significantly increased.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Aircraft Engine Component Improvement Program (F135)	16.398	15.487	31.339	-	31.339
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 2014 Accomplishments: - Execute approximately 9 F135 engine tasks supporting initial flying operations. - Addressed safety of flight, engine component redesign, repair/rework procedures, accelerated maturation testing and life limit/mission analysis. - Validated redesigned parts and new repair procedures.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Maintained/improved engine flight safety, address parts obsolescence, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engines throughout their service life. ***FY 2015 Plans:*** - Execute approximately 25 F135 engine tasks supporting initial flying operations. - Address safety of flight, engine component redesign, repair/rework procedures, accelerated maturation testing and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, address parts obsolescence, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engines throughout their service life. ***FY 2016 Base Plans:*** - Execute approximately 25 F135 engine tasks supporting initial flying operations. - Address safety of flight, engine component redesign, repair/rework procedures, accelerated maturation testing and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, address parts obsolescence, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engines throughout their service life. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	16.398	15.487	31.339	-	31.339

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Program Element 0205633N provides US Navy funding support for F-35 propulsion system

D. Acquisition Strategy

Contracts within this program are projected to be awarded sole source to engine manufacturer. F-35 Engine CIP tasks are generally assigned to the original engine manufacturer based on available funding and prioritization of candidates.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*	**Project (Number/Name)** 675365 / *F-35*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / *Aircraft Engine Component Improvement Program*	Project (Number/Name) 675365 / *F-35*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Develop F135 engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	5.690	Jan 2014	10.554	Dec 2014	14.831	Dec 2015	-		14.831	Continuing	Continuing	-
		Subtotal	-	5.690		10.554		14.831		-		14.831	-	-	-

Remarks

Contract is CPIF until 31 December 2014. 1 January 2015 and thereafter, contract is CPFF.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	10.551	Oct 2013	3.000	Oct 2014	14.832	Oct 2015	-		14.832	Continuing	Continuing	-
		Subtotal	-	10.551		3.000		14.832		-		14.832	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Engine CIP: PMA	Various	Various : Various,	-	0.157	Oct 2013	0.325	Oct 2014	0.422	Oct 2015	-		0.422	Continuing	Continuing	-
Aircraft Engine CIP: In House Support/Misc	Various	Various : Various,	-	-	Oct 2013	1.608	Oct 2014	1.254	Oct 2015	-		1.254	Continuing	Continuing	-
		Subtotal	-	0.157		1.933		1.676		-		1.676	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*	**Project (Number/Name)** 675365 / *F-35*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

PMA Description: Program Management support, travel, and A&AS.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	16.398		15.487		31.339		-		31.339	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*	**Project (Number/Name)** 675365 / *F-35*

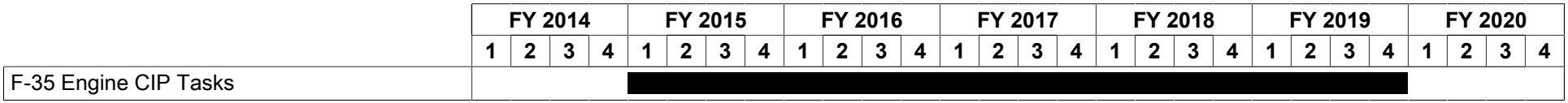

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207268F / *Aircraft Engine Component Improvement Program*	**Project (Number/Name)** 675365 / *F-35*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
F-35 Engine CIP Tasks	1	2015	4	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,131.136	6.202	12.897	12.793	-	12.793	5.960	5.099	4.459	4.539	36.505	1,219.590
674515: *Joint Air-to-Surface Standoff Missile (JASSM)*	929.071	3.048	7.424	-	-	-	-	-	-	-	-	939.543
675356: *JASSM Extended Range (JASSM-ER)*	202.065	3.154	5.473	12.793	-	12.793	5.960	5.099	4.459	4.539	36.505	280.047
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 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. 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 FY2016 funding request was reduced by $1.821 million to account for the availability of prior 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	6.373	15.897	14.699	-	14.699
Current President's Budget	6.202	12.897	12.793	-	12.793
Total Adjustments	-0.171	-3.000	-1.906	-	-1.906
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.171	-			
• Other Adjustments	-	-	-1.906	-	-1.906

Change Summary Explanation

FY15 congressional reduction of $3M due to forward financing.

FY16 funding was reduced by $1.906M to support other Air Force priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
674515: *Joint Air-to-Surface Standoff Missile (JASSM)*	929.071	3.048	7.424	-	-	-	-	-	-	-	-	939.543
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). The Common Telemetry Instrumentation Kit (C-TIK) is partially executed under this project as it is common to JASSM baseline and JASSM-ER. The program is evaluating Diminishing Manufacturing Sources Material Shortages (DMSMS) and several obsolescence issues. FY15 is the last year of JASSM baseline RDT&E and procurement; this program transitions to JASSM-ER only in FY16.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Electronic Safe and Arm Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects) ***Description:*** ESAF will resolve obsolescence issues, increase reliability and replace the current fuze. ESAF will be implemented in both JASSM baseline and JASSM-ER missiles. ***FY 2014 Accomplishments:*** Initiate ESAF development effort. ***FY 2015 Plans:*** Continue ESAF development. Technical demonstration phase leading to critical design reviews. ***FY 2016 Plans:*** N/A	0.100	1.924	-
Title: Common Telemetry Instrumentation Kit (C-TIK) - Common to JASSM baseline and JASSM-ER (cost shared by both projects)	0.200	3.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Description: C-TIK replaces current TIK used during flight testing and will be common to both JASSM and JASSM-ER. The C-TIK is partially executed under this project as it is common to JASSM baseline and JASSM-ER. ***FY 2014 Accomplishments:*** Initiated C-TIK design work for the Network Data Acquisition System (NetDAS) qualification. ***FY 2015 Plans:*** Continue C-TIK design, destruct charge development and battery qualification testing. ***FY 2016 Plans:*** N/A			
Title: Other Development ***Description:*** Development efforts, evaluations(study analysis), Diminishing Manufacturing Sources Material Shortages (DMSMS), and obsolescence issues. ***FY 2014 Accomplishments:*** Efforts are underway to establish an interim TIK to fill the gap between current TIKs and the development of the CTIK. Also efforts for Improvement/Insensitive Munitions. ***FY 2015 Plans:*** Development/evaluations addressing JASSM's obsolescence plan directed activities (Inertial Measurement Unit, Missile control Unit, anti-jam/anti-spoofing system). Currently, M-code mandated investigation study, and interim TIK development are scheduled. ***FY 2016 Plans:*** N/A	2.698	2.000	-
Title: Test Support ***Description:*** Government Test Support for ESAF and C-TIK. Includes flight test equipment, targets, Test Wing and Range support, and other ground/flight test support. ***FY 2014 Accomplishments:*** ESAF (prototype) and C-TIK development flight test support to include test equipment, targets, range support, and other ground test support. ***FY 2015 Plans:***	0.050	0.500	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Continue ESAF Sled tests, cannon, and survivability tests. C-TIK/Interim TIK development flight test support to include test equipment, targets, range support, and other ground test support. ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	3.048	7.424	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA02: Line Item # 654515: *JASSM*	144.532	-	-	-	-	-	-	-	-	-	1,606.416
• MPAF: BA02 Line Item # JASSM0: *JASSM*	-	129.944	73.582	-	73.582	-	-	-	-	-	203.526

Remarks

FY15 is the last year of JASSM baseline procurement (and RDT&E). The JASSM program transitions to JASSM-ER only in FY16.

D. Acquisition Strategy

All major contracts within this project have been awarded through full and open competition. The EMD phase option for JASSM baseline was completed using Cost Plus Award Fee (CPAF). Currently, C-TIK is a Cost Plus Fixed Fee (CPFF) contract and ESAF is a 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other development, reliability, Component upgrades, and DMS/ Obsolescence issues.	SS/CPIF	Lockheed Martin : Orlando, FL	714.516	2.698	May 2015	2.000	May 2015	-		-		-	-	719.214	719.214
ESAF	SS/CPIF	Lockheed Martin : Orlando, FL	1.316	0.100	Jun 2015	1.924	Jun 2015	-		-		-	-	3.340	3.340
Common Telemetry Instrumentation Kit (C-TIK)	SS/FFP	Lockheed Martin : Orlando, FL	1.457	0.200	Jun 2015	3.000	Jul 2015	-		-		-	-	4.657	4.657
		Subtotal	717.289	2.998		6.924		-		-		-	-	727.211	727.211

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
96 TW test support, flight test	Various	Test Wing : Eglin, FL	149.552	0.050	Jun 2015	0.500	Jun 2015	-		-		-	-	150.102	150.102
		Subtotal	149.552	0.050		0.500		-		-		-	-	150.102	150.102

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA).	C/Various	PMA : Eglin AFB, FL	62.230	-		-		-		-		-	-	62.230	62.230

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program office/mission support.															
Subtotal			62.230	-		-		-		-		-	-	62.230	62.230

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	929.071	3.048		7.424		-		-		-	-	939.543	939.543

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

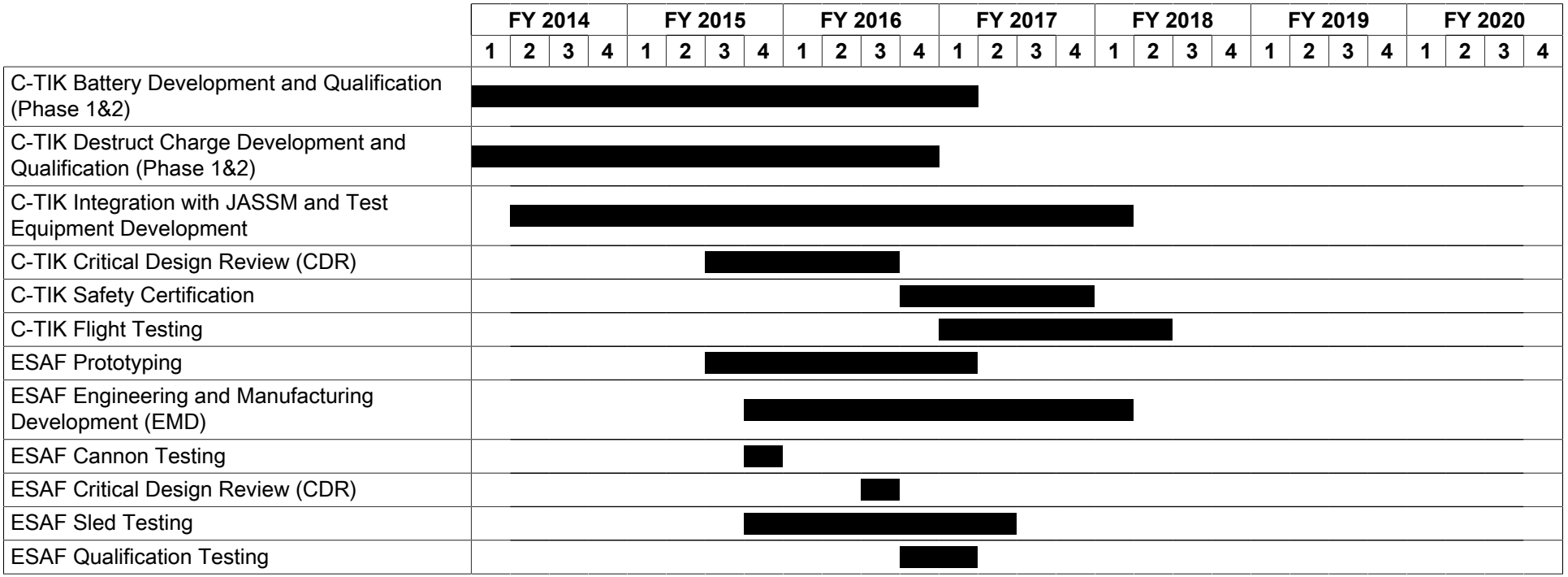

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*	**Project (Number/Name)** 674515 / *Joint Air-to-Surface Standoff Missile (JASSM)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
C-TIK Battery Development and Qualification (Phase 1&2)	1	2014	1	2017
C-TIK Destruct Charge Development and Qualification (Phase 1&2)	1	2014	4	2016
C-TIK Integration with JASSM and Test Equipment Development	2	2014	1	2018
C-TIK Critical Design Review (CDR)	3	2015	3	2016
C-TIK Safety Certification	4	2016	4	2017
C-TIK Flight Testing	1	2017	2	2018
ESAF Prototyping	3	2015	1	2017
ESAF Engineering and Manufacturing Development (EMD)	4	2015	1	2018
ESAF Cannon Testing	4	2015	4	2015
ESAF Critical Design Review (CDR)	3	2016	3	2016
ESAF Sled Testing	4	2015	2	2017
ESAF Qualification Testing	4	2016	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675356: *JASSM Extended Range (JASSM-ER)*	202.065	3.154	5.473	12.793	-	12.793	5.960	5.099	4.459	4.539	36.505	280.047
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 develops the extended range version of the JASSM missile (JASSM-ER). The threshold integration platform for JASSM-ER is 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 is developing JASSM-ER based on a contractor-developed, government-approved System Performance Specification (SPS). The 16 JASSM-ER Operational Test flights were successfully completed in 2013 with a 100% success rate (16/16). Currently, this project develops a Common Telemetry Instrumentation Kit (C-TIK) which will be used during flight testing and will be common to 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 JASSM program is evaluating Diminishing Sources Material Shortages (DMSMS) and several obsolescence issues.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Common Telemetry Instrumentation Kit (C-TIK) - Common to JASSM baseline and JASSM-ER (cost shared by both projects) ***Description:*** C-TIK replaces current TIK used during flight testing and will be common to both JASSM and JASSM-ER. ***FY 2014 Accomplishments:*** Continue C-TIK development. ***FY 2015 Plans:*** Continue C-TIK development design work, destruct charge development and battery qualification testing. ***FY 2016 Plans:*** Continue C-TIK destruct charge development and battery qualification testing.	1.814	1.145	3.582
Title: Electronic Safe and Armed Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects) ***Description:*** ESAF will resolve obsolescence issues and replace the current fuze. ***FY 2014 Accomplishments:***	0.110	2.030	5.463

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Initiate ESAF development. ***FY 2015 Plans:*** Continue ESAF development effort. Technical demonstration phase leading to critical design review work. ***FY 2016 Plans:*** Award ESAF Engineering and Manufacturing Development (EMD) contract. Complete sled instrumentation kit (SLIK) development. Continue design work, pre-production material, qualification work.			
Title: Other Development ***Description:*** Development efforts, evaluations (study analysis), Diminishing Manufacturing Sources Material Shortages (DMSMS), and obsolescence issues. ***FY 2014 Accomplishments:*** Development and testing to support upgrades. Supports DMSMS changes and hardware obsolescence, Flight Termination System (FTS) battery replacement, and M-code mandated investigation, and software navigation tool; also provide support for any ground and flight test activity required to verify changed hardware before cutting into production. ***FY 2015 Plans:*** Continue development and testing to support upgrades. Supports DMSMS changes and hardware obsolescence, M-code mandate investigation study, and interim TIK development; also provide support for any ground and flight test activity required to verify changed hardware before cutting into production. ***FY 2016 Plans:*** Continue development and testing to support upgrades. Supports DMSMS changes and hardware obsolescence, M-code mandated investigation study, and interim TIK development; also provide support for any ground and flight test activity required to verify changed hardware before cutting into production.	1.160	1.788	2.028
Title: Test Support ***Description:*** Government Test Support for ESAF and C-TIK. Includes flight test equipment, targets, Test Wing and Range support, and other ground/flight test support. ***FY 2014 Accomplishments:*** Continue CTIK, ESAF, and other flight test support to include test equipment, targets, range support, and other ground test support. ***FY 2015 Plans:***	0.070	0.510	1.720

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Continue C-TIK build and test (spares, HERO,DVD,FF units) and ESAF sled and connon test support. Other development flight test support to include test equipment, targets, range support, and other ground test support. ***FY 2016 Plans:*** Continue ESAF Sled tests (4-8), cannon tests. C-TIK/Interim TIK development flight test support to include test equipment, targets, range support, and other ground test support.			
Accomplishments/Planned Programs Subtotals	3.154	5.473	12.793

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• MPAF: BA02 Line Item 654515: *JASSM*	126.619	-	-	-	-	-	-	-	-	-	309.935
• MPAF: BA02 Line Item # JASSM0: *JASSM*	-	199.214	366.996	-	366.996	435.718	444.433	452.593	460.749	1,476.585	38,396.288

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 contracts for ESAF is a Cost Plus Fixed Fee(CPFF) contract, and the C-TIK contract is a 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*	Project (Number/Name) 675356 / *JASSM Extended Range (JASSM-ER)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JASSM-ER Phase I/ II development, Test Missile Procurement (for DT/IT), parts upgrade, software updates, product improvements, and obsolescence.	Various	Lockheed Martin : Orlando, FL	130.810	1.140	Mar 2015	1.768	Jun 2015	2.008	Jun 2016	-		2.008	41.944	177.670	177.670
C-TIK	SS/CPIF	Lockheed Martin : Orlando, FL	4.034	1.784	Jun 2015	1.125	Jun 2015	3.562	Jun 2016	-		3.562	7.489	17.994	17.994
ESAF	SS/FFP	Lockheed Martin : Orlando, FL	2.748	0.100	Mar 2015	2.000	Jun 2015	5.443	Jun 2016	-		5.443	4.629	14.920	14.920
		Subtotal	137.592	3.024		4.893		11.013		-		11.013	54.062	210.584	210.584

Remarks

Common Test Instrumentation Kits (C-TIK)
Electronic Safe and Arm Fuze (ESAF)

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Test Support. Includes flight test equipment, targets, 96th Test Wing and Range support, and other ground/	Various	96 TW : Eglin AFB, FL	25.902	0.060	Mar 2014	0.500	Jul 2015	1.700	Jun 2016	-		1.700	2.000	30.162	30.162

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*	**Project (Number/Name)** 675356 / *JASSM Extended Range (JASSM-ER)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
flight test support as necessary.															
6 IT/6 OT assets	SS/CPAF	Lockheed Martin : Orlando, FL	12.733	-		-		-		-		-	-	12.733	12.733
12 Operational Test (OT) assets	SS/FFP	Lockheed Martin : Orlando, FL	24.643	-		-		-		-		-	-	24.643	24.643
		Subtotal	63.278	0.060		0.500		1.700		-		1.700	2.000	67.538	67.538

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA). Provides program office oversight of development and upgrade activities.	Various	PMA : Eglin AFB, FL	1.195	0.070	Mar 2015	0.080	Aug 2015	0.080	Aug 2016	-		0.080	0.500	1.925	1.925
		Subtotal	1.195	0.070		0.080		0.080		-		0.080	0.500	1.925	1.925

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	202.065	3.154		5.473		12.793		-		12.793	56.562	280.047	280.047

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

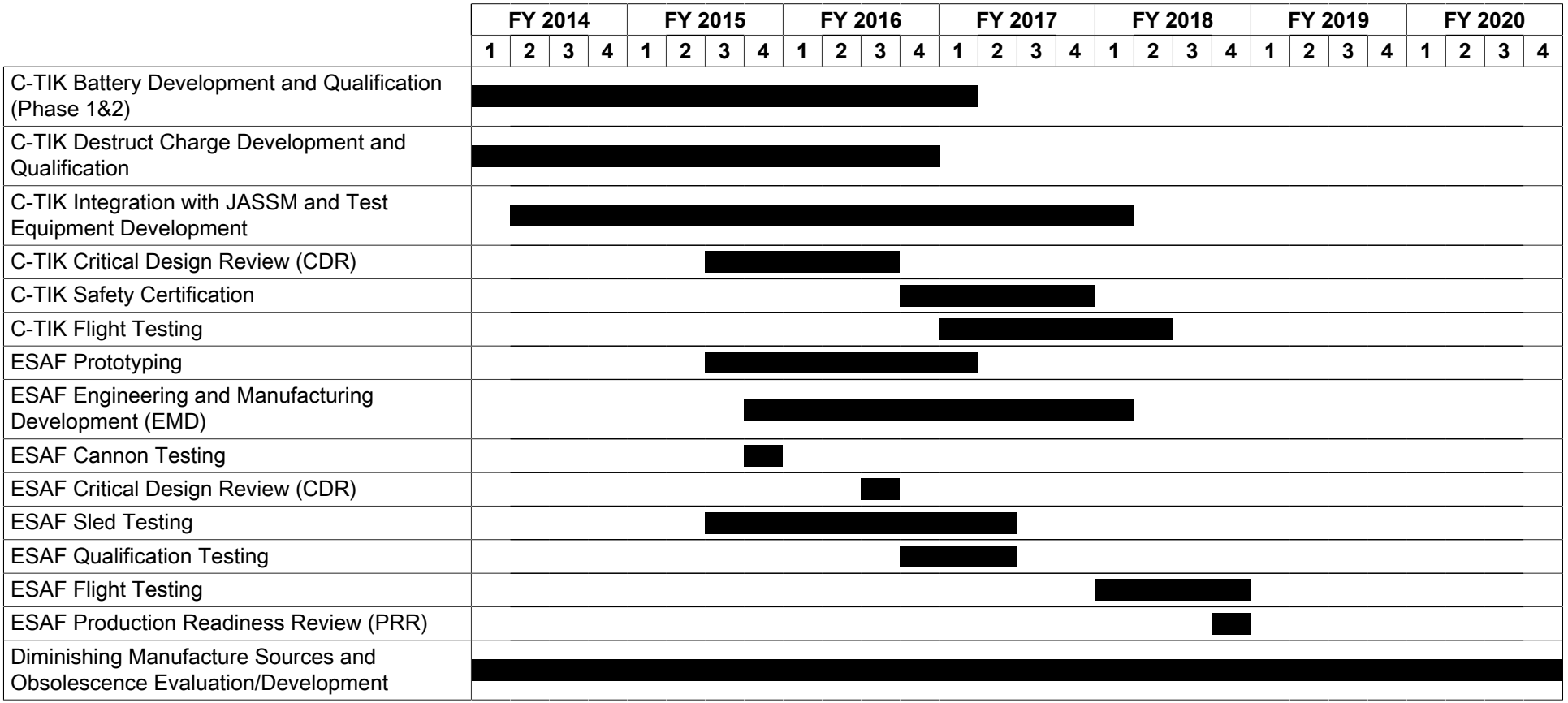

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207325F / *Joint Air-to-Surface Standoff Missile (JASSM)*	**Project (Number/Name)** 675356 / *JASSM Extended Range (JASSM-ER)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
C-TIK Battery Development and Qualification (Phase 1&2)	1	2014	1	2017
C-TIK Destruct Charge Development and Qualification	1	2014	4	2016
C-TIK Integration with JASSM and Test Equipment Development	2	2014	1	2018
C-TIK Critical Design Review (CDR)	3	2015	3	2016
C-TIK Safety Certification	4	2016	4	2017
C-TIK Flight Testing	1	2017	2	2018
ESAF Prototyping	3	2015	1	2017
ESAF Engineering and Manufacturing Development (EMD)	4	2015	1	2018
ESAF Cannon Testing	4	2015	4	2015
ESAF Critical Design Review (CDR)	3	2016	3	2016
ESAF Sled Testing	3	2015	2	2017
ESAF Qualification Testing	4	2016	2	2017
ESAF Flight Testing	1	2018	4	2018
ESAF Production Readiness Review (PRR)	4	2018	4	2018
Diminishing Manufacture Sources and Obsolescence Evaluation/Development	1	2014	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207410F / *Air & Space Operations Center (AOC)*							
COST ($ in Millions)	**Prior Years** (+)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	264.584	18.332	25.662	21.193	-	21.193	17.595	17.933	18.271	18.598	Continuing	Continuing
675218: *Applications Development*	0.000	10.624	14.580	11.512	-	11.512	7.437	7.580	7.724	7.862	Continuing	Continuing
675220: *Unit Level*	0.000	5.569	8.757	7.263	-	7.263	7.742	7.891	8.039	8.183	Continuing	Continuing
675221: *Personnel Recovery Command and Control (PRC2)*	0.000	2.139	2.325	2.418	-	2.418	2.416	2.462	2.508	2.553	Continuing	Continuing
MDAP/MAIS Code: N42												

(+) The sum of all Prior Years is $264.584 million less than the represented total due to several projects ending

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 three funded projects within the AOC WS program element:

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 (IAMD); in support of DoD, Coalition Partners, and other government agencies.

Unit Command and Control (UC2) provides both the 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 on future Air Battle Planning.

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 Operation 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 Department of Defense and other national and international entities.

This program is in Budget Activity 7, Operational System Development, these budget activities 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0207410F / *Air & Space Operations Center (AOC)*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	22.332	41.066	21.333	-	21.333
Current President's Budget	18.332	25.662	21.193	-	21.193
Total Adjustments	-4.000	-15.404	-0.140	-	-0.140
• Congressional General Reductions	-	-1.004			
• Congressional Directed Reductions	-	-14.400			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.000	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.140	-	-0.140

Change Summary Explanation

Reprogrammed $4.000M FY14 from C2AOS-C2IS 0207410F to AOC 10.2 0604458F.

Congressional Mark of $14.400M FY15 to maintain program affordability - unjustified increase

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675218: *Applications Development*	-	10.624	14.580	11.512	-	11.512	7.437	7.580	7.724	7.862	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 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 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: 1) Command and Control Air Operations Suite-Command and Control Information Services (C2AOS-C2IS) needs identified in the Capability Definition Package (CDP) (2012). C2AOS-C2IS I 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 I 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 I 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 FY16, core activities for Applications Development include but are not limited to the following: 1) developing capabilities to support planning and replanning of the Air Battle Plan; generation and dissemination of the Air Tasking Order; defense planning and execution; targeting; weaponeering; personnel recovery tasks; other applications and services supporting C2 in the joint environment; 2) providing support to and participating in the Air Operations Community of Interest (AO COI) to improve air operations information interoperability among all joint and coalition systems within the Air Operations (AO) domain; 3) developing and assessing C2 air, space, intelligence, surveillance, reconnaissance, and cyber technologies that will improve joint and coalition warfighter interoperability; 4) transitioning existing C2 capabilities to a net-centric environment; and 5) improving operational level C2 of Integrated Air and Missile Defense (IAMD). Applications Development efforts include evaluation and maturation of future air, space, and cyber C2 concepts identified through research, risk reduction, prototyping, current operations, exercises, and demonstrations.

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.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Title: NATO ***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. ***FY 2014 Accomplishments:*** Developed technologies that improved joint and coalition warfighter capability. ***FY 2015 Plans:*** Develop requirements and capabilities between U.S. and NATO / Coalition systems to promote interoperability. ***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.	0.381	0.442	-
Title: C2AOS-C2IS I ***Description:*** C2AOS-C2IS I 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 Capablility 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: IAMD Planner and Airspace Management Application - Airspace Information Service (ASMA - ASIS) ***FY 2014 Accomplishments:*** Continued development of ATOMS, RISC2, ASMA-ASIS and C2 of IAMD capabilities. Conducted multiple Warfighter Assessments ***FY 2015 Plans:*** Finish the development of ATOMS, RISC2, ASMA-ASIS and C2 of IAMD capabilities and begin testing. ***FY 2016 Plans:*** Conduct Development and Operational Testing of C2AOS-C2IS I.	9.015	11.239	2.611
Title: C2AOS-C2IS II	-	-	7.092

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Description: C2AOS-C2IS II 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. As well as providing new C2 capabilities for planning, execution and interoperability with other evolving GCCS FoS and other Service programs, and for Force Level data migration including execution of 4th & 5th Generation Fighter Platforms. - CP 3: Air Execution Information System (AXIS) ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Fine tune AXIS (CP-3) requirements of 4th & 5th Generation Platforms and plan for development of new delivery order. ***FY 2016 Plans:*** Execute the award and development of AXIS (CP-3)			
Title: Test and Evaluation ***Description:*** Test and Evaluation ***FY 2014 Accomplishments:*** Test and Evaluation focused on DT&E and OT&E strategy and restructure of test program , which included test planning, conduct and documentation review. ***FY 2015 Plans:*** Test and Evaluation continuing to focus on DT&E and OT&E, to include test planning, conduct and documentation review. Participate in multiple Government Acceptance Tests (GAT) and Risk Reduction Tests. ***FY 2016 Plans:*** Test and Evaluation will participate and/or conduct DT&E and OT&E, and participate in GAT.	1.228	2.899	1.809
Accomplishments/Planned Programs Subtotals	10.624	14.580	11.512

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675218 / *Applications Development*

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675218 / *Applications Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Tasking Order Management System (ATOMS)	C/Various	Lockheed Martin : Colorado Springs, CO	0.000	0.016	May 2014	3.863	Mar 2015	0.200	Mar 2016	-		0.200	-	4.079	-
Request Information Services for Command and Control (RISC2)	C/Various	Science Applications International Corporation : McLean, VA	0.000	1.204	Feb 2014	0.349	Dec 2014	0.100	Dec 2015	-		0.100	-	1.653	-
Air Space Management Application/Air Space Information Service (ASMA/ASIS)	C/Various	Leidos, Inc. : Reston, VA	0.000	1.736	Mar 2014	0.736	Mar 2015	0.100	Mar 2016	-		0.100	-	2.572	-
Command and Control of Integrated Air and Missile Defense (C2 of IAMD)	C/Various	Lockheed Martin : Colorado Springs, CO	0.000	0.543	Feb 2015	0.500	Feb 2015	-		-		-	-	1.043	-
Air Execution Infomation System (AXIS)	C/TBD	TBD : TBD,	0.000	-		-		2.903	Dec 2015	-		2.903	-	2.903	-
		Subtotal	0.000	3.499		5.448		3.303		-		3.303	-	12.250	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	Reliability Information Analysis Center : Fort Belvoir, VA	0.000	0.350	Aug 2014	-		-		-		-	-	0.350	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675218 / *Applications Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation.	PO	46th Test Squadron : Eglin AFB, FL	0.000	0.878	Nov 2013	2.899	Jan 2015	1.809	Jan 2016	-		1.809	-	5.586	-
		Subtotal	0.000	1.228		2.899		1.809		-		1.809	-	5.936	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/ Various	MITRE : Bedford, MA	0.000	3.310	Oct 2013	3.527	Oct 2014	3.600	Oct 2015	-		3.600	-	10.437	-
Program Management Administration	C/Various	Various : Hanscom AFB, MA	0.000	2.587	Oct 2013	2.706	Oct 2014	2.800	Oct 2015	-		2.800	-	8.093	-
		Subtotal	0.000	5.897		6.233		6.400		-		6.400	-	18.530	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	10.624		14.580		11.512		-		11.512	-	36.716	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675218 / *Applications Development*

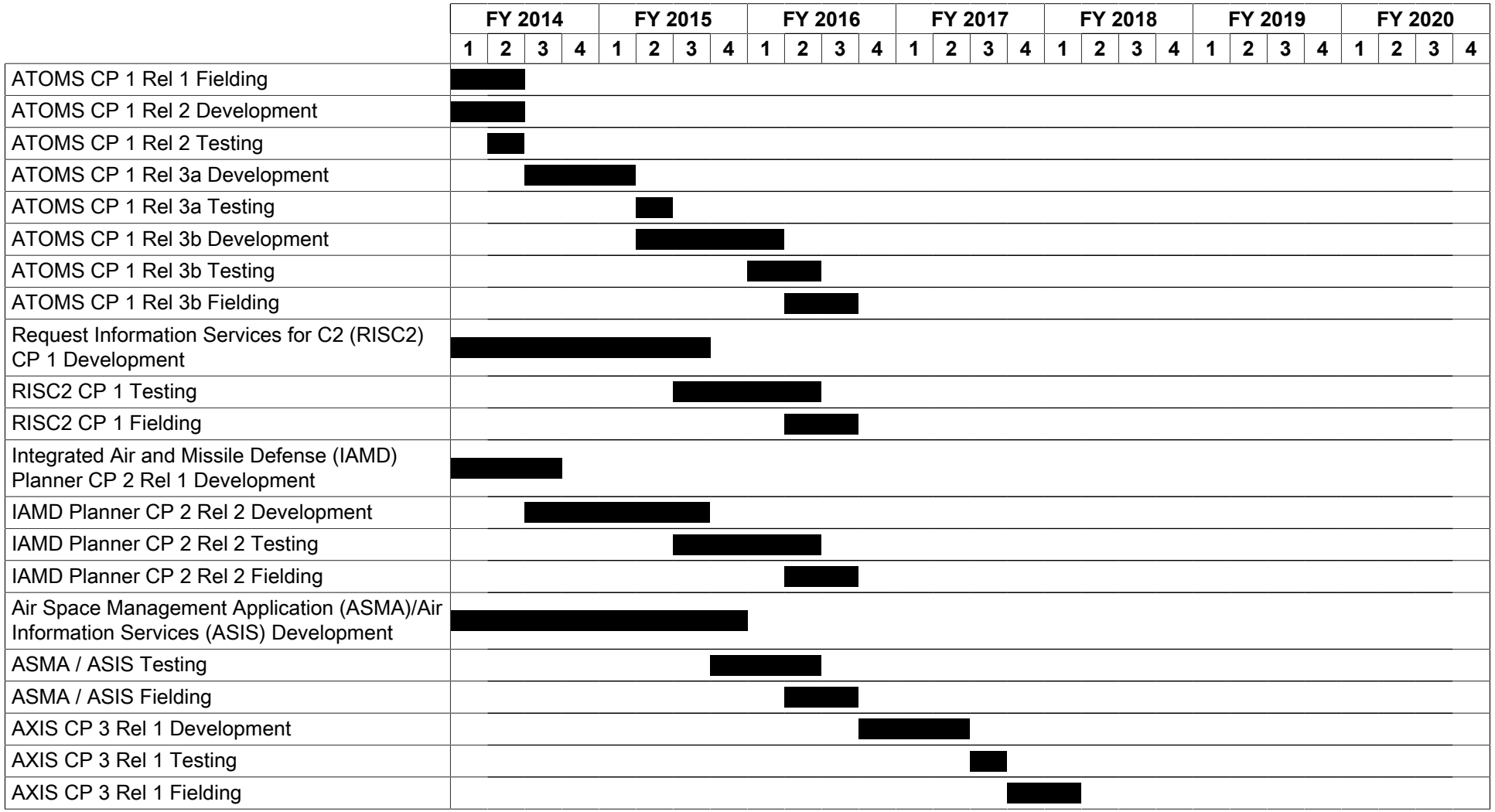

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675218 / *Applications Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ATOMS CP 1 Rel 1 Fielding	1	2014	2	2014
ATOMS CP 1 Rel 2 Development	1	2014	2	2014
ATOMS CP 1 Rel 2 Testing	2	2014	2	2014
ATOMS CP 1 Rel 3a Development	3	2014	1	2015
ATOMS CP 1 Rel 3a Testing	2	2015	2	2015
ATOMS CP 1 Rel 3b Development	2	2015	1	2016
ATOMS CP 1 Rel 3b Testing	1	2016	2	2016
ATOMS CP 1 Rel 3b Fielding	2	2016	3	2016
Request Information Services for C2 (RISC2) CP 1 Development	1	2014	3	2015
RISC2 CP 1 Testing	3	2015	2	2016
RISC2 CP 1 Fielding	2	2016	3	2016
Integrated Air and Missile Defense (IAMD) Planner CP 2 Rel 1 Development	1	2014	3	2014
IAMD Planner CP 2 Rel 2 Development	3	2014	3	2015
IAMD Planner CP 2 Rel 2 Testing	3	2015	2	2016
IAMD Planner CP 2 Rel 2 Fielding	2	2016	3	2016
Air Space Management Application (ASMA)/Air Information Services (ASIS) Development	1	2014	4	2015
ASMA / ASIS Testing	4	2015	2	2016
ASMA / ASIS Fielding	2	2016	3	2016
AXIS CP 3 Rel 1 Development	4	2016	2	2017
AXIS CP 3 Rel 1 Testing	3	2017	3	2017
AXIS CP 3 Rel 1 Fielding	4	2017	1	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / *Air & Space Operations Center (AOC)*	Project (Number/Name) 675220 / *Unit Level*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675220: *Unit Level*	-	5.569	8.757	7.263	-	7.263	7.742	7.891	8.039	8.183	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 106 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. Unit Command and Control (UC2) is fielded to the Wing Operations Center (WOC), the Maintenance Operations Center (MOC), the Squadron Operations Center (SOC), and many other work-centers. UC2 requirements will be identified using the system modification request process.

Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Software Development	5.382	7.972	6.665
Description: UL/UC2 and UC2 capabilities development/integration. ***FY 2014 Accomplishments:*** Completed the UC2 System Requirements Document and program office cost estimate. In process of awarding of the contract for UC2. UC2 will provide service oriented infrastructure capable of meeting the Net-Ready key performance parameters. Accelerating should cost initiatives for virtualization and open source replacement of application server software into Inc2 Service Pack 3 (SP3). ***FY 2015 Plans:*** Development of UC2 Rel 1.1. Prepare for testing of 1.1 and fielding of UC2 1.1. ***FY 2016 Plans:*** Complete development of UC2 Rel 1.1. Test and field UC2 1.1. Start development of UC2 1.2			
Title: Testing and Test Support	0.187	0.785	0.598
Description: Testing and test support activities. ***FY 2014 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Continue tested,evaluated, and fielded UL/UC2 Inc 2 SP2. Starting Inc 2 SP3 testing. ***FY 2015 Plans:*** Will continue testing and evaluation of UL/UC2 Inc 2 SP3, field Inc2 SP3, and start early user testing on UC2 Release 1.1 to support agile development. ***FY 2016 Plans:*** Support UC2 warfighter assessments, complete testing of UC2 Rel 1.1, and start testing UC2 Rel 1.2.			
Accomplishments/Planned Programs Subtotals	5.569	8.757	7.263

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834520: *Theater Battle Management C2 System*	3.247	3.825	3.129	-	3.129	3.320	3.377	3.437	3.499	Continuing	Continuing

Remarks

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675220 / *Unit Level*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Increment Development	C/CPFF	Lockheed Martin : Hampton, VA	0.000	1.623	Jan 2014	0.310		-		-		-	-	1.933	13.861
Third Party Integration	Various	Various : Various,	0.000	0.563	Dec 2013	0.100	Dec 2014	0.100		-		0.100	Continuing	Continuing	TBD
Unit Command & Control (UC2)	C/CPFF	Leidos Inc. : Reston, VA	0.000	1.810	Sep 2014	6.120	Jan 2015	5.166		-		5.166	7.000	20.096	10.530
		Subtotal	0.000	3.996		6.530		5.266		-		5.266	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	PO	46TS : Eglin AFB, FL	0.000	0.187	Dec 2013	0.785	Dec 2014	0.598		-		0.598	Continuing	Continuing	TBD
		Subtotal	0.000	0.187		0.785		0.598		-		0.598	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPAF	MITRE : Bedford, MA	0.000	0.705	Oct 2013	0.796	Oct 2014	0.750		-		0.750	Continuing	Continuing	TBD
Program Management Administration	C/Various	Various : Hanscom AFB, MA	0.000	0.681	Oct 2013	0.646	Oct 2014	0.649		-		0.649	Continuing	Continuing	TBD
		Subtotal	0.000	1.386		1.442		1.399		-		1.399	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.569		8.757		7.263		-		7.263	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675220 / *Unit Level*

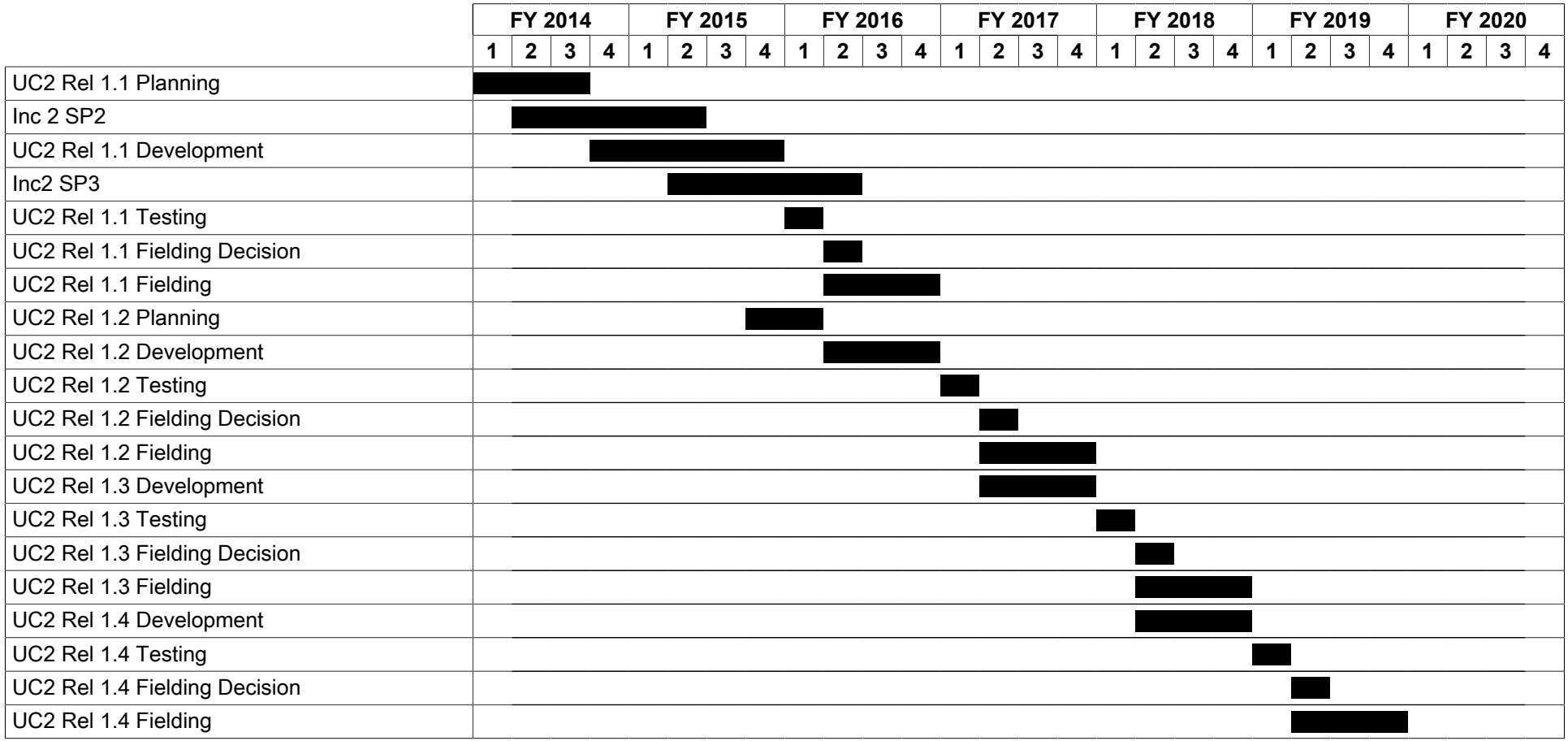

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675220 / *Unit Level*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UC2 Rel 1.1 Planning	1	2014	3	2014
Inc 2 SP2	2	2014	2	2015
UC2 Rel 1.1 Development	4	2014	4	2015
Inc2 SP3	2	2015	2	2016
UC2 Rel 1.1 Testing	1	2016	1	2016
UC2 Rel 1.1 Fielding Decision	2	2016	2	2016
UC2 Rel 1.1 Fielding	2	2016	4	2016
UC2 Rel 1.2 Planning	4	2015	1	2016
UC2 Rel 1.2 Development	2	2016	4	2016
UC2 Rel 1.2 Testing	1	2017	1	2017
UC2 Rel 1.2 Fielding Decision	2	2017	2	2017
UC2 Rel 1.2 Fielding	2	2017	4	2017
UC2 Rel 1.3 Development	2	2017	4	2017
UC2 Rel 1.3 Testing	1	2018	1	2018
UC2 Rel 1.3 Fielding Decision	2	2018	2	2018
UC2 Rel 1.3 Fielding	2	2018	4	2018
UC2 Rel 1.4 Development	2	2018	4	2018
UC2 Rel 1.4 Testing	1	2019	1	2019
UC2 Rel 1.4 Fielding Decision	2	2019	2	2019
UC2 Rel 1.4 Fielding	2	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675221: *Personnel Recovery Command and Control (PRC2)*	-	2.139	2.325	2.418	-	2.418	2.416	2.462	2.508	2.553	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 recover mission coordinators across PR network. PRC2 provides an adaptive, networked, decentralized and timely situational awareness information for personnel recovery supporting 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 a broad spectrum of US government which may include in the joint/coalition military and civilian rescue mission. 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: PRC2	2.099	2.175	2.218
Description: Personnel Recovery Command and Control (PRC2) developing and delivering tools and services for planning and managing search and rescue efforts, and disseminating related information.			
FY 2014 Accomplishments: Developed and delivered PRC2 Build 2.1.7 Maintenance Release;: Provided compatibility with Internet Explorer 9/10. Developed and delivered PRC2 Build 2.1.8 web services to enable net-centric capability exposing data to joint users and to support future PR Mission Manager (PRMM) development. Continued development on Build 3.0.0, Mission Manager Inc 1 Search and Map Overlay Widgets: Provided the capability to query the PRMS/Joint SARSAT Electronic Tracking System (JSETS) database without logging into the PRMS website. Search Widgets also provide advanced search definitions not available via the PRMS website.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Complete development and field Build 3.0.0. PRC2 Build 4.0.0 Application Tech Refresh and Virtualization development will continue in FY15. Tech Refresh will normalize the PRMS database and will provide an increased net- centric capability while reducing lifecycle costs. Virtualization will provide increased availability and more robust security while decreasing sustainment costs. Will develop Build 5.0.0 Mission Manager Inc 2 creating an environment for the AOC Personnel Recovery Coordinator Cell to access situational awareness data to recover isolated personnel. This will provide situational awareness including geo-spatial visualization of IP location, weather, threat environment, airspace, and Air Tasking Order data. ***FY 2016 Plans:*** Complete development and field Builds 4.0.1and 4.0.2 Maintenance Releases and Build 5.0.0 Mission Manager Inc 2 capability. In FY16 follow on activities will focus on concept and risk reduction activities to support the development of Mission Manager in the Joint environment			
Title: Test and Evaluation ***Description:*** Test and Evaluation ***FY 2014 Accomplishments:*** Test and Evaluation focused on testing activities to integrate PRC2 Inc 2 capabilities. Bringing test suites up to Build 2.1.8 baseline. Follow on activities focusing on finalizing test documentation to support the development of Mission Manager. ***FY 2015 Plans:*** Test and Evaluation will focus on test activities to field Build 4.0 Tech Refresh/Virtualization. Follow on activities will focus on finalizing test documentation to support the development of Build 5.0.0 Mission Manager Inc 2. ***FY 2016 Plans:*** Test and Evaluation will focus on test activities to field Build 4.0.1 and 4.0.2 Mx Releases and Build 5.0.0 Mission Manager Inc 2 capability.	0.040	0.150	0.200
Accomplishments/Planned Programs Subtotals	2.139	2.325	2.418

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834520: *Theater Battle Management C2 System*	1.040	1.250	1.255	-	1.255	1.262	1.284	1.307	1.330	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on incremental development.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PRC2 Follow on Development	PO	Ogden ALC : Hill AFB, UT	0.000	0.712	Mar 2014	1.081	Dec 2014	1.118	Dec 2015	-		1.118	Continuing	Continuing	TBD
		Subtotal	0.000	0.712		1.081		1.118		-		1.118	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation.	PO	46th Test Squardon : Eglin AFB, FL	0.000	0.040	Oct 2013	0.150	Oct 2014	0.200	Oct 2015	-		0.200	Continuing	Continuing	TBD
		Subtotal	0.000	0.040		0.150		0.200		-		0.200	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/ Various	MITRE : Bedford, MA	0.000	0.584	Oct 2013	0.330	Oct 2014	0.330	Oct 2014	-		0.330	Continuing	Continuing	TBD
Program Management Administration	C/Various	Various : Hanscom AFB, MA	0.000	0.803	Oct 2013	0.764	Dec 2014	0.770	Dec 2015	-		0.770	Continuing	Continuing	TBD
		Subtotal	0.000	1.387		1.094		1.100		-		1.100	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.139		2.325		2.418		-		2.418	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

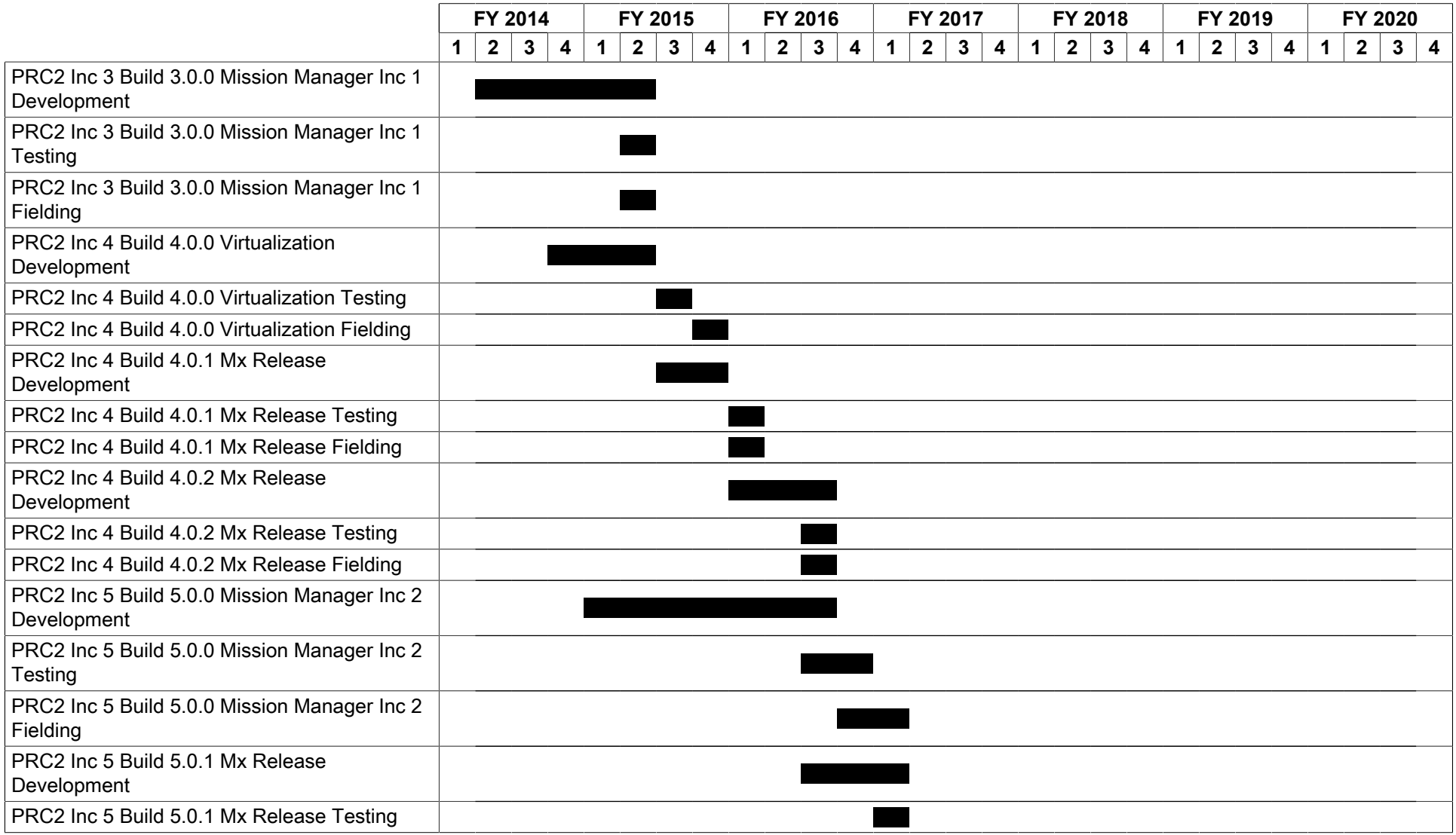

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675221 / *Personnel Recovery Command and Control (PRC2)*

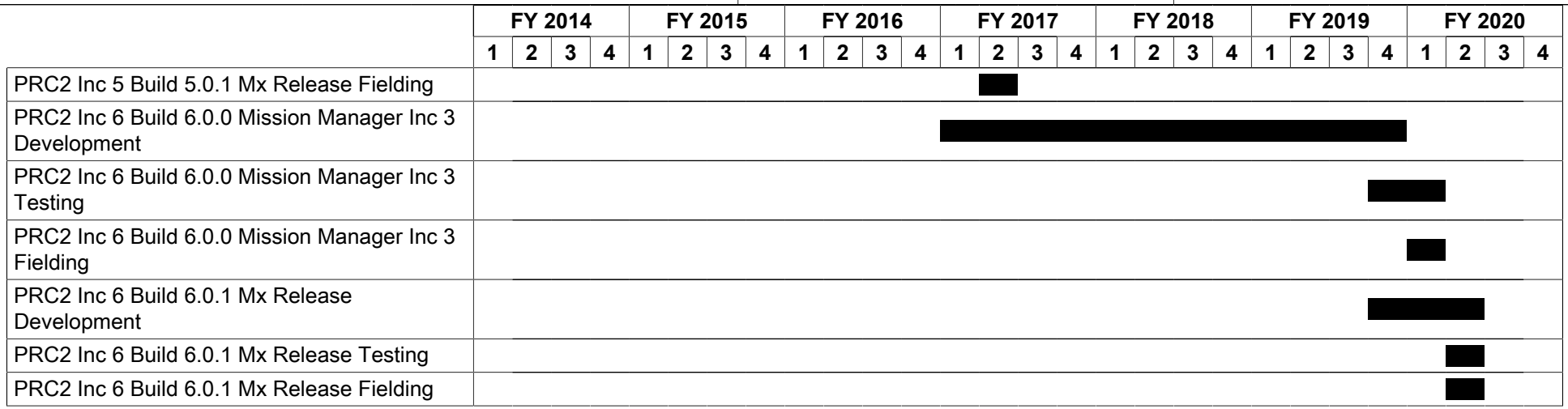

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207410F / *Air & Space Operations Center (AOC)*	**Project (Number/Name)** 675221 / *Personnel Recovery Command and Control (PRC2)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PRC2 Inc 3 Build 3.0.0 Mission Manager Inc 1 Development	2	2014	2	2015
PRC2 Inc 3 Build 3.0.0 Mission Manager Inc 1 Testing	2	2015	2	2015
PRC2 Inc 3 Build 3.0.0 Mission Manager Inc 1 Fielding	2	2015	2	2015
PRC2 Inc 4 Build 4.0.0 Virtualization Development	4	2014	2	2015
PRC2 Inc 4 Build 4.0.0 Virtualization Testing	3	2015	3	2015
PRC2 Inc 4 Build 4.0.0 Virtualization Fielding	4	2015	4	2015
PRC2 Inc 4 Build 4.0.1 Mx Release Development	3	2015	4	2015
PRC2 Inc 4 Build 4.0.1 Mx Release Testing	1	2016	1	2016
PRC2 Inc 4 Build 4.0.1 Mx Release Fielding	1	2016	1	2016
PRC2 Inc 4 Build 4.0.2 Mx Release Development	1	2016	3	2016
PRC2 Inc 4 Build 4.0.2 Mx Release Testing	3	2016	3	2016
PRC2 Inc 4 Build 4.0.2 Mx Release Fielding	3	2016	3	2016
PRC2 Inc 5 Build 5.0.0 Mission Manager Inc 2 Development	1	2015	3	2016
PRC2 Inc 5 Build 5.0.0 Mission Manager Inc 2 Testing	3	2016	4	2016
PRC2 Inc 5 Build 5.0.0 Mission Manager Inc 2 Fielding	4	2016	1	2017
PRC2 Inc 5 Build 5.0.1 Mx Release Development	3	2016	1	2017
PRC2 Inc 5 Build 5.0.1 Mx Release Testing	1	2017	1	2017
PRC2 Inc 5 Build 5.0.1 Mx Release Fielding	2	2017	2	2017
PRC2 Inc 6 Build 6.0.0 Mission Manager Inc 3 Development	1	2017	4	2019
PRC2 Inc 6 Build 6.0.0 Mission Manager Inc 3 Testing	4	2019	1	2020
PRC2 Inc 6 Build 6.0.0 Mission Manager Inc 3 Fielding	1	2020	1	2020
PRC2 Inc 6 Build 6.0.1 Mx Release Development	4	2019	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
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)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PRC2 Inc 6 Build 6.0.1 Mx Release Testing	2	2020	2	2020
PRC2 Inc 6 Build 6.0.1 Mx Release Fielding	2	2020	2	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207412F / *Control and Reporting Center (CRC)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	6.435	-	0.559	-	0.559	5.433	2.468	0.010	9.565	Continuing	Continuing
67485L: *Theater Air Control System Imp (TACSI)*	-	6.435	-	0.559	-	0.559	5.433	2.468	0.010	9.565	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 67485L, Theater Air Control Sys Imp (TACSI), includes new start effort for JTIDS LINK 16 Terminal replacement.

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/TRC-23A Operations Module (OM), the AN/TRC-215 Remote Radio Secure Voice System (RRSVS) and the Joint Tactical Information Distribution System (JTIDS) Module Link 16 Terminal. JTIDS Module link 16 Terminal is a new start in FY16.

AN/TRC-23A 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-215 RRSVS is a voice radio and OM-interface unit. The RRSVS allows real-time, secure voice communications between aircraft in development and battle management C2 operators in the CRC. Everything over Internet Protocol (EoIP), which is used for external communications, will also be integrated into a future RRSVS upgrade. JTIDS Link 16 Terminal Replacement will provide crypto modernization and will meet the FAA mandated frequency re-mapping requirement.

In FY 2016, Project 67485L, Theater Air Control Sys Imp (TACSI), includes new start effort for JTIDS LINK 16 Terminal replacement.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207412F / *Control and Reporting Center (CRC)*	

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	6.993	0.552	0.563	-	0.563
Current President's Budget	6.435	-	0.559	-	0.559
Total Adjustments	-0.558	-0.552	-0.004	-	-0.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.552			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.328	-			
• SBIR/STTR Transfer	-0.230	-			
• Other Adjustments	-	-	-0.004	-	-0.004

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: OM Mod	6.195	-	-
Description: The OM Mod Upgrade effort's activities included the engineering manufacturing and development of the OM Mod Units, Developmental/ Operational Test (DT/OT), integration and technical data package development.			
FY 2014 Accomplishments: OM Mod Upgrade effort includes: the development of 2 OM Mod Production Representative Units (PRUs), integration, technical data package and the completion of DT.			
FY 2015 Plans: N/A			
FY 2016 Plans: N/A			
Title: RRSVS 3.2	0.240	-	-
Description: RRSVS activities include, but are not limited to, the development, testing and integration of software upgrades.			
FY 2014 Accomplishments: Completed the integration efforts prior to the start of production activities in support of RRSVS.			
FY 2015 Plans: N/A			
FY 2016 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207412F / *Control and Reporting Center (CRC)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
N/A			
Title: JTIDS	-	-	0.559
Description: JTIDS Link 16 Terminal Replacement will provide crypto modernization and will meet the FAA mandated frequency re-mapping requirement ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Will begin development and support efforts of the Joint Tactical Information Distribution System (JTIDS) upgrade.			
Accomplishments/Planned Programs Subtotals	6.435	-	0.559

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 833040: *Theater Air Control Sys Improvements*	4.561	50.033	22.710	-	22.710	28.340	7.722	12.228	2.893	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 BMC2 capabilities. A variety of contract types will be utilized depending on type of effort. Contracting strategy will include, but is not limited to, open competition, sole source contracts, and interdepartmental purchase requests.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / *Control and Reporting Center (CRC)*	Project (Number/Name) 67485L / *Theater Air Control System Imp (TACSI)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remote Radio Spiral 3.2	MIPR	SPAWARSYSCEN Atlantic : North Charleston, SC	-	0.240	Jan 2014	-		-		-		-	Continuing	Continuing	-
OM MOD Upgrade	MIPR	SMDC Space and Missile Defense Center : REDSTONE ARSENAL, AL	-	3.067	Nov 2013	-		-		-		-	Continuing	Continuing	-
JTIDS II Terminals	TBD	TBD : TBD,	-	-		-		0.360	Jan 2016	-		0.360	Continuing	Continuing	-
		Subtotal	-	3.307		-		0.360		-		0.360	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	Various : Various, MA	-	0.986	Apr 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.986		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Hanscom, MA	-	2.142	Jan 2014	-		0.199	Jan 2016	-		0.199	Continuing	Continuing	-
		Subtotal	-	2.142		-		0.199		-		0.199	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / *Control and Reporting Center (CRC)*	Project (Number/Name) 67485L / *Theater Air Control System Imp (TACSI)*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	6.435		-		0.559		-		0.559	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207412F / *Control and Reporting Center (CRC)*	**Project (Number/Name)** 67485L / *Theater Air Control System Imp (TACSI)*

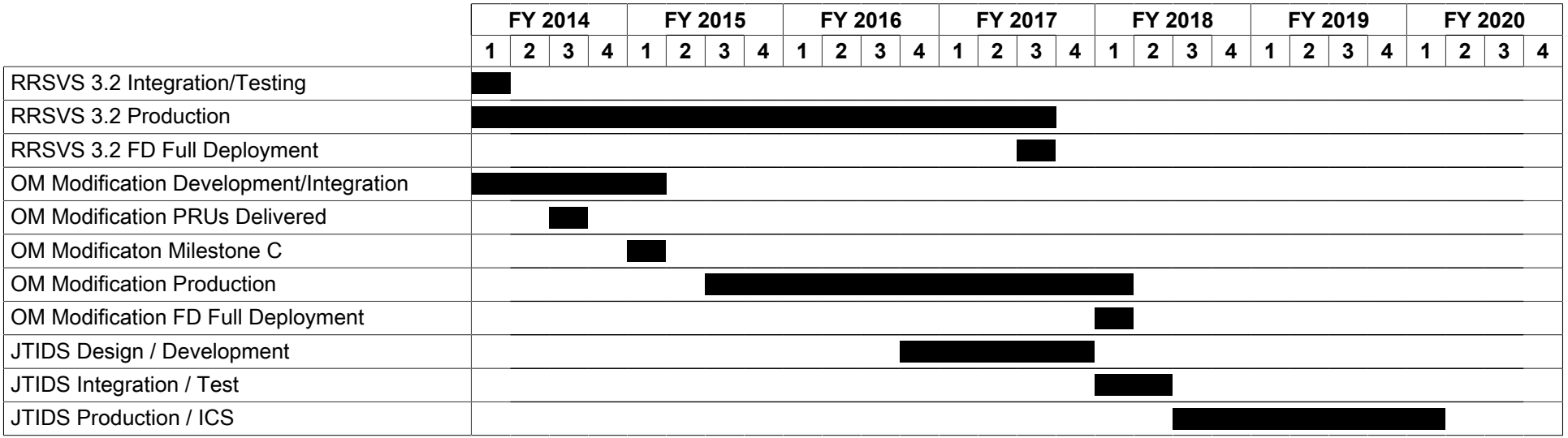

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207412F / *Control and Reporting Center (CRC)*	**Project (Number/Name)** 67485L / *Theater Air Control System Imp (TACSI)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RRSVS 3.2 Integration/Testing	1	2014	1	2014
RRSVS 3.2 Production	1	2014	3	2017
RRSVS 3.2 FD Full Deployment	3	2017	3	2017
OM Modification Development/Integration	1	2014	1	2015
OM Modification PRUs Delivered	3	2014	3	2014
OM Modificaton Milestone C	1	2015	1	2015
OM Modification Production	3	2015	1	2018
OM Modification FD Full Deployment	1	2018	1	2018
JTIDS Design / Development	4	2016	4	2017
JTIDS Integration / Test	1	2018	2	2018
JTIDS Production / ICS	3	2018	1	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207417F / *Airborne Warning and Control System (AWACS)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	3,706.552	143.404	180.804	161.812	-	161.812	108.766	82.371	100.371	110.466	Continuing	Continuing
67411L: *Airborne Warning & Control System (AWACS)*	3,706.552	143.404	180.804	161.812	-	161.812	108.766	82.371	100.371	110.466	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
MDAP/MAIS Code: 277												

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. Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve integration, quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure (DLI), improve electronic support measures processing and enable more effective, faster upgrades via an open-system, Ethernet-based architecture. This upgrade also updates the ground support infrastructure, training systems [(Mission Crew Training Set (MCTS), and Mission Computing Maintenance Trainer (MCMT)], data links and the Avionics Integration Support Facility (AISF) all located at Tinker Air Force Base

2. Next Generation Identification Friend or Foe (NGIFF) provides AWACS with enhanced IFF interrogator operation to add a more secure Mode 5 capability. The National Security Agency (NSA) declared IFF Mode 4 unsecure and obsolete on 5 Nov 2003. Joint Requirements Oversight Council Memo 047-07 requires IFF Mode 5 interrogation capability by FY14. NGIFF is on track to declare IOC in Dec 2015. The new Mode 5 interrogation capability extends the effective range of the AWACS interrogator, while helping discriminate against closely spaced cooperative targets. NGIFF developed and integrated a basic Mode 5 capability on Block 30/35 starting in FY09 and began developing a full Mode 5 capability on Block 40/45 in FY11. Hardware will be common between the Block 30/35 and Block 40/45 platforms. NGIFF will also integrate Mode S, a civilian air traffic control capability residing in the NGIFF hardware, as funding allows.

3. DMS Replacement of Avionics for Global Operations and Navigation (DRAGON) completes the FAA/International Civil Aviation Organization (ICAO)/EUROCONTROL (European Organization for the Safety of Air Navigation) 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 Command and Control (C2) Battle Management (BM). 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 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. The Engineering and Manufacturing Development (EMD) phase of DRAGON is being executed as a Cooperative Program between the US and NATO.

4. 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.

5. Training, Support, and Infrastructure (TSI) program provides continuing management support for AWACS modernization and enhancement. These activities include managing the AWACS Development Test and Evaluation (DT&E) infrastructure and tracking and monitoring AWACS training, support equipment and program Government Furnished Property. The overall Development Test and Evaluation (DT&E) test infrastructure supports development, production, and sustainment projects and maintains facilities to support AWACS aircraft during system and sub-system testing at Boeing Field, WA. 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 configured Advanced Development Lab (ADL) 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. TSI supports trainer/simulator upgrade analysis and requirements definition to ensure trainers and simulators are kept current with the AWACS baseline.

6. 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.

7. Internet Protocol Enabled Communication (IPEC): IPEC will provide the Block 40/45 E-3 with a medium-bandwidth 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 SIPRNET and multi-domain networks.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

8. MIDS (Multifunctional Information Distribution System) Radio System 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/ Dimishing Manufacturing Sources (DMS) issues and does not support mandated Crypto Mod (CM) & Freq Remap (FR). MIDS resolves DMS issues, provides CM & FR, Link 16 enhancements & growth for Next Gen Tactical Data Link (TDL).

9. AWACS current Combat Identification (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 addresses C2 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) Battle Management Command and Control (BMC2) combat ID. CID supports the kill chain and decision superiority. The upgrade will also provide for better integration into Block 40/45 and NGIFF equipped AWACS aircraft.

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.

The FY2016 funding request was reduced by $2.284 million to account for tha availability of prior execution balances.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	148.369	180.804	124.987	-	124.987
Current President's Budget	143.404	180.804	161.812	-	161.812
Total Adjustments	-4.965	-	36.825	-	36.825
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.965	-			
• Other Adjustments	-	-	36.825	-	36.825

Change Summary Explanation

FY16 PB adds $36.825M to support delay on DRAGON driven by Budget Control Act funding reductions in the FY14.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: E-3 Block 40/45	11.268	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Block 40/45 ***FY 2014 Accomplishments:*** - Delivered and Installed Mission Crew Training Sets (MCTS) and Mission Computing Maintenance Trainers (MCMT) into gov't facility. - Completed Initial Avionics Integrated Support Facility (AISF) development. - Completed development of Secure Iridium Communication. - Continued to develop the Data Link Infrastructure (DLI) improvements for seamless transition from Block 30/35. ***FY 2015 Plans:*** n/a ***FY 2016 Base Plans:*** n/a ***FY 2016 OCO Plans:*** n/a					
Title: E-3 Next Generation Identification Friend or Foe (NGIFF) ***Description:*** Next Generation Identification Friend or Foe (NGIFF) ***FY 2014 Accomplishments:*** - Completed final system verification review for IFF 40/45. - Conducted data analysis for IFF 40/45 flight test. - Released IFF 40/45 Build 3.0 software. - Completed verification of Technical Requirements Document (TRD) for IFF 40/45. - Finalized Time Compliance Technical Orders (TCTO's) and TO's for IFF 40/45 into FY15. ***FY 2015 Plans:*** Continue force development evaluation; complete by FY16. ***FY 2016 Base Plans:*** n/a ***FY 2016 OCO Plans:***	21.554	1.500	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
n/a					
Title: E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON) ***Description:*** DMS Replacement of Avionics for Global Operations and Navigation (DRAGON) ***FY 2014 Accomplishments:*** - Modified first EMD aircraft (N-1) to support modification efforts. - Completed lab software testing. Initiated N-1 ground testing. ***FY 2015 Plans:*** - Perform Handover Test of US development test aircraft (D-1), transfer aircraft to Boeing and begin the aircraft modification. - Start and complete the flight testing of the NATO developmental aircraft (N- 1). - Perform the Technical Order (TO) validation for N-1. - Start the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) for N-1. - Initiate development of Automatic Dependent Surveillance - Broadcast (ADS-B) Out capability to DRAGON in FY15. ***FY 2016 Base Plans:*** - Will complete N-1 (common) Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA). - Will perform D-1 Installation & Checkout. - Will perform D-1 Ground Test and Flight Test. - Will conduct D-1 Tech Order validation. - Will perform D-1 Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) for D-1. - Will begin Classroom and A/C Training. ***FY 2016 OCO Plans:*** N/A	89.482	129.150	88.277	-	88.277
Title: E-3 Electronic Protection (EP) ***Description:*** Electronic Protection (EP) ***FY 2014 Accomplishments:*** - Awarded risk reduction contract. - Addressed requirements needed to safely install upgrade into E-3 fleet.	9.882	18.604	26.092	-	26.092

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Reduced technical risk in development of classified technology solutions to mitigate issues/concerns identified under the risk management plan study. ***FY 2015 Plans:*** - Award EMD contract. - Begin development of classified technology solutions to mitigate issues/concerns identified under the Radar Modernization Program (RMP) study. ***FY 2016 Base Plans:*** - Will continue development of classified technology solutions to mitigate issues/concerns identified in the Radar Modernization Program (RMP) study. - Will conduct Critical Design Review (CDR) in FY16. ***FY 2016 OCO Plans:*** N/A					
Title: E-3 Training, Support, and Infrastructure (TSI) ***Description:*** Training, Support, and Infrastructure (TSI) ***FY 2014 Accomplishments:*** - Supported AWACS developmental and production programs lab integration efforts. - Provided system lab support to Electronic Protection (EP), Block 40/45, Diminishing Manufacturing Sources Replacement of Avionics (DRAGON), Next Generation Identification Friend or Foe (NGIFF), Transformational Networking Capability (TNC), Situational Awareness Data Link (SADL), Internet Protocol Enabled Communication (IPEC), Japan and Royal Saudi Air Force (RSAF) radar improvement, integration and test. - Supported Airborne Early Warning and Control (AEW&C) System and other Office of the Secretary of Defense (OSD) mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program. - Supported the E-3 AWACS Developmental Test and Evaluation Avionics Integration Laboratory (AIL). ***FY 2015 Plans:*** - Support AWACS developmental and production programs lab integration efforts. Provide system lab support to EP, Block 40/45, DRAGON, NGIFF, TNC, SADL, IPEC, Japan and RSAF radar improvement, integration and test.	8.371	11.472	11.139	-	11.139

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Support AEW&C and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program. - Support the E-3 AWACS Developmental Test and Evaluation AIL. ***FY 2016 Base Plans:*** - Will support AWACS developmental and production programs lab integration efforts. - Will provide system lab support to EP, Block 40/45, DRAGON, NGIFF, TNC, SADL, IPEC, Japan and RSAF radar improvement, integration and test. - Will support AEW&C and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program. - Will support evaluation and assessment of future modernization programs. - Will support the E-3 AWACS Developmental Test and Evaluation AIL. ***FY 2016 OCO Plans:*** N/A					
Title: E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) ***Description:*** Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) ***FY 2014 Accomplishments:*** - Conducted engineering / integration studies to determine required modifications and associated costs to upgrade and support Risk Reduction activities for program planning including but not limited to Cooperative Engagement Capability (CEC), Electronic Protection (EP), and Internet Protocol Enabled Communication (IPEC). - Executed International Cooperative Research & Development (ICR&D). ***FY 2015 Plans:*** - Conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support Risk Reduction activities for program planning including but not limited to Cooperative Engagement Capability (CEC), Electronic Protection (EP), and Internet Protocol Enabled Communication (IPEC), Combat ID (CID) Diminishing Manufacturing Sources (DMS), and Communication Network Upgrade (CNU). - Continue execution of International Cooperative Research & Development (IR&D). ***FY 2016 Base Plans:***	2.847	3.503	3.608	-	3.608

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Will 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 International Cooperative Research & Development (IR&D). ***FY 2016 OCO Plans:*** N/A					
Title: E-3 Internet Protocol Enabled Communication (IPEC) ***Description:*** Internet Protocol Enabled Communication (IPEC) ***FY 2014 Accomplishments:*** Risk Reduction Studies/activities conducted under C2ISR ***FY 2015 Plans:*** Award Engineering Manufacturing and Development (EMD) contract to develop a medium bandwidth Internet Protocol capability capitalizing on the INMARSAT terminal development conducted under Diminishing Manufacturing Sources (DMS) Replacement of Avionics for Global Operations and Navigation (DRAGON). ***FY 2016 Base Plans:*** Will continue EMD activities in preparation for contractor Development Test (DT) and Government DT and Operational Test (OT). ***FY 2016 OCO Plans:*** N/A	-	16.575	13.974	-	13.974
Title: E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) ***Description:*** Combat Identification (CID) Diminishing Manufacturing Sources (DMS) ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:***	-	-	9.435	-	9.435

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Will award an Engineering and Manufacturing Development (EMD) contract to start a multi-year development effort addressing C2 Combat Identification (CID) shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) Battle Management Command and Control (BMC2) CID capability. - AWACS current CID capability is based upon 1960's era technology that has become unsustainable, and requires an upgrade to retain a significant portion of AWACS overall mission capability. ***FY 2016 OCO Plans:*** N/A					
Title: E-3 Communication Network Upgrade (CNU) ***Description:*** Communication Network Upgrade (CNU) ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** - Will award Engineering and Manufacturing Development (EMD) contract to start multi-year development. - CNU will use Link 16 for 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 / Dimishing Manufacturing Sources (DMS) issues; 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). ***FY 2016 OCO Plans:*** N/A	-	-	9.287	-	9.287
Accomplishments/Planned Programs Subtotals	143.404	180.804	161.812	-	161.812

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # E00300: *E-3*	138.513	16.491	13.178	-	13.178	77.941	115.830	126.545	154.883	Continuing	Continuing
• APAF: BA05: Line Item # E34045: *E-3 (Blk 40/45)*	-	191.284	183.308	-	183.308	226.429	103.643	58.221	29.533	-	-
• APAF: BA06: Line Item # 000999: *Initial Spares/Repair Parts*	11.681	2.957	16.234	-	16.234	23.806	22.682	24.132	24.552	Continuing	Continuing

Remarks

E. Acquisition Strategy

Most major programs (E-3 Block 40/45, E-3 DRAGON, and lab support) will be sole source to the Boeing Corporation, Seattle, WA.

EP and IPEC will award new contracts in 3QFY15 and 4QFY15, respectively.

AMASS replacement contract will be a sole source IDIQ contract to provide continuing modernization and sustainment support for the AWACS fleet. Expected award date is 4QFY16.

Boeing work location will be based on program contract or as modified and mutually agreed to by the Government and The Boeing Corporation based on Boeing's ongoing relocation of E-3 activities from Seattle, WA to Oklahoma City, OK.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) E-3 Block 40/45	SS/CPIF	Boeing : Seattle, WA	1,106.006	10.889	Jan 2014	-		-		-		-	-	1,116.895	TBD
(U) E-3 Next Generation Identification Friend or Foe (NGIFF)	SS/CPIF	Boeing : Seattle, WA	89.553	20.480	Jan 2014	1.459	Oct 2014	-		-		-	Continuing	Continuing	TBD
(U) E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	Boeing : Seattle, WA	97.722	82.834	Jan 2014	122.082	Jan 2015	81.881	Jan 2016	-		81.881	Continuing	Continuing	TBD
(U) E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)	SS/ Various	Boeing : Seattle, WA	139.559	0.457	Jan 2014	-		3.231	Jan 2016	-		3.231	Continuing	Continuing	TBD
(U) E-3 Electronic Protection (EP)	SS/TBD	Boeing : Seattle, WA	0.000	8.117	Feb 2014	16.687	Jul 2015	22.792	Jan 2016	-		22.792	Continuing	Continuing	TBD
(U) E-3 Internet Protocol Enabled Communication (IPEC)	SS/ Various	Boeing : Seattle, WA	0.000	-		14.301	Jul 2015	10.874	Jan 2016	-		10.874	Continuing	Continuing	TBD
(U) E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS)	TBD	TBD : TBD,	0.000	-		-		9.435	Apr 2016	-		9.435	Continuing	Continuing	TBD
(U) E-3 Communication Network Upgrade (CNU)	TBD	TBD : TBD,	0.000	-		-		9.287	Mar 2016	-		9.287	Continuing	Continuing	TBD
(U) Prior Platform Modifications	Various	Various : Various, NA	1,534.419	-		-		-		-		-	-	1,534.419	-
		Subtotal	2,967.259	122.777		154.529		137.500		-		137.500	-	-	-

Remarks

Total Program does not include NATO funds.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) Support/ITSP, MITRE, travel, other	Various	AWACS Program Office : Hanscom AFB, MA	85.095	-		-		-		-		-	-	85.095	-
		Subtotal	85.095	-		-		-		-		-	-	85.095	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) E-3 AWACS Development Integration Test Support (ADITS) Contract / Other test activities	SS/ Various	Boeing : Seattle, WA	239.985	-		-		-		-		-	-	239.985	TBD
(U) E-3 Training, Support & Infrastructure (TSI)	SS/ Various	Boeing : Seattle, WA	40.090	7.649	Jan 2014	11.098	Jan 2015	11.139	Jan 2016	-		11.139	Continuing	Continuing	TBD
(U) Joint Test Facility	Various	Multiple : ,	0.730	0.933	Oct 2013	1.249	Oct 2014	-		-		-	Continuing	Continuing	TBD
		Subtotal	280.805	8.582		12.347		11.139		-		11.139	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) Program Management Administration (PMA)	Various	AWACS Program Office : Hanscom AFB, MA	373.393	12.045	Oct 2013	13.928	Oct 2014	13.173	Oct 2015	-		13.173	Continuing	Continuing	TBD
		Subtotal	373.393	12.045		13.928		13.173		-		13.173	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,706.552	143.404		180.804		161.812		-		161.812	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

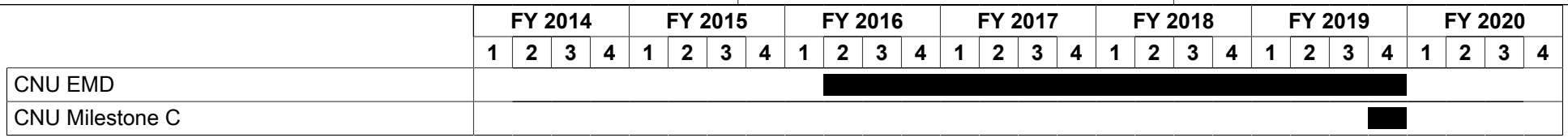

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
40/45 MCT EMD	1	2014	4	2014
40/45 IOC	2	2014	2	2014
NGIFF EMD (UPX-40 software and firmware development for Block 40/45)	1	2014	2	2015
NGIFF 40/45 DT	2	2014	1	2015
NGIFF 40/45 OT	2	2014	1	2015
NGIFF IOC	1	2016	1	2016
DRAGON EMD	1	2014	2	2017
DRAGON DT/OT	1	2015	2	2017
DRAGON Milestone C	2	2017	2	2017
EP Technology Development	1	2014	2	2015
EP Milestone B	3	2015	3	2015
EP EMD	3	2015	3	2017
EP Milestone C	4	2017	4	2017
EP DT/OT	2	2017	4	2017
IPEC TD	1	2015	3	2015
IPEC EMD	4	2015	3	2017
IPEC Ktr DT & Gov't DT/OT	1	2017	3	2017
IPEC Milestone C	3	2017	3	2017
CID DMS TD	1	2016	2	2016
CID DMS Milestone B	3	2016	3	2016
CID DMS EMD	3	2016	4	2018
CID DMS Milestone C	4	2018	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
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)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CNU TD Phase	1	2016	2	2016
CNU Milestone B	2	2016	2	2016
CNU EMD	2	2016	4	2019
CNU Milestone C	4	2019	4	2019

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207418F / *Tactical Airborne Control Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.719	3.754	6.001	-	6.001	4.301	3.681	3.750	3.817	Continuing	Continuing
675234: *TACP Support*	-	0.719	3.754	6.001	-	6.001	4.301	3.681	3.750	3.817	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

a. The Joint Terminal Control Training and Rehearsal System (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 Air Traffic Control, 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 JTACs and Special Tactics personnel. JTAC control 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 to Ground Simulation System (JTAGSS) trainer for Joint Fires integration. The Personnel Recovery 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/SOF (Special Operations Forces) C2 (Command and Control) 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207418F / *Tactical Airborne Control Systems*	

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	0.743	3.754	6.041	-	6.041
Current President's Budget	0.719	3.754	6.001	-	6.001
Total Adjustments	-0.024	-	-0.040	-	-0.040
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.024	-			
• Other Adjustments	-	-	-0.040	-	-0.040

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JTC TRS Trainer Development	0.619	0.750	2.500	-	2.500
Description: Development, test, and evaluation of high-fidelity simulation system for Joint Terminal Attack Controller (JTAC), Combat Control Team (CCT) Assault Zone operations, and Personnel Recovery (PR) training and mission rehearsal. ***FY 2014 Accomplishments:*** Continued development of Increment 1 of the JTC TRS trainer. ***FY 2015 Plans:*** Accomplish testing to support source selection of technically acceptable, production ready devices. ***FY 2016 Base Plans:*** Convert existing AAJTS units to JTC TRS devices. ***FY 2016 OCO Plans:*** N/A					
Title: JTAGSS Trainer Development	0.100	3.004	3.501	-	3.501
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 2014 Accomplishments:***					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207418F / *Tactical Airborne Control Systems*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Completed JTAGSS Phase 1 development and started Phase 2. ***FY 2015 Plans:*** Continue Phase 2 development of JTAGSS simulator configuration. ***FY 2016 Base Plans:*** Complete JTAGSS Phase 2 and transition to acquisition. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.719	3.754	6.001	-	6.001

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA 03: Line Item # 837100: *Tactical C-E Equipment*	-	0.546	19.737	-	19.737	32.342	24.870	1.166	-	-	78.661

Remarks

E. Acquisition Strategy

a. The acquisition strategy for the development, production, and sustainment of the fixed configuration of the JTC TRS is to be determined once the Capability Production Document is validated for Milestone C.

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207418F / *Tactical Airborne Control Systems*	**Project (Number/Name)** 675234 / *TACP Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JTC TRS Trainer Develoment	C/FPIF	ASC/WNS, AFMC : Wright Patterson AFB, OH	-	0.609	May 2014	0.750		2.500		-		2.500	Continuing	Continuing	-
JTAGSS Development	C/CPFF	AFRL, AFMC : Wright Patterson AFB, OH	-	0.110	Sep 2014	3.004	Sep 2014	3.501		-		3.501	Continuing	Continuing	-
		Subtotal	-	0.719		3.754		6.001		-		6.001	-	-	-

Remarks

JTC TRS 2.0
- Adds Air Traffic Control and Assault Zone operations for Special Operations Special Tactics personnel.

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / *Tactical Airborne Control Systems*	Project (Number/Name) 675234 / *TACP Support*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.719		3.754		6.001		-		6.001	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207418F / *Tactical Airborne Control Systems*	**Project (Number/Name)** 675234 / *TACP Support*

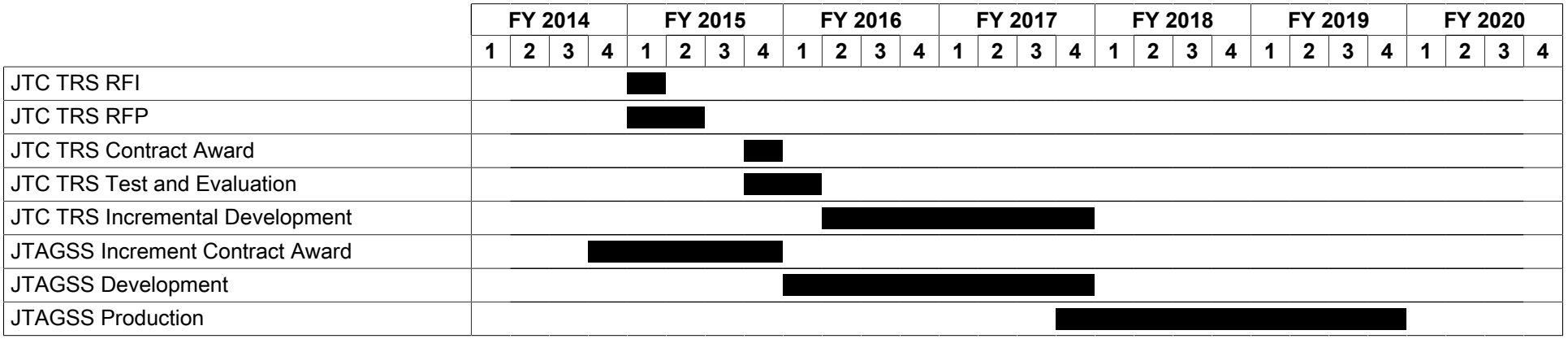

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207418F / *Tactical Airborne Control Systems*	**Project (Number/Name)** 675234 / *TACP Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JTC TRS RFI	1	2015	1	2015
JTC TRS RFP	1	2015	2	2015
JTC TRS Contract Award	4	2015	4	2015
JTC TRS Test and Evaluation	4	2015	1	2016
JTC TRS Incremental Development	2	2016	4	2017
JTAGSS Increment Contract Award	4	2014	4	2015
JTAGSS Development	1	2016	4	2017
JTAGSS Production	4	2017	4	2019

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	5.780	7.891	7.793	-	7.793	11.260	10.616	10.946	11.132	Continuing	Continuing
675307: *TARGETING ENTERPRISE RESEARCH*	-	4.793	6.185	6.050	-	6.050	6.605	5.896	6.005	6.104	Continuing	Continuing
675309: *GEO Info & Serv Software*	-	0.987	1.706	1.743	-	1.743	4.655	4.720	4.941	5.028	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)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	4.471	7.891	7.845	-	7.845
Current President's Budget	5.780	7.891	7.793	-	7.793
Total Adjustments	1.309	-	-0.052	-	-0.052
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.460	-			
• SBIR/STTR Transfer	-0.151	-			
• Other Adjustments	-	-	-0.052	-	-0.052

Change Summary Explanation

FY13 adjustment due to sequestration.
FY14 adjustment funds Joint Targeting Toolbox.
FY15 additional funds invested in the Targeting Enterprise.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*	Project (Number/Name) 675307 / *TARGETING ENTERPRISE RESEARCH*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675307: *TARGETING ENTERPRISE RESEARCH*	-	4.793	6.185	6.050	-	6.050	6.605	5.896	6.005	6.104	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 2014	FY 2015	FY 2016
Title: Targeting Enterprise Research	2.117	3.562	2.180
Description: Continue to conduct Targeting Enterprise research and advancement for projects such as Joint Targeting Toolbox (JTT) data structures, Information for Operational and Tactical Analysis (IOTA), Common Geopositioning Services (CGS), Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3), and Imagery Analyst (IA) Pioneer Electronic Light Table (ELT), to include emerging technology (Target System Analysis, 4D visualization, etc.)			
FY 2014 Accomplishments: Enhanced current analysis capabilities with new applications and services.			
FY 2015 Plans: Enhance current targeting and analysis capabilities with advanced function on current applications. Develop and deploy IA Pioneer.			
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).			
Title: Joint Targeting Toolbox (JTT)	2.676	1.947	3.870
Description: Develop full-spectrum mission areas for Joint Targeting Toolbox (JTT) user interface and data structures.			
FY 2014 Accomplishments: Developed Information Operations (IO) Tab for enhanced target lists and folders for kinetic and non-kinetic targeting mission areas, and enhanced JTT workflow.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675307 / *TARGETING ENTERPRISE RESEARCH*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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. ***FY 2016 Plans:*** Integration and continued development of enhanced target lists and folders for kinetic and non-kinetic targeting mission areas, support Air Operations Center (AOC) developmental and operational testing in support of a future fielding decision. Modularize and consolidate targeting capabilities into one portfolio under the T&G PMO.			
Title: Common Geopositioning Services (CGS) ***Description:*** Upgrade Common Geopositioning Services (CGS) ***FY 2014 Accomplishments:*** None ***FY 2015 Plans:*** A transition to new 3D and stereo display systems will begin in FY15 and continue through FY16. Release CGS version 2.3.6, addressing highest Air Combat Command (ACC) priority change requests and provide a new measurement capability for images. ***FY 2016 Plans:*** None	-	0.676	-
Accomplishments/Planned Programs Subtotals	4.793	6.185	6.050

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item #832070: *Intelligence Comm Equipment*	4.020	5.110	3.919	-	3.919	6.344	4.572	4.309	4.423	Continuing	Continuing

Remarks

Combat Air Intelligence System (CAIS) procurement funds.

D. Acquisition Strategy

All contracts are awarded based on full and open competition.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675307 / *TARGETING ENTERPRISE RESEARCH*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*	Project (Number/Name) 675307 / *TARGETING ENTERPRISE RESEARCH*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Targeting Enterprise Research	Various	Northrop Grumman : Bellevue, NE	-	1.491	Sep 2014	2.062	Dec 2014	0.240	Dec 2015	-		0.240	Continuing	Continuing	TBD
Joint Targeting Toolbox	Various	Northrop Grumman : Bellevue, NE	-	2.675	Jan 2014	1.947	Mar 2015	3.870	Dec 2015	-		3.870	Continuing	Continuing	TBD
Common Geopositioning Services	Various	BAE Systems : San Diego, CA	-	-		0.676	May 2015	-		-		-	-	0.676	-
		Subtotal	-	4.166		4.685		4.110		-		4.110	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Targeting Enterprise Research	Various	SPAWAR : Phili, PA	-	-		0.656	Jun 2015	0.556	Dec 2015	-		0.556	-	1.212	-
		Subtotal	-	-		0.656		0.556		-		0.556	-	1.212	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
46th Test Squadron	PO	46th Test Squadron : Eglin, FL	-	-		0.226	Dec 2014	0.044	Dec 2015	-		0.044	-	0.270	-
		Subtotal	-	-		0.226		0.044		-		0.044	-	0.270	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Targeting Research Enterprise	Various	Program Management Office : Hanscom, MA	-	0.627	Apr 2014	0.618	Jan 2015	1.340	Jan 2016	-		1.340	-	2.585	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675307 / *TARGETING ENTERPRISE RESEARCH*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	0.627		0.618		1.340		-		1.340	-	2.585	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.793		6.185		6.050		-		6.050	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675307 / *TARGETING ENTERPRISE RESEARCH*

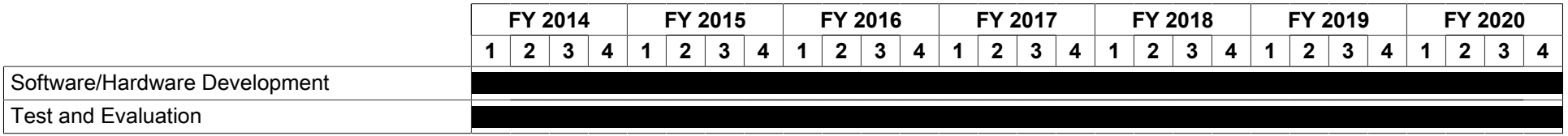

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675307 / *TARGETING ENTERPRISE RESEARCH*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Software/Hardware Development	1	2014	4	2020
Test and Evaluation	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*	Project (Number/Name) 675309 / *GEO Info & Serv Software*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675309: *GEO Info & Serv Software*	-	0.987	1.706	1.743	-	1.743	4.655	4.720	4.941	5.028	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 2014	FY 2015	FY 2016
Title: Enhanced Geospatial Product Library (EGPL)	0.987	1.706	1.743
Description: Provide continuing support for eGPL software and storage to meet future and evolving IT and GEOINT standards and support. ***FY 2014 Accomplishments:*** Integrated mapping services & capabilities to provide a viable web replacement for currently fielded servers. ***FY 2015 Plans:*** Complete EGPL engineering and 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.			
Accomplishments/Planned Programs Subtotals	0.987	1.706	1.743

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675309 / *GEO Info & Serv Software*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF:BA03: Line Item #832070: *Intelligence Comm Equipment*	4.020	5.110	3.919	-	3.919	6.344	4.572	4.309	4.423	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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*	Project (Number/Name) 675309 / *GEO Info & Serv Software*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhanced Geospatial Product Library	Various	Par Gov : Rome, NY	-	0.884	Sep 2014	1.696	Feb 2015	1.733	Dec 2015	-		1.733	Continuing	Continuing	-
		Subtotal	-	0.884		1.696		1.733		-		1.733	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
46 Test Squadron	PO	46 th Test Squadron : Eglin, FL	-	0.101	Aug 2014	-		-		-		-	-	0.101	-
		Subtotal	-	0.101		-		-		-		-	-	0.101	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office Support	Various	Not specified. : Hanscom, MA	-	0.002	Sep 2014	0.010	Sep 2015	0.010	Sep 2016	-		0.010	-	0.022	-
		Subtotal	-	0.002		0.010		0.010		-		0.010	-	0.022	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.987		1.706		1.743		-		1.743	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / *Combat Air Intelligence System Activities*	Project (Number/Name) 675309 / *GEO Info & Serv Software*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675309 / *GEO Info & Serv Software*

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	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																												

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207431F / *Combat Air Intelligence System Activities*	**Project (Number/Name)** 675309 / *GEO Info & Serv Software*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Software Development	1	2014	4	2016

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207444F / *Tactical Air Control Party-Mod*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	8.816	5.850	12.465	-	12.465	12.108	10.694	10.895	11.090	Continuing	Continuing
676013: *Equipment Modernizaton*	-	8.816	5.850	12.465	-	12.465	12.108	10.694	10.895	11.090	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 areas: Operation Center Systems, Vehicle-Mounted Systems, and Close Air Support System (CASS) software.

Close Air Support System (CASS) software segment interfaces with all TACP-M components and joint interoperability with CAS aircraft (A-10, F-16, 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 and targeting capability on mobile computing devices for Dismounted TACPs, as well as provide significant interoperability improvements in software used in vehicles and operations centers. Future upgrades necessary to maintain interoperability with CAS aircraft, joint fire support systems, and emerging data networking waveforms will be guided by the TACP CASS Information System Initial Capabilities Document (IS ICD), which was approved by the Air Force Requirement Oversight Council (AFROC), Functional Capabilities Board (FCB), and Joint Capabilities Board (JCB).

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	10.223	5.891	12.547	-	12.547
Current President's Budget	8.816	5.850	12.465	-	12.465
Total Adjustments	-1.407	-0.041	-0.082	-	-0.082
• Congressional General Reductions	-	-0.041			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.072	-			
• SBIR/STTR Transfer	-0.335	-			
• Other Adjustments	-	-	-0.082	-	-0.082

Change Summary Explanation

FY2014 Funding: $1.072 million was reprogrammed to other efforts, because of excess funding available due to late contract award.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Close Air Support System (CASS)	8.816	5.850	12.465	-	12.465
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 2014 Accomplishments: - CASS v1.4.5 Release 1 software development effort resulted with 5 of 9 development sprints for dismounted CASS software completed. - Completed the detailed software architecture, execution interfaces, component design frameworks and libraries needed to establish the workflow for the dismounted software. - Developed the wireframes for the HMI, establishing a map-centric, track-centric approach that minimizes operator interaction and time needed to provide situational awareness and execute dismounted close air support operations. - Demonstrated CASS operations such as free text messaging, transmit tracks, ownship, and joint tactical air support requests utilizing CASS software and prototype dismounted tablet computers.					
FY 2015 Plans:					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Complete the design and development of the Release 1 dismounted software (SW sprints 6/9) in preparation for government testing starting in fourth quarter FY15. This will include the completion of critical design review, HSI working groups, including site visits to operational TACP units to refine and validate user interfaces and operations. - Initiating the development Release 2 tailored software for use in ASOC, TOC and vehicle mission operations. - Continue development engineering efforts to incorporate capabilities such as, Call For Fires (CFF), Small Diameter Bomb II (SDB II), and Joint Automated Deep Operations Coordination System (JADOCS) interfaces. ***FY 2016 Base Plans:*** - Complete testing, training and deploy the CASS software in the dismounted tablet. - Complete testing software for use in ASOC, TOC and vehicle mission operations. - Continue to develop, integrate, and test Machine to Manchine (MTM) interfaces with C2 Nodes, USAF aircraft, and Ground Forces as well as interoperability with the Soldier Radio Waveform (SRW) and Mobile User Objective System (MUOS) SATCOM network, which will enhance communication capability among TACP and Army warfighters. - Call For Fires (CFF), Small Diameter Bomb II (SDBII) and Joint Automated Deep Operations Coordination Systems (JADOCS) engineering builds will contribute to increased TACP capability and future interoperability with CASS. TACP CASS operators require the capability to conduct digital communications using HF radios with next Generation Automatic Link Establishment (ALE) technology to achieve faster and more dependable data exchange and shorten the kill chain. - Continue to focus on incrementally providing new mounted capabilities as funding and technology allow, which will support CASS Software ICD and contract award efforts. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	8.816	5.850	12.465	-	12.465

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 837100: *Tactical C-E Equipment*	22.854	20.504	32.449	-	32.449	42.170	42.999	55.978	30.095	Continuing	Continuing

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / *Tactical Air Control Party-Mod*	Project (Number/Name) 676013 / *Equipment Modernizaton*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
14CASS Sys Int Software Dev't (CASS 1.4.5)	C/CPIF	Rockwell Collins : Poway, CA	-	4.935	Apr 2014	1.597	May 2015	3.816	Feb 2016	-		3.816	Continuing	Continuing	-
CASS Sys Int Software Dev't (CASS 2.0)	C/TBD	TBD : TBD,	-	-		-		4.642	Dec 2015	-		4.642	Continuing	Continuing	-
NSWC Crane (Naval Surface Warefare Center)	MIPR	NSWC Crane : Crane, IN	-	0.222	Jun 2014	0.950	Jan 2015	0.802	Jan 2016	-		0.802	Continuing	Continuing	-
		Subtotal	-	5.157		2.547		9.260		-		9.260	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CASS Requirements documentation	MIPR	DTIC : Ft. Belvoir, VA	-	0.214	Feb 2014	-		-		-		-	Continuing	Continuing	-
CASS 1.4.5 Equipment Hardware	MIPR	DLA : Philadelphia, PA	-	0.692	Sep 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.906		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Agency Support	Various	Various : Various,	-	0.208	Feb 2014	0.800	Dec 2014	0.821	Dec 2015	-		0.821	Continuing	Continuing	-
		Subtotal	-	0.208		0.800		0.821		-		0.821	-	-	-

Remarks

Development, operational and interoperability testing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*	**Project (Number/Name)** 676013 / *Equipment Modernizaton*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
+Program Management Administration	Various	Various : Various,	-	2.545	Jan 2014	2.503	Jan 2015	2.384	Jan 2016	-		2.384	Continuing	Continuing	-
		Subtotal	-	2.545		2.503		2.384		-		2.384	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.816		5.850		12.465		-		12.465	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*	**Project (Number/Name)** 676013 / *Equipment Modernizaton*

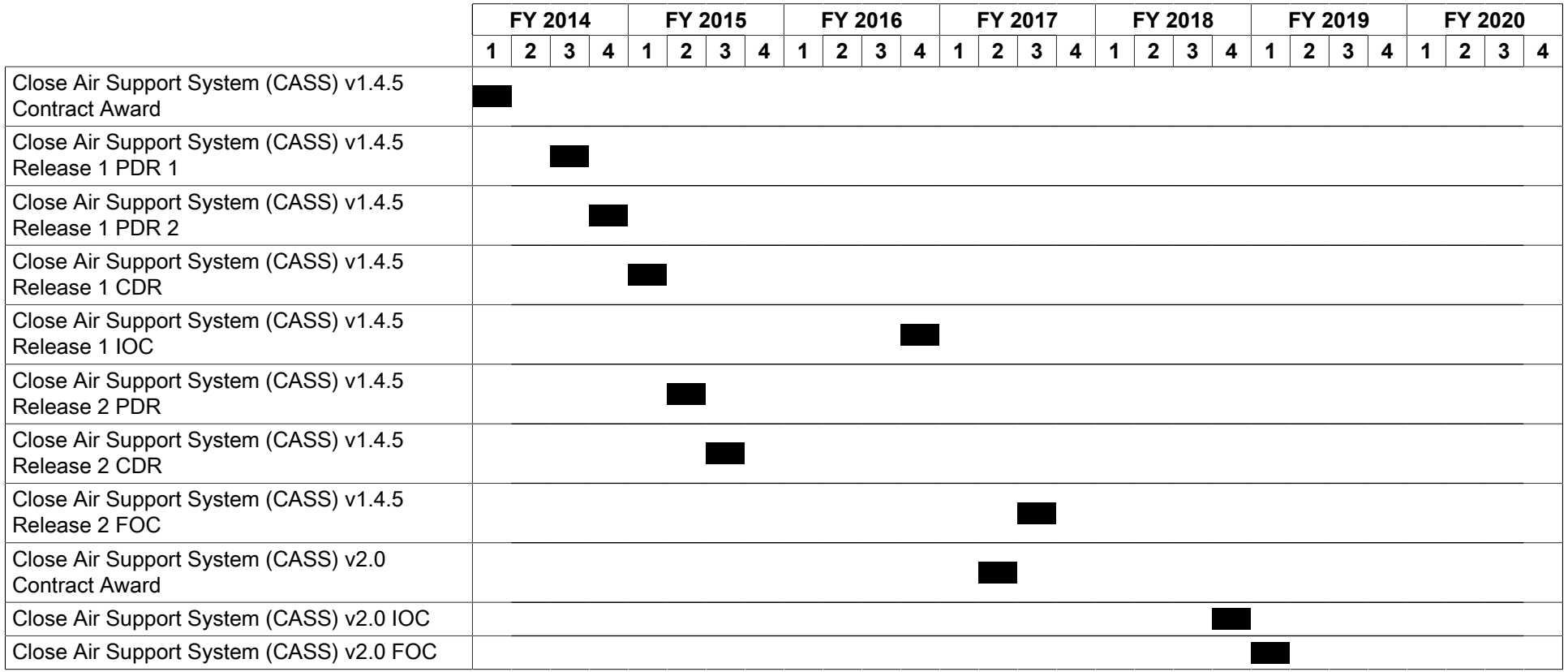

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207444F / *Tactical Air Control Party-Mod*	**Project (Number/Name)** 676013 / *Equipment Modernizaton*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Close Air Support System (CASS) v1.4.5 Contract Award	1	2014	1	2014
Close Air Support System (CASS) v1.4.5 Release 1 PDR 1	3	2014	3	2014
Close Air Support System (CASS) v1.4.5 Release 1 PDR 2	4	2014	4	2014
Close Air Support System (CASS) v1.4.5 Release 1 CDR	1	2015	1	2015
Close Air Support System (CASS) v1.4.5 Release 1 IOC	4	2016	4	2016
Close Air Support System (CASS) v1.4.5 Release 2 PDR	2	2015	2	2015
Close Air Support System (CASS) v1.4.5 Release 2 CDR	3	2015	3	2015
Close Air Support System (CASS) v1.4.5 Release 2 FOC	3	2017	3	2017
Close Air Support System (CASS) v2.0 Contract Award	2	2017	2	2017
Close Air Support System (CASS) v2.0 IOC	4	2018	4	2018
Close Air Support System (CASS) v2.0 FOC	1	2019	1	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207448F / *C2ISR Tactical Data Link*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	1.373	1.744	1.681	-	1.681	1.748	1.766	1.767	1.798	Continuing	Continuing
675045: *C2ISR Tactical Data Link*	-	1.373	1.744	1.681	-	1.681	1.748	1.766	1.767	1.798	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.

The FY2016 funding was reduced for under execution by $.079 million to account for the availability of prior execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207448F / *C2ISR Tactical Data Link*

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.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	1.406	1.782	1.770	-	1.770
Current President's Budget	1.373	1.744	1.681	-	1.681
Total Adjustments	-0.033	-0.038	-0.089	-	-0.089
• Congressional General Reductions	-	-0.038			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.033	-			
• Other Adjustments	-	-	-0.089	-	-0.089

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: E-3 AWACS Block 40/45 Mode 5 and MIL-STD- 6016E Link 16 Enhancements	0.555	0.802	0.713

Description: Improve E-3 AWACS Block 40/45 Link 16 interoperability and compatibility by incorporating key changes to communications software baseline.

FY 2014 Accomplishments:
Completed developing, testing and integrating the E-3 AWACS Block 40/45 effort.

FY 2015 Plans:
Funding studies to assess the sustainability of the Joint Tactical Information Distribution System (JTIDS) Class 2H terminal. Also, to fund studies and assessments to address 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. Additionally, funds will support JALN activities.

FY 2016 Plans:
Will complete the study and assessment to address the sustainability of the JTIDS Class 2H terminal. Will 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. Will 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. To support a more advanced MIDS terminal, will complete development,

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207448F / *C2ISR Tactical Data Link*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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.			
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. ***FY 2014 Accomplishments:*** Funded Command and Control (C2) focused airborne networking studies supporting data link enhancement to include, but not limited to integration and implementation impacts of mandatory upgrades for crypto modernization and frequency remapping, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. ***FY 2015 Plans:*** Continue to fund Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. Supports C2 platform terminal upgrade under lab impacts to system integration. ***FY 2016 Plans:*** Will continue to fund Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. Will support C2 platform terminal upgrade under lab impacts to system integration.	0.318	0.332	0.342
Title: E-3 AWACS Block 40/45 User Identified Critical Interface Change Proposals (ICPs) ***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 2014 Accomplishments:***	0.500	0.610	0.626

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207448F / *C2ISR Tactical Data Link*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Improved E-3 AWACS Block 40/45 Link 16 interoperability and compatibility by incorporating key MIL-STD 6016E improvements to the software baseline including additional mission assignment and fighter control capabilities. ***FY 2015 Plans:*** Activity is implementing E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) that include time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates. ***FY 2016 Plans:*** Activity will implement E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) that include time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates.			
Accomplishments/Planned Programs Subtotals	1.373	1.744	1.681

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE:BA05:PE 0604281F: *TDN Enterprise*	41.388	39.059	60.256	-	60.256	37.240	37.490	22.287	22.714	Continuing	Continuing
• APAF:BA05:Line Item #F01500: *F-15*	-	0.002	2.837	-	2.837	42.694	43.027	57.283	46.618	Continuing	Continuing
• APAF:BA05:Line Item #F01600: *F-16*	-	-	3.200	-	3.200	6.504	6.166	6.810	8.435	Continuing	Continuing
• APAF:BA05:Line Item #B00200: *B-2A*	-	0.049	0.474	-	0.474	0.419	0.297	0.249	0.203	Continuing	Continuing
• APAF:BA05:Line Item #B01B00: *B-1B*	-	1.261	1.011	-	1.011	1.392	0.539	0.800	-	Continuing	Continuing
• APAF:BA05: Line Item #OTHACF: *Other Aircraft*	-	0.037	2.494	-	2.494	1.593	1.501	1.502	1.528	Continuing	Continuing
• OPAF:BA03:Line Item #834010: *General Information Technology*	0.153	0.168	1.602	-	1.602	1.857	0.311	0.176	0.179	Continuing	Continuing

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207448F / *C2ISR Tactical Data Link*

E. Acquisition Strategy

The Airborne Networking Division provides for common development, integration and interoperability across the entire airborne network and ensures that TDLs are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2ISR Tactical Data Link Software Enhancements	SS/ Various	Boeing : Seattle, WA	-	0.555	Sep 2014	0.802	May 2015	0.713	Jan 2016	-		0.713	Continuing	Continuing	-
		Subtotal	-	0.555		0.802		0.713		-		0.713	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aerial Network Engineering Lab	Various	AFLCMC Hanscom AFB : Bedford, MA	-	0.318	Nov 2013	0.332	Oct 2014	0.342	Oct 2015	-		0.342	Continuing	Continuing	-
		Subtotal	-	0.318		0.332		0.342		-		0.342	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Program Office and Contractor Support	Various	Various : Various,	-	0.341	Jan 2014	0.445	Jan 2015	0.456	Oct 2015	-		0.456	Continuing	Continuing	-
FFRDC Support	C/T&M	MITRE : Bedford, MA	-	0.159	Oct 2013	0.165	Oct 2014	0.170	Oct 2015	-		0.170	Continuing	Continuing	-
		Subtotal	-	0.500		0.610		0.626		-		0.626	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.373		1.744		1.681		-		1.681	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

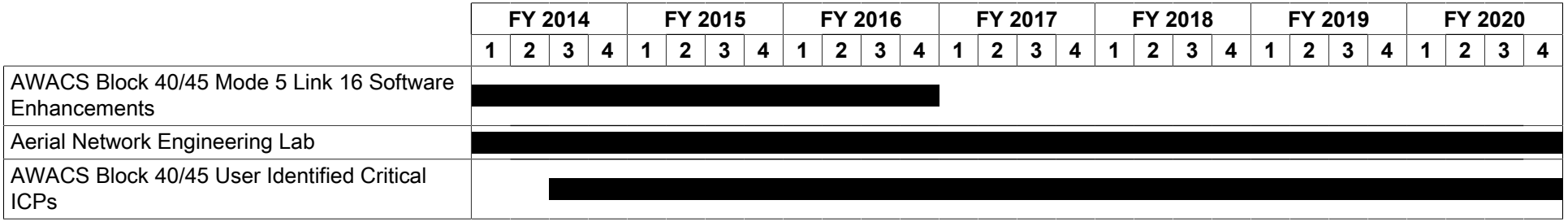

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207448F / *C2ISR Tactical Data Link*	**Project (Number/Name)** 675045 / *C2ISR Tactical Data Link*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AWACS Block 40/45 Mode 5 Link 16 Software Enhancements	1	2014	4	2016
Aerial Network Engineering Lab	1	2014	4	2020
AWACS Block 40/45 User Identified Critical ICPs	3	2014	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207449F / *Command and Control (C2) Constellation*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	7.418	-	-	-	-	-	-	-	-	-	7.418
675078: *Horizontal Integration*	-	7.418	-	-	-	-	-	-	-	-	-	7.418

Note

In FY 2014, Project 675078, Horizontal Integration, was completed.

A. Mission Description and Budget Item Justification

The Command and Control Constellation (C2C) is the sole Air Force program for defining, developing, and assessing integrated effects of global, theater and tactical level Air Force air, space, and cyber command and control (C2) capabilities in support of the joint warfighter. The Air Force faces a complex future where conflict will range across a broad spectrum of operations and lethality requiring capabilities with the maximum possible flexibility to deal with the widest possible range of conflict.

The C2C is the enabling program element for C2 Integration/Modernization. The Air Force is working to establish a C2 framework and architecture to be used as a unifying vision of command and control for each of the services core functions. C2C supports the defense strategy through: integration of air; space cyber and intelligence, surveillance, and reconnaissance (ISR); architectural analysis; prototyping; experimentation and innovation to develop cross-cutting solutions to enable an improved "sense-to-kill" cycle time. C2C innovations and experimentation provide strategic, operational, and tactical direction for Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) solutions to facilitate an integrated mission environment to support C2 planning and execution for air, space, and cyberspace. C2C also provides an in-depth development and analyses of C2 operational systems and technical architectures geared towards identifying capability gaps, identifying required "to be" information services, and evaluating C2 program planned improvements. Through prototyping and experimentation, C2C integrates rapidly developing technologies to promote common standards, data sharing, and information services across the Air Force and joint warfighting applications in the support of joint enterprise solutions.

Project 5078, Horizontal Integration (HI) conducts DOTMLPF analyses and assessments to guide cross-cutting, C2 sub-enterprise and cyberspace investment decisions that integrate USAF capabilities into joint and coalition operations. HI identifies, prioritizes and develops requirements, and horizontally integrates solution recommendations to ensure that the latest technologies and information services are integrated into a cross cutting C2 systems across all warfighter domains. The HI strategy will be validated by Headquarters, Air Force (HAF) to ensure that initiatives are harmonized with the most urgent warfighter needs described by the C2 Capability Assessment Team (CAT), C2 Core Function Master Plan (CFMP) that support the 2012 Air Force, Joint and Defense Strategies and Operational Concepts. Once validated, HI funds are applied towards identifying the most critical warfighter capabilities to ensure they are horizontally integrated into both Air Force and joint C2 programs of record.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	7.160	-	-	-	-
Current President's Budget	7.418	-	-	-	-
Total Adjustments	0.258	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.500	-			
• SBIR/STTR Transfer	-0.242	-			
• Other Adjustments	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207449F / *Command and Control (C2) Constellation*	Project (Number/Name) 675078 / *Horizontal Integration*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675078: *Horizontal Integration*	-	7.418	-	-	-	-	-	-	-	-	-	7.418
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2014, Project 675078, Horizontal Integration, was completed.

A. Mission Description and Budget Item Justification

Horizontal Integration (HI) develops an integrated mission environment that supports cross-cutting solutions across the air, space, and cyberspace command and control (C2) warfighter domain. HI activities include: requirements, architecture, systems engineering, technology development, risk reduction, prototyping, and transition. These activities are required to: identify, design, develop, experiment, and implement C2 solutions supporting operational requirements for warfighting integration and interoperability needs which are not the sole responsibility of a specific program of record.

The nature of integrated and interoperable C2 warfighting capabilities spans multiple platforms and domains. These capabilities are routinely being adjusted to meet the changing requirements from the warfighting communities. The HI project is uniquely designed to look across platforms and domains enabling the Air Force to respond to operator needs across the seams of individual systems. These horizontal integration initiatives will be prototyped, assessed, appropriately captured in requirements documents and then transitioned to programs of record for production, fielding and sustainment.

Systems Engineering and analysis is the 'glue' that holds command and control constellation (C2C) elements together and closes the seams in the C2 architectures. Capability analysis identifies areas where interoperability can be improved within the Air Force, as well as among joint services, and coalition partners. Once capability issues are identified, they are prioritized and pilot initiatives are developed to provide solutions to the warfighter challenges to resolve the capability gaps. The HI project also helps to competitively prototype integrated solutions against validated program requirements.

The benefits of these activities are two-fold: the operational community is able to weigh the cost, risk, and performance trade-offs between enterprise solutions versus program centric solutions, and it supports competitive prototyping of all acquisition programs. The synchronization of HI prototyping and program milestone requirements offers an effective environment for increasing interoperability while reducing the impact of this policy on multiple programs. An infrastructure environment manages a continuous distributed operational environment that supports air, space, and cyberspace C2 and rapid acquisition, prototyping, development, integration, and fielding. C2 initiatives may use this infrastructure to mature their development status prior to entry into operational and technical suitability assessment.

The HI prototype performances are assessed for operational utility, and the most promising initiatives/technologies will be matured and transitioned into weapon system configuration control baselines. Requirement documents will be published and revised, and a requirements database and implementation plan identifying the most significant C2C net-centric integration issues will be updated to catalog the activities necessary to accomplish this integration.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*	**Project (Number/Name)** 675078 / *Horizontal Integration*

In addition, this project supports concept exploration, program definition/risk reduction efforts, and studies that support continuous improvements in C2. Guided by the Major Commands (MAJCOM) validated C2 capability gaps developed by the HI Capability Assessment Team annual process and the defense strategy to meet the evolving Anti-Access/Area Denial (A2/AD) threats to air, space and cyber C2 operations, these improvements include but are not limited to: integration of airspace and cross-domain synchronized operations, C2 of integrated air and missile defense, C2 of Air Force Forces and agile combat support, dynamic aerial network capabilities, and Non-Traditional ISR (NTISR), from 4th and 5th generation aircraft through processing and assessment, and interoperability with joint service, allied and coalition systems, C2 of personnel recovery, and air-sea battle. Activities also include studies and analysis to support current program planning and execution, as well as future program planning.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Requirements/CBP/Integrated Ops/ C2 Framework ***Description:*** Provides requirements and Capabilities Based Planning (CBP) ***FY 2014 Accomplishments:*** - Analyzed, developed, and documented emerging Air Force (AF) integrated command and control (C2) requirements. - Completed the C2 integration and modernization strategy in a series of concept and/or capability development and technology exploration activities designed to integrate C2 operations across air, space, and cyberspace domains; completed the refinement of Integrated Air and Missile Defense (IAMD) C2 requirements. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	1.922	-	-	-	-
Title: Arch and SE ***Description:*** Provides architecture development and systems engineering ***FY 2014 Accomplishments:*** - Completed the functional and systems engineering analyses within the C2 community that fleshed out technical architectures and their relationships to operational architectures within the warfighting environment. - Specific focus areas and efforts depended on real world needs, C2 enterprise and C2 of cyber requirements, with emphasis on: airspace and C2 integration, kinetic/non-kinetic integration, NTISR, C2 of IAMD, 5th-4th	1.605	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*	**Project (Number/Name)** 675078 / *Horizontal Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
generation fighter interoperability, dynamic aerial networks, C2 of personnel recovery, air sea battle, electromagnetic spectrum, forward base defense, tactical edge/electronic warfare situation awareness, PACAF distributed control concept/mission planning at unit level, and the dynamic execution at distance/net-enabled weapons. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: HI Solutions Assessments ***Description:*** Provides horizontal integration solutions assessment ***FY 2014 Accomplishments:*** - Fostered HI enterprise integration across Command and Control (C2), supported the requirements of competitive prototyping, and aided in the refinement of requirements. - Key criteria were near term warfighter impacts and the likelihood to transition. The initiatives focused on: C2 Integration, C2 of Integrated Air & Missile Defense, Agile Combat Support/Space C2, 5th-4th Generation Fighter Interoperability, Airspace Management, Dynamic Aerial Networks, C2 of personnel recovery, and Non-traditional, Intelligence, Surveillance and Reconnaissance. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	3.891	-	-	-	-
Accomplishments/Planned Programs Subtotals	7.418	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*	**Project (Number/Name)** 675078 / *Horizontal Integration*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project uses full and open competition for operational requirements document creation, systems engineering & architecture development, modeling & simulation and experimentation, joint interoperability/integration, and horizontal integration approaches.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207449F / *Command and Control (C2) Constellation*	Project (Number/Name) 675078 / *Horizontal Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements/Capability Based Planning (CBP)	C/CPFF	Northrop Grumman : Langley AFB, VA	-	1.884	Dec 2013	-		-		-		-	Continuing	Continuing	-
Requirements/Capability Based Planning (CBP)(2)	C/CPFF	BAE : Rome, NY	-	0.122	Oct 2013	-		-		-		-	Continuing	Continuing	-
Architecture Development and Systems Engineering/ GAPS/AWS Horizontal Integration	C/FFP	MITRE : Hanscom AFB, MA	-	0.152	Nov 2013	-		-		-		-	Continuing	Continuing	-
Architecture Development and Systems Engineering/ GAPS/AWS Horizontal Integration (2)	C/FFP	Northrop Grumman : Langley AFB, VA	-	0.501	Dec 2013	-		-		-		-	Continuing	Continuing	-
Architecture Development and Systems Engineering/ GAPS/AWS Horizontal Integration (3)	C/CPFF	Northrup Grumman : Rome, NY	-	0.952	Oct 2013	-		-		-		-	Continuing	Continuing	-
Horizontal Integration Solution Assessment (1)	C/FFP	MITRE : Hanscom AFB, MA	-	1.631	Oct 2013	-		-		-		-	Continuing	Continuing	-
Horizontal Integration Solution Assessment (2)	C/FFP	Jacobs ETASS : Hanscom AFB, MA	-	0.086	Jan 2014	-		-		-		-	Continuing	Continuing	-
Horizontal Integration Solution Assessment	C/Various	Various : Hanscom AFB, MA	-	1.491	Dec 2013	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	6.819		-		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207449F / *Command and Control (C2) Constellation*	Project (Number/Name) 675078 / *Horizontal Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support/PMA-1	C/FFP	Quantech PASS : Hanscom AFB, MA	-	0.248	Jan 2014	-		-		-		-	Continuing	Continuing	-
Program Management Support/PMA-2	C/FFP	Jacobs ETASS : Hanscom AFB, MA	-	0.100	Jan 2014	-		-		-		-	Continuing	Continuing	-
Program Management Support/PMA-3	Various	Various : Hanscom AFB, MA	-	0.251	Jan 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.599		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.418		-		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*	**Project (Number/Name)** 675078 / *Horizontal Integration*

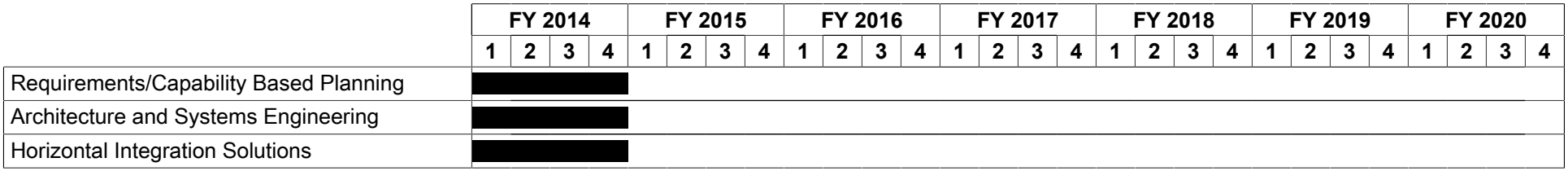

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207449F / *Command and Control (C2) Constellation*	**Project (Number/Name)** 675078 / *Horizontal Integration*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Requirements/Capability Based Planning	1	2014	4	2014
Architecture and Systems Engineering	1	2014	4	2014
Horizontal Integration Solutions	1	2014	4	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207452F / *DCAPES*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	13.925	9.769	0.821	16.796	-	16.796	16.222	14.458	14.730	14.994	76.900	178.615
674802: *DCAPES INC 2A*	13.925	9.769	0.821	16.796	-	16.796	16.222	14.458	14.730	14.994	76.900	178.615
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Deliberate and Crisis Action Planning and Execution Segments (DCAPES) is a system being developed as the next-generation Air Force interface to the Joint Operational Planning and Execution System (JOPES). DCAPES is the Air Force's single system to present, plan, source, mobilize, deploy, account for, sustain, redeploy, and reconstitute forces for contingency and crisis operations. This system provides a real time, two way interchange of personnel, manpower, logistics, and operational data between the Air Force and the warfighting Combatant Commanders. It matches people, cargo, and airframes/weapon systems to the Combatant Commander's warfighting requirements. Acquisition of this system supports the Air Force's expeditionary force concept.

Logistics Feasibility Analysis Capability (LOGFAC) is a Web-enabled application that resides on Global Command and Control System - Air Force (GCCS-AF) infrastructure and supports logistics / operational planning staffs at Headquarters Air Staff, Major Command (MAJCOM) and Unit levels by determining wartime consumables and pre-positioning of assets for deliberate planning based on the War Mobilization Plan, Volume 4 (WMP-4).
Development activities include Logistics Module/Manpower and Personnel Module-Base (LOGMOD/MANPER B), War and Mobilization Planning (WMP), Enhanced Contingency Rotational AEF SchedulingTool (ECAST), Web Enablement, and JOPES Modernization Migration. Activities also include studies and analysis to support both current program planning and execution and future program planning to modify systems to consume authoritative force structure from Global Force Management - Data Initiative (GFM-DI) organizational servers, linking the identifiers to or replacing current identifiers and, as applicable, exposing the data in a net-centric fashion. Requirements validated with the Capability Development Document for DCAPES dated 2 June 2006.

This effort is an evolutionary follow-on to the Contingency Operations Mobility Planning and Execution System (COMPES). DCAPES replaced the operational tasking and priorities functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the joint vision for integrated command and control. DCAPES is intended to provide a command and control capability by exchanging data with a range of planning support systems to provide a more effective force projection capability for a wider range of operational scenarios and will fully support the force provider function of the Air Force Forces (AFFOR) commander. DCAPES along with numerous other war planning support legacy systems are transitioning into a net-centric Service Oriented Architecture (SOA) environment via a War Planning and Execution System (WPES) management construct.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	10.111	0.821	16.907	-	16.907
Current President's Budget	9.769	0.821	16.796	-	16.796
Total Adjustments	-0.342	-	-0.111	-	-0.111
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.342	-			
• Other Adjustments	-	-	-0.111	-	-0.111

Change Summary Explanation

Reduction in FY15 due to higher Air Force priorities.

FY16 Budget Total is $16.796.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Increment 2a, Loosely Couple DCAPES/JOPES Interfaces and Increment 2b Additional DCAPES Requirements	8.497	0.821	16.796
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 2014 Accomplishments: Conducted part 2 of 2 for loose coupling (v5002) from JOPES, developmental test, and regression test. Corrected defects from loose coupling testing. Continued increment 2a which included, in addition to loose coupling, Infrastructure Support and Business Intelligence.			
FY 2015 Plans: Complete the Business Intelligence technical refresh. Complete and maintain builds for infrastructure. Award the development and sustainment replacement contract. Complete Milestone B for upcoming Increment 2B.			
FY 2016 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Exercise Increment 2B optional development CLINS for Arc Force Management and Electronic Data Interchange Personal Identifier. Begin development of first two requirements and provide user first look at new capabilities. Implement Business Intelligence capability within operational baseline.			
Title: Logistic Feasibility Analysis Capability (LOGFAC) v 3.1 release ***Description:*** Release of LOGFAC 3.1 delivers new capabilities including web-services with partnered programs, including DCAPES, to pull Manpower and Equipment Force Packaging (MEFPAK) data and JPES to pull JOPES related OPLAN data. Additionally LOGFAC is the authoritative data source for both War Consumable Distribution Objective (WCDO) and War Mobilization Plan Part IV (WMP4) data and exposes four separate Web services for consumption by partnered programs. LOGFAC v3.1 also adds the capability to perform Unit Type Code (UTC) analysis for feasibility of deployment. The new UTC compare function analyzes equipment and consumables available against a specific UTC to determine shortfalls that may prevent deployment. ***FY 2014 Accomplishments:*** LOGFAC v3.0 Development and Operational Testing with fielding set to occur near the end of FY14. LOGFAC v3.1 Development continuing as well as internal regression testing. ***FY 2015 Plans:*** Final development and testing to continue. Final fielding of LOGFAC v3.1 to be completed in FY16. ***FY 2016 Plans:*** Develop, test and field AF interchangeability and substitutability data file LOGFAC requirements. Specifically, cataloging data from applicable authoritative data sources. Federal Logistics Data (FEDLOG) and/or Air Force Interchangeability and Substitutability Grouping List (D043) have been identified as possible sources of this data. This cataloging data consists of indicative data for applicable National Stock Numbers (NSNs) to include nomenclature, unit of issue, source of supply, unit cost and other critical data elements. This data is critical for determining funding shortfalls. Without up to date unit costs LOGFAC could be grossly under estimating War Reserve Material (WRM) funding shortfalls.	1.272	-	-
Accomplishments/Planned Programs Subtotals	9.769	0.821	16.796

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• N/A: *N/A*	-	-	-	-	-	-	-	-	-	-	-

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*

E. Acquisition Strategy

The program uses an evolutionary acquisition strategy with incremental development with multiple software releases to accommodate refinement and prioritization of user requirements and improve adaptability with commercial technology.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / *DCAPES*	Project (Number/Name) 674802 / *DCAPES INC 2A*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCAPES Increment 2a (SW DEV/FOE)	SS/ Various	Computer Science Corp. : Falls Church, VA	6.152	3.638	Mar 2015	-		-		-		-	-	9.790	TBD
DCAPES SW DEV New Prime Contract (Increment 2a)	C/Various	TBD : TBD,	0.000	0.913	Feb 2015	0.818	Feb 2015	-		-		-	-	1.731	-
DCAPES Increment 2b	TBD	TBD : TBD,	0.000	-		-		11.569	Dec 2015	-		11.569	-	11.569	TBD
DCAPES Infrastructure / Integration	C/CPFF	DATUM Software Inc. : John Creek, GA	0.923	0.937	Feb 2015	-		0.923	Feb 2016	-		0.923	-	2.783	TBD
DCAPES BI Tools / Tech Refresh	C/CPFF	Array IT : Greenbelt, MD	0.994	0.002	May 2014	-		-		-		-	-	0.996	-
DCAPES Architecture Documentation Development	C/FFP	Copper River IT : Anchorage, AK	0.288	0.257	Jun 2014	-		0.252	Jun 2016	-		0.252	-	0.797	TBD
LOGFAC S/W Development	C/FFP	Harris IT services Corp. : Dulles, VA	1.559	0.855	Feb 2015	-		-		-		-	-	2.414	TBD
LOGFAC Architecture Documentation Development	C/FFP	Cooper River IT : Anchorage, AK	0.072	0.064	Jun 2014	-		-		-		-	-	0.136	-
		Subtotal	9.988	6.666		0.818		12.744		-		12.744	-	30.216	-

Remarks

DCAPES Increment 2a (SW DEV/FOE): includes funding for current SW Development Contract/FOE (CSC) contract plus Extension. Program added new Budget line entitled DCAPES SW DEV New Prime Contract for upcoming Recompete.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCAPES Contract Acquisition/Logistic Functional Support	C/CPFF	OASIS Systems Inc : Lexington, MA	0.530	0.319	Oct 2014	-	Apr 2015	0.572	Oct 2015	-		0.572	-	1.421	TBD

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / *DCAPES*	Project (Number/Name) 674802 / *DCAPES INC 2A*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCAPES Contract Cost Analysis Support	C/CPFF	Tecolote Research, Inc. : Goleta, CA	0.278	0.192	Oct 2014	-		0.205	Oct 2015	-		0.205	-	0.675	TBD
DCAPES Contract Engineering Support	C/CPFF	Jacobs Technology, Inc : Lincoln, MA	0.266	0.233	Dec 2014	-		0.310	May 2016	-		0.310	-	0.809	TBD
DCAPES FFRDC (Engineering)	SS/CPFF	Mitre : Bedford, MA	0.535	0.286	Oct 2014	-		0.323	Oct 2015	-		0.323	-	1.144	TBD
DCAPES Contract Requirement Elaboration Support	C/FFP	Certified Tech. Expert : Montgomery, Al	0.198	0.198	Jul 2014	-		0.100	Jul 2016	-		0.100	-	0.496	TBD
DCAPES Contract System Security-Information Assurance	C/CPFF	Centech Group : Falls Church, VA	0.201	0.122	Jan 2015	-		-		-		-	-	0.323	TBD
DCAPES Contract Sys Integration/Tech Support	Various	Various : Various,	0.514	0.335	Sep 2014	-		0.694	Sep 2016	-		0.694	-	1.543	TBD
DCAPES Development Environment HW (CIE)	C/TBD	TBD : ,	0.000	-		-		0.500	Jan 2016	-		0.500	-	0.500	-
DCAPES Licenses Software/Hardware	C/Various	Various : Various,	0.000	0.155	Feb 2015	-		0.192	Feb 2016	-		0.192	-	0.347	TBD
DCAPES SIPRNET Comm. Line-Information Assurance	MIPR	Various : Various,	0.079	0.006	Oct 2014	-		0.072	Oct 2015	-		0.072	-	0.157	TBD
DCAPES GOVERNMENT PURCHASE CARD	Various	Various : Various,	0.000	0.002	Jul 2015	0.003	Dec 2014	0.015	Jan 2016	-		0.015	-	0.020	-
LOGFAC Contract Acquisition / Logistics Support	C/CPFF	Oasis Systems Inc. : Lexington, KY	0.028	0.017	Oct 2014	-		-		-		-	-	0.045	-
LOGFAC Contract Cost Analysis Support	C/CPFF	Tecolote Research Inc : Goleta, CA	0.031	0.021	Oct 2014	-		-		-		-	-	0.052	-
LOGFAC Contract Engineering Support	C/CPFF	Jacobs Technology Inc : Lincoln, MA	0.030	0.025	Dec 2014	-		-		-		-	-	0.055	-
LOGFAC Contract Requirement Elaboration Support	C/FFP	Certified Technical Experts : Montgomery, AL	0.022	0.022	Jul 2015	-		-		-		-	-	0.044	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*	**Project (Number/Name)** 674802 / *DCAPES INC 2A*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LOGFAC Contract Systems Security / IA Support	C/CPFF	Centech Group Inc : Falls Church, VA	0.050	0.006	Jan 2015	-		-		-		-	-	0.056	-
LOGFAC FFRDC	SS/CPFF	MITRE : Bedford, MA	0.058	0.032	Oct 2014	-		-		-		-	-	0.090	-
		Subtotal	2.820	1.971		0.003		2.983		-		2.983	-	7.777	-

Remarks

FY16: GOVERNMENT PURCHASE CARD (GPC) IS BEING ADDED FOR PROCURING PROGRAM REQUIREMENTS THAT FALLS UNDER CONTRACTING THRESHOLD ($150K).

DCAPES CONTRACT REQUIREMENT MANAGEMENT SUPPORT Title changed to read DCAPES CONTRACT REQUIREMENT ELABORATION SUPPORT.

LOGFAC CONTRACT REQUIREMENT MANAGEMENT SUPPORT Title changed to read LOGFAC CONTRACT REQUIREMENT ELABORATION SUPPORT.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCAPES Development Test and Evaluation	MIPR	46 Test Sqdn : Eglin AFB, FL	0.641	0.244	Jan 2015	-		0.669	Jan 2016	-		0.669	-	1.554	TBD
DCAPES Operational Test and Evaluation	Various	605 Test Sqdn : Hurlburt Field, FL	0.092	-		-		-		-		-	-	0.092	-
DCAPES Interoperability Testing and Evaluation	MIPR	DISA JITC : Ft Hauchuca, AZ	0.039	0.443	Feb 2015	-		-		-		-	-	0.482	-
DCAPES User Test Support	Various	Various : Various,	0.096	0.215	Jan 2015	-		0.400	Jan 2016	-		0.400	-	0.711	TBD
LOGFAC Development Test and Evaluation	MIPR	46 Test Sqdn : Eglin AFB, FL	0.194	0.100	Oct 2014	-		-		-		-	-	0.294	-
LOGFAC Operational Test and Evaluation	Various	605 Test Sqdn : Hurlburt Field, FL	0.031	-		-		-		-		-	-	0.031	-
LOGFAC Interoperability Testing and Evaluation	MIPR	DISA JICT : Ft Hauchuca, AZ	0.000	0.110	Oct 2014	-		-		-		-	-	0.110	-
LOGFAC User Test Support	Various	Various : Various,	0.024	0.020	Jan 2015	-		-		-		-	-	0.044	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / *DCAPES*	Project (Number/Name) 674802 / *DCAPES INC 2A*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			1.117	1.132		-		1.069		-		1.069	-	3.318	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.925	9.769		0.821		16.796		-		16.796	-	41.311	-

Remarks

DCAPES received a BTR in the amount of $1.900M on 13 January 2015, from LOGIT (PEC: 78610F; BPAC: 675207). REVISED FY14 BUDGET TOTAL: $11.669M.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*	**Project (Number/Name)** 674802 / *DCAPES INC 2A*

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207452F / *DCAPES*	**Project (Number/Name)** 674802 / *DCAPES INC 2A*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DCAPES Increment 2A	1	2014	4	2015
--- v4.2.2.2 (JOPES Inbound)	1	2014	2	2015
--- v5.0.0.2 (JOPES Outbound) Dev/Ops Test	1	2014	1	2015
--- v5.0.0.2 (JOPES Outbound) Certification/Accreditation/Fielding	1	2015	4	2015
--- v5.0.0.2 (JOPES Outbound)	4	2015	3	2016
Infrastructure and Integration	2	2014	2	2019
Business Intelligence	1	2014	1	2015
Infrastructure and Integration Development	1	2014	4	2018
--- Capability Packages (CP) 1-8 - Source Selection and MS B Preparation	1	2014	1	2016
--- Capability Packages (CP) 1-8 - Development	1	2016	1	2020
--- Capability Packages (CP) 1-8	1	2020	4	2020
LOGFAC 3.0 Design/Development	1	2014	3	2014
LOGFAC 3.0 Certification/Accreditation/Fielding	3	2014	3	2014
LOGFAC 3.0 Certification/Accreditation/Fielding (1)	3	2014	4	2014
LOGFAC 3.0 Sustainment	4	2014	3	2015
LOGFAC 3.1 Design/Development	1	2014	3	2014
LOGFAC 3.1 Dev/Ops Test	3	2014	2	2015
LOGFAC 3.1 Certification/Accreditation/Fielding	2	2015	3	2015
LOGFAC 3.1 Sustainment	3	2015	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	27.308	-	-	-	-	-	-	-	-	-	27.308
670003: *JSTARS*	-	27.308	-	-	-	-	-	-	-	-	-	27.308
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Project 670003, JSTARS efforts were terminated.

A. Mission Description and Budget Item Justification

The JSTARS is the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C JSTARS aircraft provides all-weather radar-derived Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) and targeting information on moving and stationary ground/surface targets to include dismounts, slow moving rotary and fixed wing aircraft, and rotating antennas. JSTARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets. It can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground regional/geographic commanders to effectively make and execute battlefield decisions at the component commander's level to battlefield forces. It contributes to predictive battle space awareness.

This program element enhanced the warfighter's ability to achieve the joint vision of combat operations. It developed advanced battle management aids and information fusion technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies supported continuous improvements in C2ISR, network centric operational capabilities, and interoperability with joint service, allied, and coalition systems.

With the AF decision to begin the Joint Surveillance Target Attack Radar System (JSTARS) Recapitalization Program in FY15, and inclusion of funding for the program included in the FY15 President's Budget, no Modernization funds were requested for the legacy E-8C JSTARS program in FY 2015 and beyond.

This program element last comprised of one development program, JSTARS Modernization, and the supporting Test and Infrastructure. Development efforts for the Prime Mission Equipment-Diminishing Manufacturing Sources (PME-DMS) and Communications and Networking Upgrades (CNU) developmental programs were completed in FY 2013.

In FY14, Project 670003 JSTARS was completed, with JSTARS Extended Test Support (JETS), JSTARS Test Force (JTF) and Government Furnished Equipment (GFE) parts disposition continuing to January 2015.

I. JSTARS Modernization:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*

In FY 2014, the JSTARS modernization program consisted of multiple efforts to develop and integrate platform wide system improvements such as, but not limited to, Multi-Agency Communication Capability (MACC), CENTRIX, Ground Moving Target Indicator (GMTI) Risk Reduction and Beyond-Line-of-Sight (BLOS) Network Architecture Upgrades (BNAU) .

Training and support systems upgrade efforts included, but are not limited to: Weapon Systems Trainer (WST); Navigator Training System (NTS); and Mission Crew Trainers to include a Mission Maintenance Trainer (MMT), Prime Mission Equipment-Maintenance Training Device (PME-MTD) and the Mission System Trainer (MST).

II. Test and Infrastructure:

The test infrastructure included the JSTARS Extended Test Support (JETS), JSTARS Test Force (JTF), and C2 Enterprise Integration Facility (CEIF). All JSTARS efforts rely on the components of this test infrastructure to carry out RDT&E activities. The infrastructure included a T-3 test aircraft, laboratories, support facilities, protection level (PL-2) security, Information Assurance (IA), and range support. All of the developmental programs have been completed. In FY 2014, the program began the transfer of test infrastructure assets to Robins AFB. The JETS contract and JTF lease will be extended into the second quarter FY 2015 to facilitate preparation of the T-3 aircraft for retirement and the disposition of residual Government Furnished Equipment (GFE).

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.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	23.148	-	0.001	-	0.001
Current President's Budget	27.308	-	-	-	-
Total Adjustments	4.160	-	-0.001	-	-0.001
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.550	-			
• SBIR/STTR Transfer	-0.390	-			
• Other Adjustments	-	-	-0.001	-	-0.001

Change Summary Explanation

FY 2014: Reprogrammed funds for GMTI risk reduction activities

FY 2016: Funding is an error in system.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JSTARS Modernization ***Description:*** Multiple efforts to develop and integrate system improvements, platform wide. ***FY 2014 Accomplishments:*** - Issued a final report on JSRM. - Completed CENTRIX activities on Phase I Tech Refresh. - Supported JSTARS Ground Moving Target Indicator (GMTI) risk reduction activities. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	10.050	-	-	-	-
Title: Test and Infrastructure ***Description:*** Supported test and infrastructure efforts including but not limited to Joint Test Force, JETS contract, CEIF, weight reduction studies, information assurance, range support, PL-2 security, T-3 aircraft, test labs, and facilities. ***FY 2014 Accomplishments:*** - The Joint Test Force and test labs supported the CNU, BNAU, MACC and PME DMS retrofits. - The test labs assisted in the evaluation of the IR7 software release. - Retained the T-3 test aircraft. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	17.258	-	-	-	-
Accomplishments/Planned Programs Subtotals	27.308	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA05: Line Item # E00800: *E-8*	56.501	-	18.001	-	18.001	6.300	10.800	-	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

Most major programs will be sole source to Northrop Grumman Corp. in Melbourne, Florida and Norwalk, Connecticut. Trainer programs are sole source to Rockwell Collins in Sterling, Virginia.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*	Project (Number/Name) 670003 / *JSTARS*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spiral Development	Various	NGC : Melb, FL	-	0.031	Nov 2013	-		-		-		-	Continuing	Continuing	-
JSTARS GMTI Risk Reduction Activities	Various	Various : ,	-	10.050	May 2014	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	10.081		-		-		-		-	-	-	-

Remarks

Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E-8C JSTARS Ext. Test Spt (JETS), T-3 Retention	SS/FFP	NGC : Melb, Fl	-	13.865	Apr 2014	-		-		-		-	Continuing	Continuing	-
JTF Test Ops/Support	Various	JTF : Melb, Fl	-	1.480	Nov 2013	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	15.345		-		-		-		-	-	-	-

Remarks

Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*	Project (Number/Name) 670003 / *JSTARS*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : Bedford, MA	-	1.882	Nov 2013	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	1.882		-		-		-		-	-	-	-

Remarks

Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	27.308		-		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*	**Project (Number/Name)** 670003 / *JSTARS*

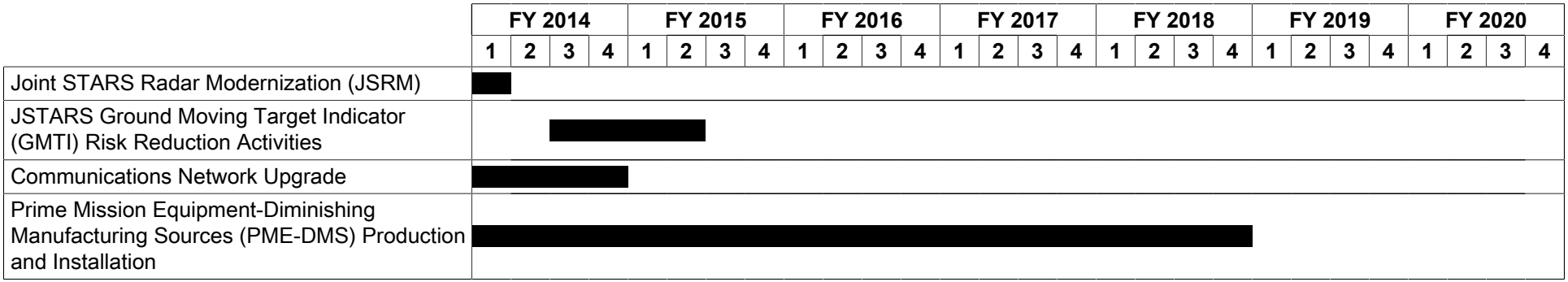

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207581F / *Joint Surveillance/Target Attack Radar System (JSTARS)*	**Project (Number/Name)** 670003 / *JSTARS*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Joint STARS Radar Modernization (JSRM)	1	2014	1	2014
JSTARS Ground Moving Target Indicator (GMTI) Risk Reduction Activities	3	2014	2	2015
Communications Network Upgrade	1	2014	4	2014
Prime Mission Equipment-Diminishing Manufacturing Sources (PME-DMS) Production and Installation	1	2014	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207590F / *Seek Eagle*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	22.046	23.844	21.564	-	21.564	25.560	25.569	25.115	25.564	Continuing	Continuing
674037: *SEEK EAGLE Certifications*	-	22.046	23.844	21.564	-	21.564	25.560	25.569	25.115	25.564	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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*

The FY2016 funding request was reduced by $2.306 million to account for the availability of prior execution balances.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	22.386	23.844	24.014	-	24.014
Current President's Budget	22.046	23.844	21.564	-	21.564
Total Adjustments	-0.340	-	-2.450	-	-2.450
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.340	-			
• Other Adjustments	-	-	-2.450	-	-2.450

Change Summary Explanation

FY16, BY 1 Other Adjustments:
-$2.306M, availability of prior execution balances
-$0.144M, inflation adjustment

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: F-22A	1.829	-	-	-	-
Description: F-22A Capability Development and Weapons Certification. ***FY 2014 Accomplishments:*** - Finished certification of external fuel tanks at supersonic speeds and full AIM-120D integration. - Starting in FY15, F-22 weapon certification requirements will now be a part of, Aircraft/Store Compatibility Analysis major thrust. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:***					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 OCO Plans:*** N/A					
Title: F-35 ***Description:*** F-35 Capability Development for SEEK EAGLE began in FY13, to support Combat Air Force's (CAF's) anticipated requirements after Initial Operational Capability (IOC). ***FY 2014 Accomplishments:*** Continued development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support. ***FY 2015 Plans:*** Continue development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support. ***FY 2016 Base Plans:*** Continue development of organic F-35 engineering capability in all eight SEEK EAGLE engineering disciplines by receiving contractor data, tools, and technical support. ***FY 2016 OCO Plans:*** N/A	3.571	4.700	4.500	-	4.500
Title: M&S Capability ***Description:*** Modeling and Simulation (M&S) capability development in support of store certification ***FY 2014 Accomplishments:*** - 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. ***FY 2015 Plans:*** - Continue development and improvement of M&S capability to support store certification disciplines.	2.222	3.000	3.000	-	3.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Develop tools necessary to characterize F-22 and F-35 weapons bay environments including aero-acoustic prediction. ***FY 2016 Base Plans:*** - 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. ***FY 2016 OCO Plans:*** N/A					
Title: Aircraft/Store Compatibility Analysis ***Description:*** Evaluate aircraft/store compatibility through analysis, M&S and flight and ground test. Provide flight recommendations to airworthiness authorities. ***FY 2014 Accomplishments:*** - Provided compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Supported extensive F-16/SDB and F-16/AIM-9X flight testing. ***FY 2015 Plans:*** - Continually provide compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Support extensive SDB II and B-61 (MOD 12) flight testing. ***FY 2016 Base Plans:*** - Continually provide compatibility flight recommendations as requested by ACC/A8, AFLCMC, AFSOC and other agencies. - Perform extensive SDB II and B-61 (MOD 12) flight testing. ***FY 2016 OCO Plans:*** N/A	12.687	14.442	12.064	-	12.064
Title: Combat Weapon Delivery Software (CWDS) ***Description:*** Develope Mission Planning Software, including Combat Weapon Delivery Software (CWDS).	1.737	1.702	2.000	-	2.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 2014 Accomplishments: - Continued support of efforts aimed at improving aircrew interface. Continued support of CWDS requirements for multiple mission planning environments (MPEs) on the Joint Mission Planning Software (JMPS) framework. - Continued transition to the redeveloped CWDS software for alignment with the JMPS roadmap architecture. Continued support of legacy CWDS development to transition all MPEs to new JMPS framework. ***FY 2015 Plans:*** - Continue support of efforts aimed at improving aircrew interface. Continue support of CWDS requirements for multiple MPEs on the JMPS framework. - 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. ***FY 2016 Base Plans:*** - Continue 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. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	22.046	23.844	21.564	-	21.564

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 reiquirements, AFSEO funds are used to obtain the non-inventory test assets.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207590F / *Seek Eagle*	Project (Number/Name) 674037 / *SEEK EAGLE Certifications*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Organic F-22 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	0.500	Jan 2014	-		-		-		-	-	0.500	-
Organic F-35 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	3.000	Jan 2014	4.500	Feb 2015	4.200	Feb 2016	-		4.200	Continuing	Continuing	-
Multiple fighter and weapon capability support	C/CPFF	Lockheed Martin : Marietta, GA	-	-		-		0.200	Nov 2015	-		0.200	Continuing	Continuing	-
F15 Test Support	C/CPFF	Boeing : St Louis, MO	-	-		0.010	Feb 2015	0.010	Jan 2016	-		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	Continuing	Continuing	-
		Subtotal	-	3.500		4.760		4.660		-		4.660	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Support CWDS	C/CPFF	Survice : Ft Walton Beach, FL	-	2.000	Nov 2013	2.000	Nov 2014	2.000	Nov 2015	-		2.000	Continuing	Continuing	-
		Subtotal	-	2.000		2.000		2.000		-		2.000	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
96th Test Wing	RO	Eglin AFB : Eglin AFB, FL	-	12.009	Oct 2013	13.584	Oct 2014	12.064	Oct 2015	-		12.064	Continuing	Continuing	-
AEDC	PO	Arnold Engineering Dev Complex : Arnold AFB, TN	-	0.500	Dec 2013	1.500	Jan 2015	0.840	Jan 2016	-		0.840	Continuing	Continuing	-
AFTC	Various	Edwards AFB : Edward AFB, CA	-	1.000	Sep 2013	2.000	Aug 2015	-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207590F / *Seek Eagle*	Project (Number/Name) 674037 / *SEEK EAGLE Certifications*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various: Navy, other AF	Various	China Lake, Patuxent River, other : Multiple,	-	3.037	Dec 2013	-		2.000	Dec 2015	-		2.000	Continuing	Continuing	-
		Subtotal	-	16.546		17.084		14.904		-		14.904	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	22.046		23.844		21.564		-		21.564	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*	**Project (Number/Name)** 674037 / *SEEK EAGLE Certifications*

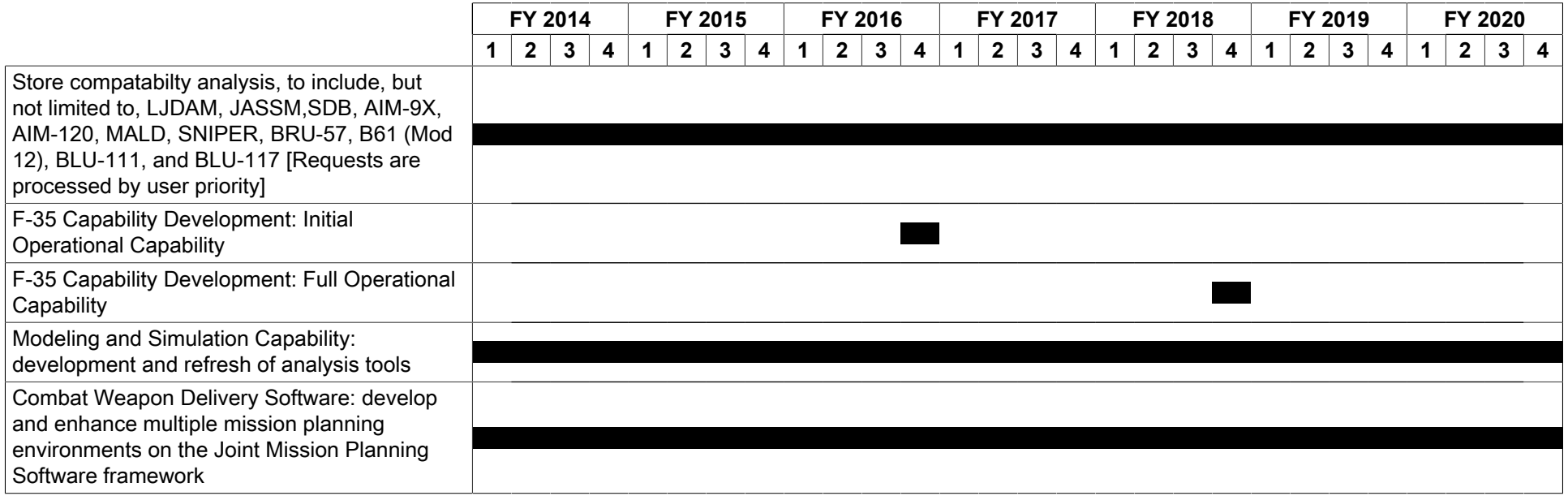

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207590F / *Seek Eagle*	**Project (Number/Name)** 674037 / *SEEK EAGLE Certifications*

Schedule Details

	Start		End	
Events	**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	2014	4	2020
F-35 Capability Development: Initial Operational Capability	4	2016	4	2016
F-35 Capability Development: Full Operational Capability	4	2018	4	2018
Modeling and Simulation Capability: development and refresh of analysis tools	1	2014	4	2020
Combat Weapon Delivery Software: develop and enhance multiple mission planning environments on the Joint Mission Planning Software framework	1	2014	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207601F / *USAF Modeling and Simulation*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	8.439	12.034	24.994	-	24.994	22.812	22.180	22.599	23.002	Continuing	Continuing
674567: *M&S Foundations*	-	1.202	5.003	13.662	-	13.662	11.712	11.936	12.162	12.379	Continuing	Continuing
675135: *Warfighter Readiness*	-	7.237	7.031	11.332	-	11.332	11.100	10.244	10.437	10.623	Continuing	Continuing

Note

In FY 2016, Project Number 674567, M&S Foundations includes new start efforts.

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), acquisition excellence initiatives, and foundational capabilities needed for interoperability, accessibility, reuse, and scalability. 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. These capabilities support the acquisition process from concept development through test and evaluation. Activities also include studies and analysis to support both current program planning and execution and future program planning.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	8.734	16.723	25.161	-	25.161
Current President's Budget	8.439	12.034	24.994	-	24.994
Total Adjustments	-0.295	-4.689	-0.167	-	-0.167
• Congressional General Reductions	-	-0.089			
• Congressional Directed Reductions	-	-4.600			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.295	-			
• Other Adjustments	-	-	-0.167	-	-0.167

Change Summary Explanation

FY 2015: Congressional Directed Reductions of $4.6M due to an Unjustified Increase - Air Constructive Environment.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / *USAF Modeling and Simulation*	Project (Number/Name) 674567 / *M&S Foundations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
674567: *M&S Foundations*	-	1.202	5.003	13.662	-	13.662	11.712	11.936	12.162	12.379	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project Number 674567, M&S Foundations includes new start efforts.

A. Mission Description and Budget Item Justification

Modeling and Simulation Foundations (MSF) focuses on integrating foundational capabilities needed to improve the usefulness, productivity, scalability and efficiency of Modeling and Simulation (M&S) capabilities derived from the Warfighter Readiness (WR) thrust. MSF are the standards, policies, procedures, architectures, and tools that enable the rapid and efficient composition of distributed environments to support both the warfighter needs and the US Air Force's (USAF) functional communities of acquisition, training, planning, analysis, testing, education, experimentation, and requirements. 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. This is done by providing appropriate authoritative data and component representations. With the capability generated via MSF, users will readily access available repositories of reusable, validated, and integrated synthetic components. Synthetic components include representations of operational battlespace entities (such as friendly and enemy assets) and representations of the natural environment that include the terrain, atmospheric and space weather effects given the proper data sets, and energy and signal propagation effects. The rapid composition is based on a durable common architecture framework, policies, and common standards. MSF capability also supports efficient, cost-effective verification, validation, and accreditation activity across all of the M&S functional and organizational communities.

The Air 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 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 2014	FY 2015	FY 2016
Title: Air Constructive Environment - Information Operations Suite (ACE-IOS)	1.202	5.003	8.695

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
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 COCOM battle staffs during Joint and Service exercises and experimentations. ***FY 2014 Accomplishments:*** Version 5.0.15.0 provided 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 COCOM battle staffs during Joint and Service exercises and experimentations. Specific accomplishments were the development of a New Joint Intelligence Messaging Management System (JIMMS) database applications and upgraded integration with the Air force Modeling and Simulation Training Toolkit (AFMSTT). ***FY 2015 Plans:*** Version 5.0.16.0 continues to provide 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 COCOM battle staffs during joint and service exercises and experimentations. Continues the development of: terrain and line of sight modeling, processing of Abstract Intent Orders and production of communication traffic/intelligence, critical modernization of Identification Friend or Foe/Selective Identification Feature (IFF/SIF) Mode 5 and S, Coalition Cross Domain Solution rule set additions, increased Theater Missile Operations/Theater Missile Defense (TMO/TMD) fidelity, and compliance with additional Battle Lab Collaborative Simulation Environment (BLCSE/MATREX) federation Object Model interfaces. ***FY 2016 Plans:*** Version 5.0.17.0 will continue to provide 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 Command (COCOM) battle staffs during joint and service exercises and experimentations. Will continue the modernization and Joint interface changes to include the re-engineering of ACE-IOS to modern service-oriented architecture principles, service data translator modules, and interface compliance with new Joint Live Virtual Constructive (JLVC) 2020 cloud based service architectures.			
Title: Simulation and Anaylsis Facility (SIMAF) ***Description:*** Develop, enhance and verify models, tools, data, simulations/stimulation environments for systems engineering and test activities. ***FY 2014 Accomplishments:***	-	-	4.967

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Will support activities that include studies and analysis of current program planning/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. SIMAF efforts will also support the development and maturation of collaborative processes and capabilities to support systems-of-systems assessments (e.g. airborne network assessments, air-ground layer interaction, etc.).			
Accomplishments/Planned Programs Subtotals	1.202	5.003	13.662

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 Anaylsis Facility, Wright-Patterson AFB, OH manage the acquisition and incremental development process 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / *USAF Modeling and Simulation*	Project (Number/Name) 674567 / *M&S Foundations*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Constructive Environment - Information Operations Suite (ACE-IOS)	C/Various	90th IOS : Lackland AFB, TX	-	1.202	Jul 2014	4.941	Jan 2015	8.633	Oct 2015	-		8.633	Continuing	Continuing	-
Simulation and Analysis Facility (SIMAF)	C/Various	SIMAF : Wright Patterson AFB, OH	-	-		-		4.967	Dec 2015	-		4.967	Continuing	Continuing	-
		Subtotal	-	1.202		4.941		13.600		-		13.600	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	C/CPFF	AFLCMC : Hanscom AFB, MA	-	-		0.062	May 2015	0.062	May 2016	-		0.062	Continuing	Continuing	-
		Subtotal	-	-		0.062		0.062		-		0.062	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.202		5.003		13.662		-		13.662	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*	**Project (Number/Name)** 674567 / *M&S Foundations*

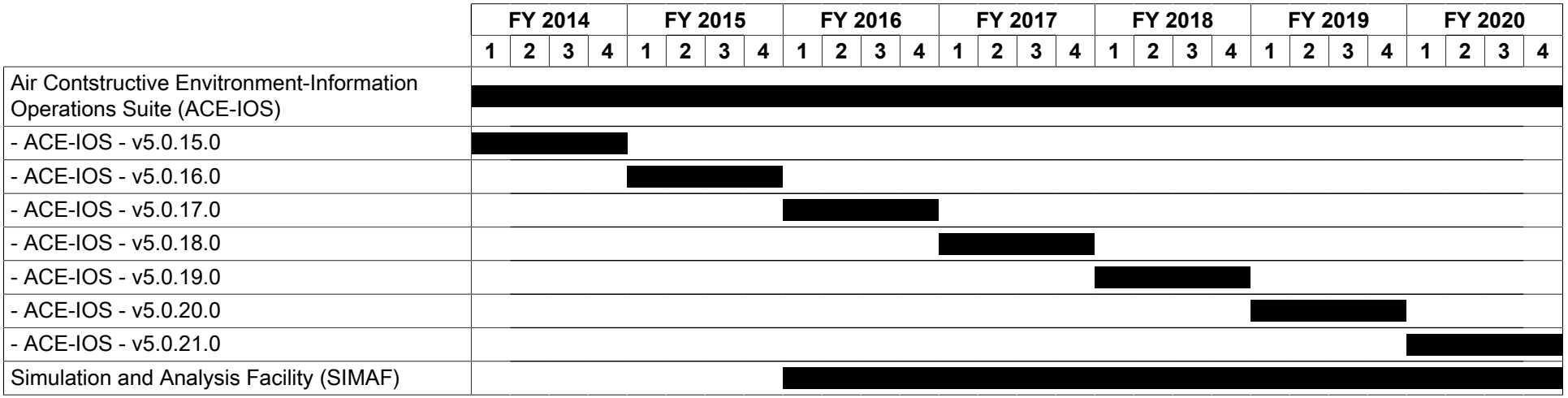

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*	**Project (Number/Name)** 674567 / *M&S Foundations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Air Contstructive Envitronment-Information Operations Suite (ACE-IOS)	1	2014	4	2020
- ACE-IOS - v5.0.15.0	1	2014	4	2014
- 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
Simulation and Analysis Facility (SIMAF)	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675135: *Warfighter Readiness*	-	7.237	7.031	11.332	-	11.332	11.100	10.244	10.437	10.623	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 model in the AFMSTT is the Air Warfare Simulation (AWSIM).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Air, Space, and Cyberspace Constructive Environment (ASCCE)	7.237	7.031	11.332
Description: Air Force Modeling & Simulation Training Toolkit (AFMSTT)/Air Warfare Simulation (AWSIM)			
FY 2014 Accomplishments: Version 5.7 continued the development of the Air, Space, and Cyberspace Constructive Environment (ASCCE) via the Air Force Modeling & Simulation Training Toolkit (AFMSTT) and the Air Constructive Environment-Information Operations Suite (ACE-IOS). Continued developing long term modernization process to better address warfighter requirements while providing engineering support to the demanding AF AOC and COCOM battle staff, mission and C2 tactics rehearsal schedules and system interface			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*	**Project (Number/Name)** 675135 / *Warfighter Readiness*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
changes. Developed the modernization architecture, data framework and interface data bus to address constantly changing M&S and C2 external interfaces. ***FY 2015 Plans:*** Version 5.9 continues the development of the Air, Space, and Cyberspace Constructive Environment (ASCCE) via the Air Force Modeling & Simulation Training Toolkit (AFMSTT) and the Air Constructive Environment-Information Operations Suite (ACE-IOS). Continues the modernization and validation test of FY14 software modules; addresses the start of a modern unified controller and modern user interface; early engineering for modernization of the million lines of legacy Government owned software. Continues the engineering development efforts to accurately model changing real world environments to ensure accurate M&S models. ***FY 2016 Plans:*** Version 6.1 will continue the development of the Air, Space, and Cyberspace Constructive Environment (ASCCE) via the Air Force Modeling & Simulation Training Toolkit (AFMSTT) and the Air Constructive Environment-Information Operations Suite (ACE-IOS). Will address the major shortfalls in the AFMSTT core software simulation modules through modernization and depreciation of legacy software. Core software changes will be required to address new models associated with Anti-Access/Area Denial (A2/AD) employments, Tactics, Techniques, and Procedures (TTPs), and systems changes while maintaining engineering integration, validation, and support to worldwide M&S and C2 community requirements.			
Accomplishments/Planned Programs Subtotals	7.237	7.031	11.332

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 M&S activities. All major contracts 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / *USAF Modeling and Simulation*	Project (Number/Name) 675135 / *Warfighter Readiness*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AFMSTT/(Air Warfare Simulation (AWSIM))	C/CPFF	AFLCMC : Hanscom AFB, MA	-	6.153	Feb 2014	5.938	Oct 2014	10.064	Oct 2015	-		10.064	Continuing	Continuing	-
		Subtotal	-	6.153		5.938		10.064		-		10.064	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	C/Various	AFLCMC : Hanscom AFB, MA	-	1.084	Oct 2013	1.093	Nov 2014	1.268	Oct 2015	-		1.268	Continuing	Continuing	-
		Subtotal	-	1.084		1.093		1.268		-		1.268	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.237		7.031		11.332		-		11.332	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*	**Project (Number/Name)** 675135 / *Warfighter Readiness*

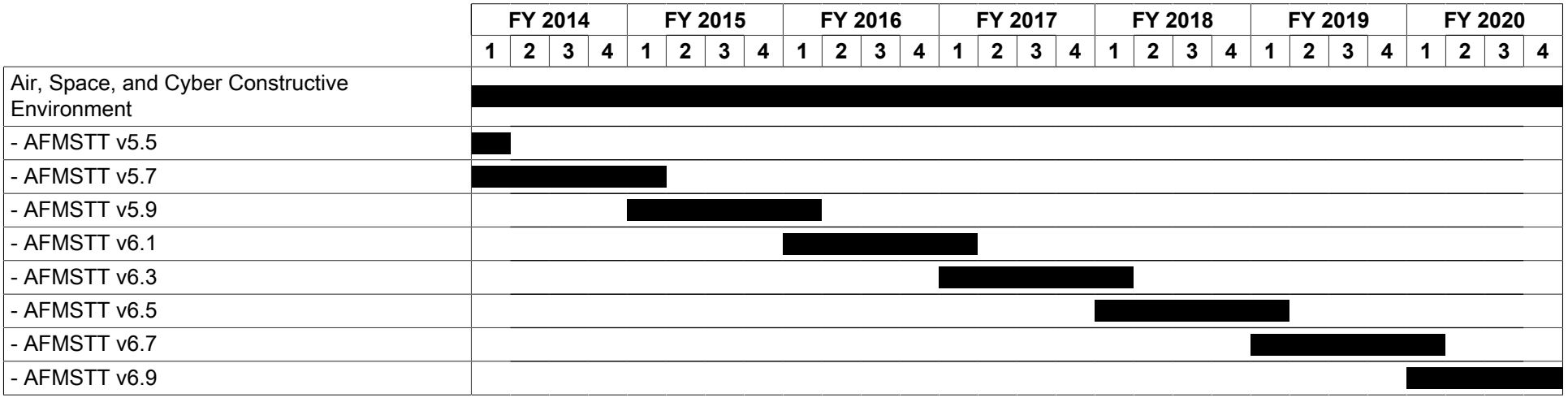

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207601F / *USAF Modeling and Simulation*	**Project (Number/Name)** 675135 / *Warfighter Readiness*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Air, Space, and Cyber Constructive Environment	1	2014	4	2020
- AFMSTT v5.5	1	2014	1	2014
- AFMSTT v5.7	1	2014	1	2015
- AFMSTT v5.9	1	2015	1	2016
- AFMSTT v6.1	1	2016	1	2017
- AFMSTT v6.3	1	2017	1	2018
- AFMSTT v6.5	1	2018	1	2019
- AFMSTT v6.7	1	2019	1	2020
- AFMSTT v6.9	1	2020	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207605F / *Wargaming and Simulation Centers*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	5.326	5.956	6.035	-	6.035	6.015	6.130	6.245	6.357	Continuing	Continuing
672888: *Distributed Mission Operations Center (DMOC)*	-	5.326	5.956	6.035	-	6.035	6.015	6.130	6.245	6.357	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 Environment Generators and is in partnership with the US Naval Air Systems Command (NAVAIR) to enhance the capabilities of the Next Generation Threat System (NGTS) from version 2.4.14 to version 3.5 over the next two-three years that will provide red/blue air and other capabilities. The DMOC Replay Tool is regularly upgraded to facilitate a more complete mission review and debrief capability of the exercises as more sites and systems are added to events. Future planned 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 which allows tactical datalinks to be communicated and translated between disparate simulator communication formats; development of Intelligence, Surveillance, and Reconnaissance (ISR)/Battle Damage Assessment (BDA) which improves damage state models used by intelligence analysts in exercises and develops solutions for integrating Contested Degraded Operations (geographical and communications jamming) into DMO events.

2. Certification & Accreditation (C&A) and Networthiness: The DMOC supports requirements definition, integration test support, scenario development, 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 test & evaluation of the Distributed Training Network Guard (DTNG), a DMOC/NAVAIR partnership; accreditation work for various interoperability tools such as the DMOC Replay Tool, Dr. J, and the DIS filter tool.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207605F / *Wargaming and Simulation Centers*

3. Distributed Training Sites & Systems Integration: DMOC integrates distributed training sites and systems into LVC DMO training events such as VF and Coalition VF (four-eyes event) 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.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	5.512	5.956	6.075	-	6.075
Current President's Budget	5.326	5.956	6.035	-	6.035
Total Adjustments	-0.186	-	-0.040	-	-0.040
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.186	-			
• Other Adjustments	-	-	-0.040	-	-0.040

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Distributed Mission Operations (DMO) Capability / Battlespace Systems Development	3.355	3.826	3.860
Description: Simulation software/hardware development in support of users conducting RDT&E, mission rehearsal, and concepts of operation development.			
FY 2014 Accomplishments: Enhanced Red and Blue Air/Ground/Sea simulators (NGTS version 3.0.0 to 3.1.0); developed/integrated the findings from the FY13 Contested Degraded Opearations (CDO) study; continued development of DMO tools such as Map Status (MAPSTAT) and the Distributed Interactive Simulation (DIS) Mu Law Decoder and Analyzer (DISMLDAA); developed next-gen JTAC TACP Operational Simulator interfaces; developed Space-Based Infrared Space System Trainer (SBIRS-ST); developed Synthetic Radar Interface for the Battlefield Command and Control Center (BC3); continued controlled interface ruleset development for coalition events.			
FY 2015 Plans: Finalize the integration of Blue Air environment generator to DMOC White Force capability within NGTS version 3. Continue improvements to Red and Blue Air/Ground/Sea simulation (NGTS - ver 3.1.0 to 3.1.6); continue development of DMO tools such			

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207605F / *Wargaming and Simulation Centers*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
as Dr. J, DMOC Replay Tool, and the DIS Filter tool as modifications/improvements are identified after completion of DMO events, these efforts support Modeling & Simulation technology and emerging Air Force and COCOM requirements. In addition, continue coalition ruleset development for coalition events. ***FY 2016 Plans:*** Will continue improvements to Red and Blue Air/Ground/Sea simulation (NGTS - ver 3.1.6 to 3.2.0); will continue development of DMO tools such as Dr. J, DMOC Replay Tool, and the DIS Filter tool as modifications / improvements are identify after completion of DMO events, these efforts will support changing M&S technology and emerging AF and COCOM requirements. In addition, will continue coalition ruleset development for coalition events.			
Title: Certification & Accreditation (C&A) and Networthiness ***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. ***FY 2014 Accomplishments:*** Continued C&A efforts for Distributed Training Network Guard (DTNG) and Multinational Information Sharing (MNIS) rulesets and other emerging requirements based on technology changes. Implemented requirements of Cybersecurity, Risk Management framework, and Continuous Monitoring. ***FY 2015 Plans:*** Continue C&A efforts for emerging requirements based on technology changes. Implement requirements of Cybersecurity, Risk Management Framework, and Continuous Monitoring; continue to maintain Battlespace accreditation. ***FY 2016 Plans:*** Will continue C&A efforts for emerging requirements based on technology changes. Will implement requirements of Cybersecurity, Risk Management Framework, and Continuous Monitoring; will continue to maintain Battlespace accreditation.	1.024	1.107	1.130
Title: Distributed Training Sites & Systems Integration ***Description:*** Establish site/system integration / interoperability between DMOC, operational units, and modeling & simulation facilities. ***FY 2014 Accomplishments:*** Continued the site/system integration for three Virtual Flag (VF) and one Coalition VF (CVF) exercises. Added new sites and systems based on higher headquarters and Combatant Command (COCOM) requirements. Integrated the EC-130H into DMO events. Continued the exploration of a combined Red Flag and VF. Continued to evaluate VF as a possible Joint Interface Control	0.947	1.023	1.045

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207605F / *Wargaming and Simulation Centers*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Officer (JICO) certification venue. Developed "High Side" VF spiral event in cooperation with Combat Air Forces Distributed Training Center (CAF DTC) to enable F-22, F-15C, F-15E, F-16 and E-3s to conduct Operations Plan (OPLAN) familiarization for emerging Pacific Command (PACOM) requirement. ***FY 2015 Plans:*** Continue the site/system integration of three VF and one CVF exercises. Continue to add new sites and systems based on higher headquarter and COCOM requirements. Continue to execute Red Flag and Virtual Flag exercises. Integrate USN/USMC F/A-18 aircraft, P-8 and P-3 aircraft. Develop strategies to convert live radar data into simulator data to enable control by Live or Virtual Command and Control (C2). Continue cross domain requirements to add F-22 into VF at the appropriate classification level. Continue to develop VF spiral events that allow USAF aircraft to operate at full combat capability. Add Communications Intelligence (COMINT) capabilities for Intelligence, Surveillance, and Reconnaissance (ISR) airmen to fully train for major combat operations as Counterinsurgency (COIN) operations decrease. ***FY 2016 Plans:*** Will continue the site/system integration of three VF and one CVF exercises. Will continue to add new sites and systems based on higher headquarter and COCOM requirements. Will continue to bring live operations from USAF training ranges into Virtual-Constructive (VC) training environment to meet CSAF Live Virtual Constructive Operational Training (LVC-OT) roadmap. Will work cross domain solution to bring NATO virtual systems into CVF.			
Accomplishments/Planned Programs Subtotals	5.326	5.956	6.035

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 awards full and open 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / *Wargaming and Simulation Centers*	Project (Number/Name) 672888 / *Distributed Mission Operations Center (DMOC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Mission Operations (DMO) Capability / Battlespace Systems Development	C/CPFF	Lockheed Martin : Kirtland AFB, NM	-	2.330	Mar 2014	2.719	Mar 2015	2.733	Mar 2016	-		2.733	Continuing	Continuing	-
Certification & Accreditation (C&A) and Networthiness	C/CPFF	Lockheed Martin : Kirtland AFB, NM	-	0.692	Mar 2014	0.748	Mar 2015	0.763	Mar 2016	-		0.763	Continuing	Continuing	-
Distributed Training Sites & Systems Integration	C/CPFF	Lockheed Martin : Kirtland AFB, NM	-	0.277	Mar 2014	0.299	Mar 2015	0.305	Mar 2016	-		0.305	Continuing	Continuing	-
		Subtotal	-	3.299		3.766		3.801		-		3.801	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical requirements development, integration/ acceptance testing, and engineering support	C/FFP	Alpha-Omega Change Engineering, Inc. : Kirtland AFB, NM	-	1.469	Sep 2014	1.587	Sep 2015	1.619	Sep 2016	-		1.619	Continuing	Continuing	-
		Subtotal	-	1.469		1.587		1.619		-		1.619	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / *Wargaming and Simulation Centers*	Project (Number/Name) 672888 / *Distributed Mission Operations Center (DMOC)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office Support	Various	705 CTS : Kirtland AFB, NM	-	0.558	Oct 2013	0.603	Oct 2014	0.615	Oct 2015	-		0.615	Continuing	Continuing	-
		Subtotal	-	0.558		0.603		0.615		-		0.615	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.326		5.956		6.035		-		6.035	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

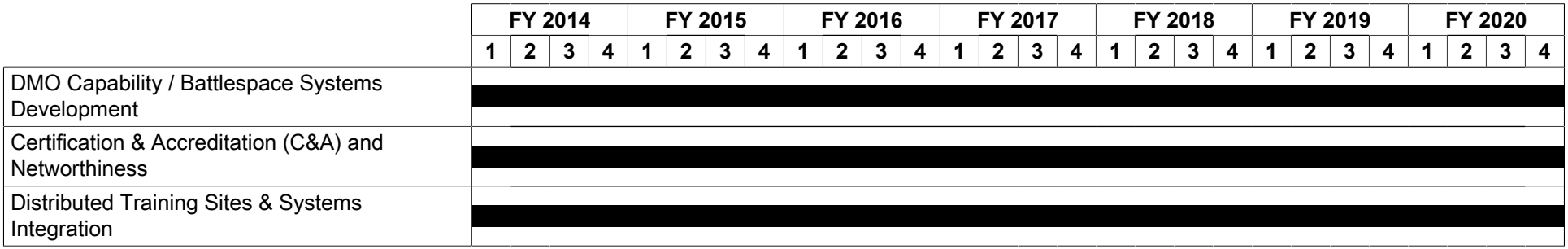

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207605F / *Wargaming and Simulation Centers*	**Project (Number/Name)** 672888 / *Distributed Mission Operations Center (DMOC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DMO Capability / Battlespace Systems Development	1	2014	4	2020
Certification & Accreditation (C&A) and Networthiness	1	2014	4	2020
Distributed Training Sites & Systems Integration	1	2014	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207697F / *Distributed Training and Exercises*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	3.600	3.357	4.358	-	4.358	4.138	4.218	4.296	4.373	Continuing	Continuing
675190: *JFCOM Wargaming*	-	3.600	3.357	4.358	-	4.358	4.138	4.218	4.296	4.373	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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0207697F / *Distributed Training and Exercises*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	3.301	4.457	4.387	-	4.387
Current President's Budget	3.600	3.357	4.358	-	4.358
Total Adjustments	0.299	-1.100	-0.029	-	-0.029
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.100			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.400	-			
• SBIR/STTR Transfer	-0.101	-			
• Other Adjustments	-	-	-0.029	-	-0.029

Change Summary Explanation

FY15 Direct Congressional Reduction for "Unjustified Increase."

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Develop/ Upgrade M&S Tools for WIE	1.478	1.442	1.918	-	1.918
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 2014 Accomplishments: - Developed air and space wargaming specific functionality among existing simulation and analysis tools (e.g., BMD I-Sim/STORM/JFAST) - Extended collaboration to include internally developed tools (e.g. ForceTracker (common operating picture & force management tool)/ Request for Forces Tool / Objectives & Observation Tool) to meet wargame requirements.					
FY 2015 Plans: - Incorporate the latest version and improve integration of the Air Force's latest version of Synthetic Theater of Operations Research Model (STORM). STORM is a theater campaign model used in pregrame and postgame analysis to establish bookends.					

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207697F / *Distributed Training and Exercises*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Develop 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 requires customized software to interact in the WIE. ***FY 2016 Base Plans:*** - Expand the WIE from the current construct to support on CONOPs wargame to support all Air Force wargames. This will require reprograming of some hard coded CONOPS specifics to into a 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. - Incorporate industry's latest technology with human interactions to include more touch and hopefully recognition of hand gestures to allow a quicker and more intuitive interaction with the WIE and its applications. ***FY 2016 OCO Plans:*** N/A					
Title: CRRA Development ***Description:*** Provides for capabilities, Requirements, and Risk Assessment (CRRA) ***FY 2014 Accomplishments:*** Developed Capabilities, Requirements, and Risk Assessment (CRRA) ***FY 2015 Plans:*** Develop Capabilities, Requirements, and Risk Assessment (CRRA) ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A	0.248	0.106	-	-	-
Title: JCD&E Tools ***Description:*** Develop of scenarios and data for future synthetic environment that grounded in truth to support several wargame and mini-wargame. ***FY 2014 Accomplishments:***	1.542	1.457	2.058	-	2.058

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207697F / *Distributed Training and Exercises*	

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Developed entity-level simulation tools and effects-based modeling for Joint Concept Development and Experimentation ***FY 2015 Plans:*** - Create 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. - 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. ***FY 2016 Base Plans:*** - Begin the creation of a brand new scenario(s) and data to support the new Air Force wargaming construct of two CONOPS wargames, one Materiel wargame, along with experimentation as needed. - New requirement will require a scenario and data that provides continual connected story across a much longer time frame with some deviations to allow comparison of "what if" questions. ***FY 2016 OCO Plans:*** N/A					
Title: Software License & Replacement Costs ***Description:*** Supplies platforms for software in operational environments and for programmed replacement costs ***FY 2014 Accomplishments:*** Developed entity-level simulation tools and effects-based modeling for Joint Concept Development and Experimentation ***FY 2015 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. ***FY 2016 Base 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. ***FY 2016 OCO Plans:***	0.332	0.352	0.382	-	0.382

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207697F / *Distributed Training and Exercises*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	3.600	3.357	4.358	-	4.358

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 new vamped 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

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207697F / *Distributed Training and Exercises*	Project (Number/Name) 675190 / *JFCOM Wargaming*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various	C/CPFF	TBD : TBD,	-	3.600	Nov 2013	3.357	Mar 2015	4.358	Mar 2016	-		4.358	Continuing	Continuing	-
		Subtotal	-	3.600		3.357		4.358		-		4.358	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.600		3.357		4.358		-		4.358	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207697F / *Distributed Training and Exercises*	**Project (Number/Name)** 675190 / *JFCOM Wargaming*

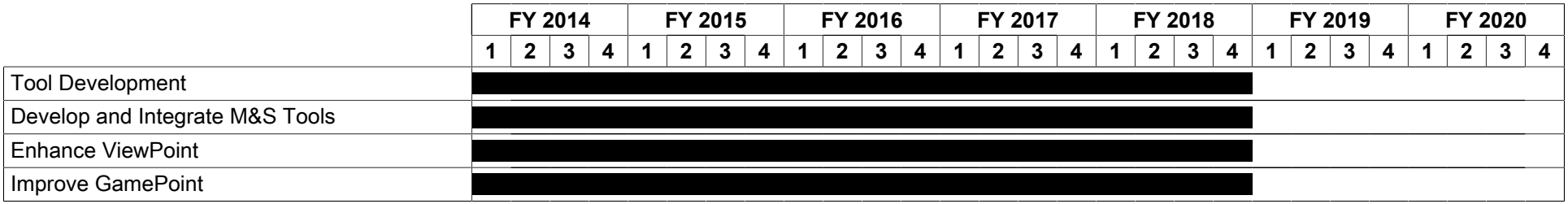

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207697F / *Distributed Training and Exercises*	**Project (Number/Name)** 675190 / *JFCOM Wargaming*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Tool Development	1	2014	4	2018
Develop and Integrate M&S Tools	1	2014	4	2018
Enhance ViewPoint	1	2014	4	2018
Improve GamePoint	1	2014	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*							
COST ($ in Millions)	**Prior Years** (+)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.660	55.432	60.679	55.835	-	55.835	78.323	75.567	75.113	87.771	Continuing	Continuing
675302: *Precision Aerial Delivery Systems (PADS)*	0.000	4.299	6.972	7.390	-	7.390	10.567	8.937	3.710	5.065	Continuing	Continuing
675380: *Mission Planning Systems (MPS) Modernization*	0.000	51.133	53.707	48.445	-	48.445	67.756	66.630	71.403	82.706	Continuing	Continuing
MDAP/MAIS Code: N35												

(+) The sum of all Prior Years is $0.660 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on 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 weapons, 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 mission plan; and download pertinent flight information to on-board aircraft avionics.

The Mission Planning Systems (MPS) program is a collaborative program with the Army and 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 more commonly 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 will be shared with other AF programs as well as the Army and 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.

The Mobility Air Force Automated Flight Planning Service (MAFPS) component of MPS will provide a centralized, net-centric global mobility mission flight planning capability. This capability will provide significant fuel savings through automated flight route optimization utilizing aircraft performance, air traffic management, weather, and other data.

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 and execution capability for DoD airdrop requirements. It is the primary airdrop mission planning and execution system for all ballistic airdrop mission 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.

FY16 funding will continue the MPS software development program. It will develop pre 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 update Air Force weapon systems that have already migrated to JMPS. These weapon systems include, but are not limited to the: A-10, B-1B, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-16, F-22A, 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.). FY16 funding will also continue the development of 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.

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	62.432	60.679	65.701	-	65.701
Current President's Budget	55.432	60.679	55.835	-	55.835
Total Adjustments	-7.000	-	-9.866	-	-9.866
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.050	-			
• SBIR/STTR Transfer	-1.950	-			
• Other Adjustments	-	-	-9.866	-	-9.866

Change Summary Explanation

FY14 RDT&E includes reprogramming actions of 5.05M to support JSTARS RECAP ($4.55M) and GSIN ($.5M) development programs
FY16 RDT&E reduced $9.0M for higher Air Force priorities
FY16 RDT&E funding request was reduced by $.5M to account for the availability of prior execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675302 / *Precision Aerial Delivery Systems (PADS)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675302: *Precision Aerial Delivery Systems (PADS)*	-	4.299	6.972	7.390	-	7.390	10.567	8.937	3.710	5.065	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. 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 replanning as applicable.

This project continues the development of a Joint Precision Airdrop System-Mission Planner (JPADS-MP) Phase I capability in conjunction with the Army. JPADS provides a planning and execution capability for DoD airdrop requirements. It is the primary airdrop mission planning and execution 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, mitigating surface-to-air threats, reducing risk of 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 AMC's objective of moving to a two man cockpit. These efforts include, but are not limited to 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, implementation of new technologies (e.g. Service Oriented Architecture (SOA) Touch Screen environment. In addition and in support of these objectives, the AFRL-led Precision Airdrop (PAD) Flagship Capability Concept (FCC) effort will transition technology capabilities (including but not limited to Bundle Tracking, Forced Exit release point computations, data from Autonomous Weather Sensing, Humanitarian Airdrop release point computations, and improved Airdrop Performance data) to the JPADS-MP PoR and 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. Following capabilities planned for development within the JPADS-MP program, include but are not limited to:

Development, testing and incorporation of updates to Wireless Gate Release System (WGRS), use the digital terrain data on the mission planning laptop, the Local Area Prediction System (LAPS), Airdrop Damage Estimate (ADE), Operating System/Standard, migration to the new Mission Planning Systems (MPS) Capability (JMPS), combination airdrop, support of new map projections including polar stereographic, Touch Screen (Tablet) User Interface, Advanced Launch Acceptable Range (LAR), Advanced Guidance Failure Footprints, Drogues and Wireless Activation Device (WAD), Automation and Health Status/Monitoring, Autonomous Guidance Unit (AGU)

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

Data Transfer updates, bundle tracking, Service Oriented Architecture (SOA) to enable seamless data communication between devices, secondary point of impact for cargo airdrop, forced exit, humanitarian airdrop, support for ParaNavSys, Dropsonde Optimization, transference of wind along a flight path, replacement of weather assimilation engine with Kalman Filter, weather analysis and visualization, use of ensemble weather, new chute configurations and aerial guidance units, updates to ballistics data and dispersion models, implementation of new weather observation sources (i.e. Light Detection and Ranging (LIDAR) and RADAR sensing capabilities) for real-time weather, support for structured Wifi network, simulator and rehearsal mode for Aircraft WSTs, ingest navigation, weather and flight performance data from the aircrafts data bus, workflow enhancements to reduce task saturation, OS/SDC updates, and implementation of human effectiveness improvements.

FY16 funding continues development and testing in preparation for fielding of CAT v3.2 software to provide precision and conventional airdrop capabilities including Airdrop Damage Estimate (ADE), Combination Airdrop, Personnel Airdrop, Unified Mission Configuration Editor, Falconview Overlays and Advanced LAR and Failure Footprints for AF and other services (e.g. the Army) aircraft platforms. FY16 also begins effort to migrate CAT to a JMPS Framework.

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 2014	FY 2015	FY 2016
Title: JPADS-MP Phase I	4.299	6.972	7.390
Description: Continues development of a JPADS capability for precise, high altitude delivery of material to forward ground forces.			
FY 2014 Accomplishments: Phase I: Completed fielding of CAT v2.2 and CAT v3.0. Continued CAT v3.x development. Also continued prototyping, development and integration of weather forecast and analysis tools (customized for precision airdrop) and integration of an Airdrop Damage Estimate (ADE) tool for improved planning. Efforts also included revising the work-flow of the software. Started development of CAT v4.x activities to expand precision airdrop capabilities for accurate calculation and developing calculations and capabilities for combination airdrop for personnel and heavy equipment. Efforts also included the migration of airdrop software to a JMPS framework.			
FY 2015 Plans: Phase I: Complete development and test of CAT v3.2 for fielding in FY16. Will continue CAT 4.x development activities to migrate CAT to a JMPS Framework and expand precision airdrop capabilities for accurate calculation of established operational requirements which include support for advanced failure footprints for guided delivery systems, assessment of airdrop damage estimates based on inflight constraints identified by the aircrew during improved container delivery system (CDS) airdrops, new 45ft parachute for High Speed CDS airdrops, Launch Acceptable Range calculation for Ultra-Light Weight guided delivery systems, 2K Halo, Mass CDS, Bundle Tracking, and improved user workflows. Will also initiate CAT 5.x competition for projected award in 1st QTR FY16 to continue evolution of CAT S/W into an automated suite of airdrop mission tools.			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Phase I: Field CAT v3.2. Will continue CAT 4.x development activities to migrate CAT to a JMPS Framework and expand precision airdrop capabilities for accurate calculation of established operational requirements. Will also initiate CAT 5.x competition for projected award in 1st QTR FY16 to continue evolution of CAT S/W into an automated suite of airdrop mission tools. Projected CAT v5.x capabilities include, but are not limited to, mission rehearsal and simulation, replacement of the weather assimilation engine with a dedicated Kalman Filter, implementation of Ensemble Weather for support of single pass airdrop, improved accuracy of airdrop solutions and Airdrop Damage Estimate as well as Humanitarian Airdrop, Automation features and SOA optimization.			
Accomplishments/Planned Programs Subtotals	4.299	6.972	7.390

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833170: *Mission Planning Systems*	6.725	8.400	6.581	-	6.581	6.074	5.882	6.449	6.565	Continuing	Continuing

Remarks

D. Acquisition Strategy

PADS utilizes an evolutionary acquisition approach to develop and deliver an interoperable, network-centric, mission planning system tailored for numerous Air Force platforms using competition and multiple contract vehicles.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	MIPR	TYBRIN : Ft Walton Beach, FL	0.000	3.043	Nov 2013	5.969	Nov 2014	6.189		-		6.189	Continuing	Continuing	TBD
Systems Engineering and Integration	C/CPAF	SAIC : McLean, VA	0.000	0.982	Nov 2013	0.832	Nov 2014	0.650		-		0.650	Continuing	Continuing	TBD
		Subtotal	0.000	4.025		6.801		6.839		-		6.839	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	-	Nov 2013	-	Nov 2014	-		-		-	Continuing	Continuing	TBD
Cost Estimating	C/T&M	Tecolote Inc : Bedford, MA	0.000	0.047	Nov 2013	0.015	Nov 2014	-		-		-	Continuing	Continuing	TBD
		Subtotal	0.000	0.047		0.015		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TW : Eglin AFB, FL	0.000	-	Nov 2013	-	Nov 2014	-		-		-	Continuing	Continuing	TBD
Certification and Accreditation	MIPR	JITC : Indian Head, MD	0.000	-	Jan 2014	-	Jan 2015	-		-		-	Continuing	Continuing	TBD
Type I Training	C/FP	Ogden Air Logistics Center : Hill AFB, UT	0.000	-	Nov 2013	0.074	Nov 2014	-		-		-	Continuing	Continuing	TBD
Field Representative Hardware	C/Various	Various : Various,	0.000	-	Nov 2013	-	Nov 2014	-		-		-	Continuing	Continuing	TBD
		Subtotal	0.000	-		0.074		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
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)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	0.000	-		-		-		-		-	Continuing	Continuing	TBD
Program Management Administration	Various	Various : Various,	0.000	0.227	Nov 2013	0.082	Nov 2014	0.551		-		0.551	Continuing	Continuing	TBD
		Subtotal	0.000	0.227		0.082		0.551		-		0.551	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.299		6.972		7.390		-		7.390	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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)*

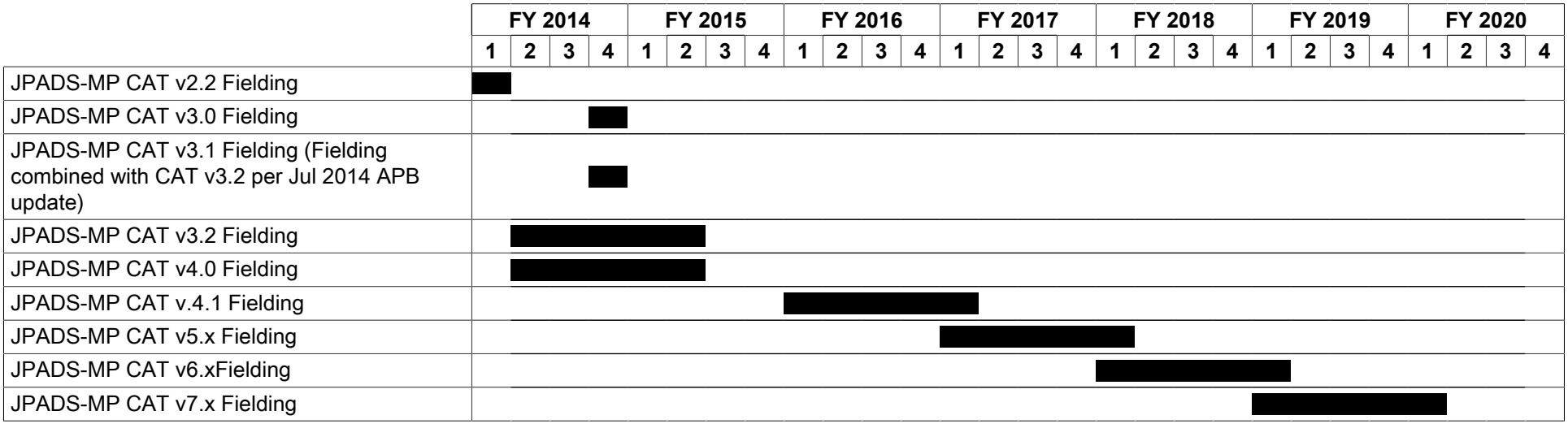

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JPADS-MP CAT v2.2 Fielding	1	2014	1	2014
JPADS-MP CAT v3.0 Fielding	4	2014	4	2014
JPADS-MP CAT v3.1 Fielding (Fielding combined with CAT v3.2 per Jul 2014 APB update)	4	2014	4	2014
JPADS-MP CAT v3.2 Fielding	2	2014	2	2015
JPADS-MP CAT v4.0 Fielding	2	2014	2	2015
JPADS-MP CAT v.4.1 Fielding	1	2016	1	2017
JPADS-MP CAT v5.x Fielding	1	2017	1	2018
JPADS-MP CAT v6.xFielding	1	2018	1	2019
JPADS-MP CAT v7.x Fielding	1	2019	1	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675380 / *Mission Planning Systems (MPS) Modernization*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
675380: *Mission Planning Systems (MPS) Modernization*	-	51.133	53.707	48.445	-	48.445	67.756	66.630	71.403	82.706	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan(s) based on 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 weapons, 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; and download pertinent flight information to on-board aircraft avionics.

This project focuses on modernizing MPS to support Combat Air Forces (CAF) and Mobility Air Forces (MAF), including the development, test and sustainment of Joint Mission Planning Environments (JMPEs) to support the B-1B, 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, other platforms, and all common component (CCs)software tools currently approved as necessary 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 MPE Modernization: These development efforts modernize CAF MPE that were previously developed and delivered under MPS Increments II and III and IV. 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 in Fiscal Years 2014 through 2020 include but are not limited to those for A-10, B-1B (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, 9, and 10), F-16 Block 40/50 (M6.1, M6.5, M7.1, and M7.2) and F-22 (Increments 3.2B, 3.2C, and 4.0). CAF modernization also includes updates to mission planning capabilities supporting associated weapons, including 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 System (WPS), Electronic Warfare CC (EWCC), Weather CC, etc. CAF MPE Modernization includes 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 (SDB), AIM-9X, AIM-120D, and Network Enable Weapon support elements (e.g. key handling, weapon data link, and Link 16). It will also include enhancements to the synthetic aperture radar planning tool (SAR-PT) and the global area reference 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.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

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 SCU8 and SCU9. 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. SCU8 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. SCU9 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) and the addition of the Laser JDAM.

3) F-16 Block 40/50 Modernization Phases I&II: The F-16 Block 40/50 modernization efforts will provide the capability within the MPE to plan/utilize a number or OFP-driven capabilities in the platform. The modernization efforts will support new aircraft capabilities established in OFPs for M6.5 (joint USAF/European Participation Air Force effort, 6.5 will be fielded by EPAF, USAF will roll 6.5 capabilities in 7.1), 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 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 (ADS-B) technology and facilitate compliance with standards for the Next Generation Air Transportation System (NextGen). The development effort will also migrate the F-16 Block 40/50 MPE to the Windows 7 operating environment

4) F-22 Modernization Phase I: The F-22 Modernization program includes OFP-driven software updates v13. F-22 OFP-driven 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 updates will also be completed as required.

5) B-1 Modernization Phase I: The B-1 Modernization program includes OFP-driven software updates for Releases 7.0, 8.0, and 9.0. 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 elements (including Fully Integrated Data Link/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.

b). MAF MPE Modernization: This effort modernizes the E-8 MPE developed and deployed during MPS Increment IV for use on MAF programs following the approach briefed and endorsed by the OIPT and documented in the OIPT report of 09 November 2011. The modernization activities will provide new and improved mission planning capabilities for the MAF fleet as required to meet evolving OFP, fuel efficiency, and global planning netcentric

1. Special Missions ACC (SMACC). SMACC Modernization Phase I and Phase II: This includes two programs; the Special Missions ACC (SMACC) Phase I Modernization Program and the SMACC Combat Search and Rescue (CSAR) MPE. The SMACC Modernization Program includes development, testing, and fielding of MP software for the E-3/E-8, RC-135 and EC-130. The E-3/E-8 v3.0 development effort will provide a Windows 7 capability and upgrade to the latest Framework while maintaining SDC compliance. It will also deliver software that is compatible with the E-3 DRAGON avionics upgrade including CNS ATM Certification. The RC-135 and

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

EC-130H efforts will update their respective mission planning environments to include the latest Framework and SDC version. The SMACC CSAR MPE program will transition to PFPS-based HH-60 and HC/MC-130P/N/J CSAR mission planning functionality, tools, and plugins to Joint Mission Planning Systems (JMPS) environment.

2. MAF MPS Modernization (AMC Transition): 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 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 integrating improvements to MAF related Common Components (CCs). Examples of these CCs include the Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) CC, Consolidated Airdrop Tool (CAT), Aeronautical Advisory and Notices to Airmen Tool (AANT), and Air Refueling Tool (ART). This effort also provides the capability to use the new Digital Aeronautical Information File (DAFIF) services-based data structure being produced by National Geospatial Agency.

c. 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.

d. Test, Training and Certification: Continues all MPS-related integration, test, and certification activities for all CAF and MAF platforms.

e. 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.

FY16 funding will continue the development and modernization of the 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).

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 2014	FY 2015	FY 2016
Title: F-15 Modernization Phase II	7.005	11.237	8.334
Description: Continues the modernization of previously fielded F-15 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Completed development and Development Testing (DT) for v3.2, which includes SDB II and JDAM improvements. Received final v5.0 OFP requirements and sent out an Request for Proposal for an Engineering Change Proposal. ***FY 2015 Plans:*** Will finish Operational Testing (OT) for v3.2 in Q1 and field in Q2. Will finish development of v4.0 in Q2, complete Formal Qualification Test(FQT) in Q2, and enter DT in Q3. Development efforts of v4.0 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. Will complete v5.0 ECP (newest version of set requirements) and begin development.v5.0 will include Digital Transfer Device/Modules (DTD/DTM) modernization and radar library updates. ***FY 2016 Plans:*** Will finish Operation Testing (OT) for v4.0 in Q2 and field in Q3. Will continue development of v5.0.			
Title: F-16 Block 30 Modernization Phase I ***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. ***FY 2014 Accomplishments:*** Completed 3 development and test build releases (engineering) for preliminary development testing, early user looks, and for software integration lab testing and user evaluation and development testing. Capabilities developed and under testing include but are not limited to Helmet Mounted Integrated Targeting improvements to finish integration, center display unit (CDU) improvements, a threat symbology/correlation file commonality with F-16 Block 40/50. ***FY 2015 Plans:*** Will complete development and full qualification testing (FQT) and begin final development testing of in 4Q F-16 SCU9 updates mentioned above. Will initiate requirements definitization/planning and initial design activities for F-16 SCU10 updates. ***FY 2016 Plans:*** Will complete DT/OT, and field SCU 9.	2.971	1.504	0.092
Title: F-16 Block 40/50 Modernization Phases I&II ***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. ***FY 2014 Accomplishments:*** Completed F-16 M6.5+ (USAF) coding and transitioned developed code into F-16 M7.1+. Phase II: Completed initial requirements definition for M7.1+. Developed and released two F-16 M7.1+ software builds for early development testing, early user feedback	4.512	4.663	5.351

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
and integration testing with the OFP. Capabilities include, but are not limited to, UAI MP2 completion, Weapons Data Link, and Common Weapons Employment Zone updates. ***FY 2015 Plans:*** Phase II: Finalize requirement definition, complete development and Functional Qualification Test (FQT), start combined Development Testing and Operational Testing for F-16 M7.1+. Begin development of M7.2+. Capabilities for M7.2+ include, but are not limited to, JASSM-ER and Link 16 compliance. ***FY 2016 Plans:*** Complete combined Development Testing and Operational Testing, and field M7.1+ Complete initial requirements definition, develop and release F-16 M7.2+ software development build for early development testing, early user feedback and integration testing with the OFP.			
Title: F-22 Modernization Phase I ***Description:*** Continues the modernization of previously fielded F-22 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2014 Accomplishments:*** Delivered v13.0 FQT release to Avionics Integration Lab (AIL)/ Raptor Avionics Integration Lab (RAIL) testing. ***FY 2015 Plans:*** Will continue development of v13.0 in FY15. The beta-2 release is scheduled for FY15 and will support a User Evaluation. 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. For the follow on F-22 Modernization Phase II program, efforts will focus on requirements definition interfacing with the aircraft program with DO release planned for FY16Q2. ***FY 2016 Plans:*** Will complete development of v13.0 for 2nd FQT and proceed into DT/OT in FY16. The Development for the F-22 Phase II Modernization Program will begin in FY16 with v14.0 MPE, which will be built from the v13.1 baseline and will integrate with requirements established through OFP Inc 3.2M. These new Inc 3.2M capabilities are planned to include the Mark XIIA System with Joint Requirements Oversight Council (JROC) mandated Mode 5/S Identification Friend or Foe (IFF) as well as the Communication Navigation Surveillance (CNS) / Air Traffic Management (ATM) upgrade designated as Tactical Mandates (TACMAN) and Link 16 transmit capabilities.	4.129	4.054	5.953
Title: A-10 Modernization Phase I	0.770	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Description: Continues the modernization of previously fielded A-10 MPEs to enable efficient use of new and improved capabilities developed in the OFPs. ***FY 2014 Accomplishments:*** Complete A-10 Suite 8 DT/OT and field capability. Initiate design reviews for A-10 suite 9. ***FY 2015 Plans:*** Complete A-10 Suite 8 DT/OT fielding. ***FY 2016 Plans:*** No FY16 RDT&E funds requested.			
Title: B-1 Modernization Phase I ***Description:*** Continues the modernization of previously fielded B-1 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2014 Accomplishments:*** Executed ECP-006, extending period of performance of the Release 8.0 B-1 Mission Planning Environment schedule and includes Universal Armament Interface support and testing. Completed scheduled user evaluation for Tel 8.0 and Formal Qualification Test for Release 8.0. Initiated Requirements Development for Long Range Air to Surface Missile (LRASM) into Rel 9.0. ***FY 2015 Plans:*** Conduct Full Qualification Testing (FQT) for Rel 8.0 (which will update de-clutter configuration tool and defensive threat rings) and complete DT/OT to support SB-16A requirements. Field Rel 8.0 in Q4. Rel 9.0 (which will update the migration to Framework v. 1.5.3xx, SDC 3,5and operation in WoW64 environment, compleation of transition to UAI Mission Planner 2 version, fully Integrated Data Link updates, Integrated Battlestation replacement, Long Range Ait to Surface Missile (LRASM), and replacement of RPS Super microcomputer) for SB-17. ***FY 2016 Plans:*** Continue development of Rel 9.0 up to Beta 1 release (update and finalize preliminary design) in Q2, Beta 2 release (update and finalize detailed design) in Q3, Beta 3 release (finalize MPE integration prior to FQT) for SB-17.	6.029	5.452	8.497
Title: MAF MPS Modernization (AMC Transition) ***Description:*** Description: Migrates Airlift (C-5), Tanker (KC-135, KC-10, and KC-46), and Air Drop (C-17, C-130) platforms from their legacy mission planning systems to the Joint Mission Planning Systems (JMPS) ***FY 2014 Accomplishments:***	13.429	15.303	7.446

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
The first component, Global Mobility (GM) version 1.1 proceeded with development and is on track for Formal Qualification Testing in December of 2014. ***FY 2015 Plans:*** Continue software development for the transition of AMC Aircraft to JMPS via a phased approach with GM 1.1 (C-5A), GM1.2 (Tankers) and GM1.3 (Airdrop). The GM 1.1 software is targeted for FQT. The GM 1.2 software is targeted for FQT and entery into Development and Operational testing (DT/OT). The GM 1.3 software is targeted for FQT and then entery into DT/OT. Also, as part of this effort, there are four common components supporting the GM releases; the Assault Zone Common component scheduled for FQT, the Air Refueling Tool scheduled for FQT, the Consolidated Airdrop CC scheduled for FQT, and Global Flight Planning CC scheduled for FQT. ***FY 2016 Plans:*** The GM release development will complete with release of GM 1.2 in October of 2015 and GM 1.3 in April of 2016. Following these fieldings, the software builds will continue to be modernized in support of Operational Flight Profile, fuel efficiency, and evolving global planning netcentric requirements.			
Title: ACC Special Mission MPE ***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-130P/N/J CSAR mission planning functionality, tools, and plugins to Joint Mission Planning Systems (JMPS) environment. The program ***FY 2014 Accomplishments:*** Awarded CSAR Tools development contracts for the Survivor and Search Pattern Tools. Development of these tools in FY 14 was critical to support the primary CSAR product development which begins in the 2nd quarter of FY15. Conducted Formal Qualification Testing for EC-130 Release 1.0 and RC-135 Release 3.0. E-3/8 v2.0 fielded. ***FY 2015 Plans:*** Will initiate SMACC CSAR MPS HH60 and HC/MC-130P/N/J JMPS UPC development and continue development of CSAR Tool in support of MPE integration. Will field EC-130 Release 1.0 & 1.1 and RC-135 Release 3.0 & 3.1. E-3/8 v2.1 will field. ***FY 2016 Plans:*** Will complete DT/OT on SMACC CSAR MPS HH60 and HC/MC-130P/N/J MPEs. Will field RC-135 Release 3.2 and EC-130 Release 2.0 E-3 v3.0 will fielled (interim fielding recommendation for the US tail).	7.422	6.142	8.384
Title: MAF Automated Flight Planning Service (MAFPS)	4.866	5.352	4.388

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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 2014 Accomplishments:*** Release 1 software development. Conducted Preliminary Design Review and two (2) Interim Design Reviews. Completed two (2) scheduled Engineering Releases. ***FY 2015 Plans:*** Will complete Release 1 software development. Contractor will deliver final two (2) Engineering Releases and complete Final Qualification Test. Government will conduct Developmental Test. Contractor will begin Release 2 software development, to include a System Requirements Review and Integrated Baseline Review. ***FY 2016 Plans:*** Will complete Release 1 Developmental Test, conduct Operational Test, and field Release 1. Release 2 development will continue, with fielding planned for FY17.			
Accomplishments/Planned Programs Subtotals	51.133	53.707	48.445

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833170: *Mission Planning Systems*	5.190	7.249	7.875	-	7.875	9.925	9.573	9.270	9.432	Continuing	Continuing

Remarks

D. Acquisition Strategy

Mission Planning Systems (MPS) Modernization utilizes an evolutionary acquisition approach to develop and deliver an interoperable, network-centric, mission planning system tailored for numerous Air Force platforms, based on new platforms leaving Operational Flight Profiles, using competition and multiple contract vehicles.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Planning Software Development (MPEC II)	C/Various	Various : Various,	0.000	15.824	Nov 2013	20.811	Nov 2014	14.742	Nov 2015	-		14.742	Continuing	Continuing	TBD
F-16 Modernization	PO	Organic : Hill AFB, UT	0.000	2.848	Nov 2013	2.676	Nov 2014	2.457	Nov 2015	-		2.457	Continuing	Continuing	-
A-10 Modernization	PO	Organic : Hill AFB, UT	0.000	-	Nov 2013	-		-		-		-	Continuing	Continuing	TBD
EC-130H Modernization	PO	Organic : Robins AFB, GA	0.000	0.145	Nov 2013	0.465	Nov 2014	1.305	Nov 2015	-		1.305	Continuing	Continuing	TBD
Systems Engineering and Integration	C/CPAF	SAIC : McLean, VA	0.000	9.623	Nov 2013	7.798	Nov 2014	9.073	Nov 2015	-		9.073	Continuing	Continuing	TBD
Framework	C/FPIF	Northrop Grumman : Herndon, VA	0.000	0.697	Nov 2013	-		-		-		-	Continuing	Continuing	TBD
Common Components	C/Various	Various : Various,	0.000	7.926	Nov 2013	6.584	Nov 2014	5.365	Nov 2015	-		5.365	Continuing	Continuing	TBD
		Subtotal	0.000	37.063		38.334		32.942		-		32.942	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	0.080	Nov 2013	0.080	Nov 2014	0.080	Nov 2015	-		0.080	Continuing	Continuing	TBD
Cost Estimating	C/T&M	Tecolote Inc : Bedford, MA	0.000	0.304	Nov 2013	0.343	Nov 2014	0.353	Nov 2015	-		0.353	Continuing	Continuing	TBD
		Subtotal	0.000	0.384		0.423		0.433		-		0.433	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TW : Eglin AFB, FL	0.000	3.475	Nov 2013	3.523	Nov 2014	3.629	Nov 2015	-		3.629	-	10.627	TBD

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Certification and Accreditation	MIPR	JITC : Indian Head, MD	0.000	0.107	Jan 2014	0.110	Jan 2015	0.113	Jan 2016	-		0.113	-	0.330	TBD
Type I Training	C/FP	Ogden Air Logistics Center : Hill AFB, UT	0.000	0.980	Nov 2013	1.005	Nov 2014	1.035	Nov 2015	-		1.035	-	3.020	TBD
Field Representative Hardware	C/Various	Various : Various,	0.000	0.608	Nov 2013	0.567	Nov 2014	0.256	Nov 2015	-		0.256	-	1.431	TBD
		Subtotal	0.000	5.170		5.205		5.033		-		5.033	-	15.408	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	0.000	3.708	Oct 2013	4.147	Oct 2014	4.271	Oct 2015	-		4.271	Continuing	Continuing	TBD
Program Management Administration	Various	Various : Various,	0.000	4.808	Nov 2013	5.598	Nov 2014	5.766	Nov 2015	-		5.766	Continuing	Continuing	TBD
		Subtotal	0.000	8.516		9.745		10.037		-		10.037	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	51.133		53.707		48.445		-		48.445	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

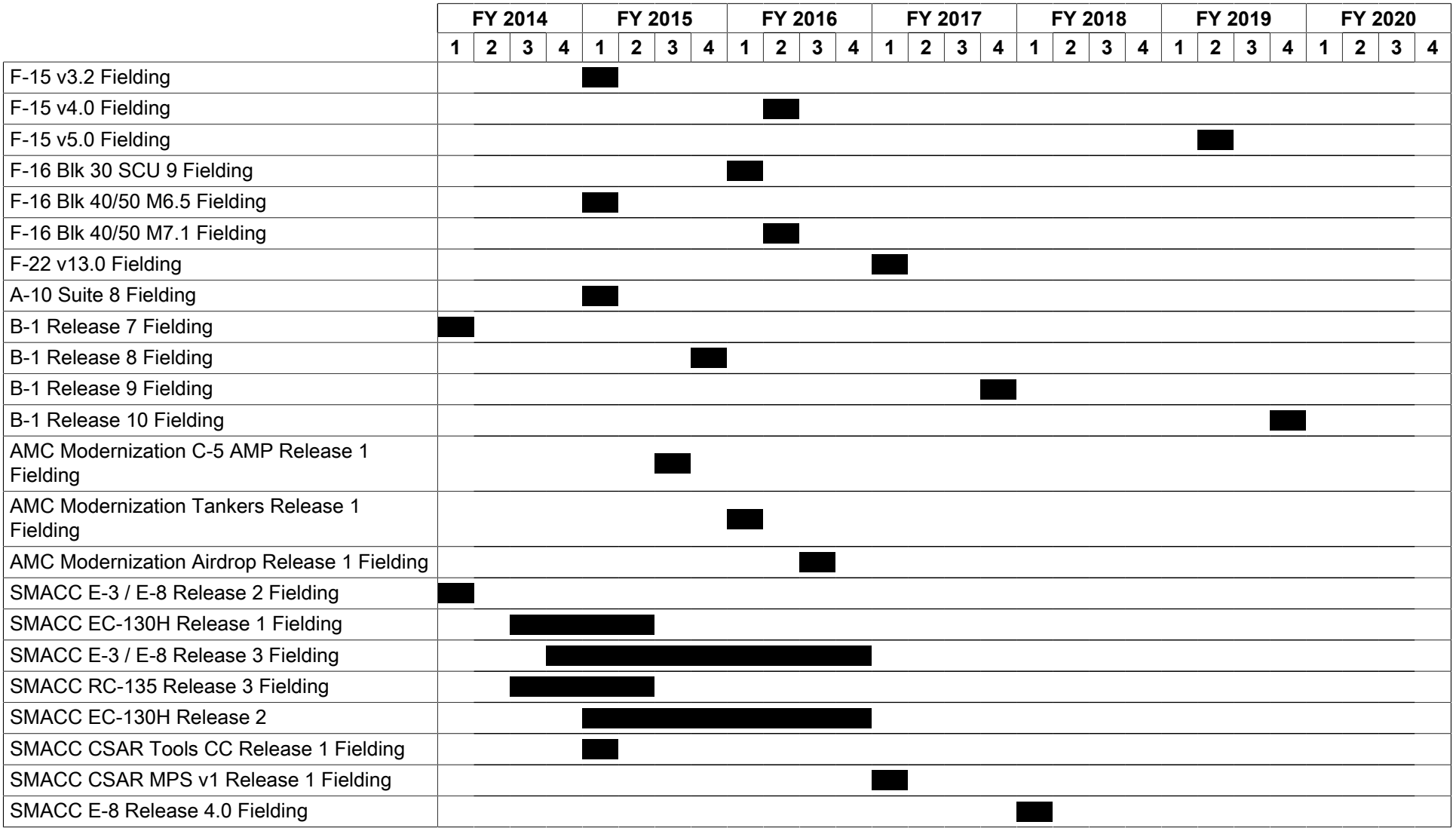

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

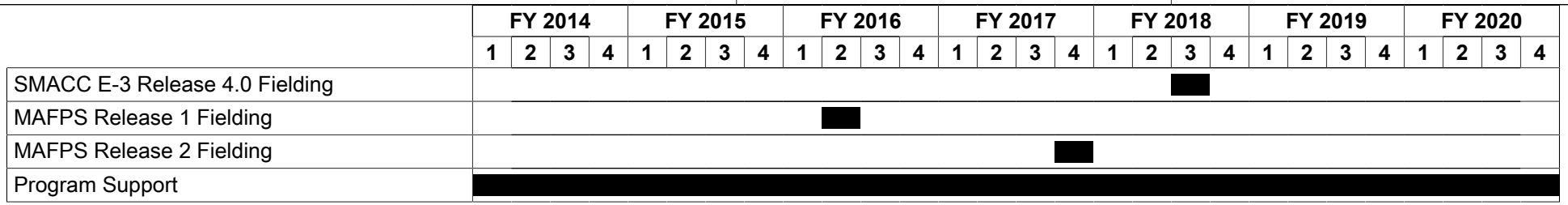

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

Schedule Details

	Start		End	
Events	**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-16 Blk 30 SCU 9 Fielding	1	2016	1	2016
F-16 Blk 40/50 M6.5 Fielding	1	2015	1	2015
F-16 Blk 40/50 M7.1 Fielding	2	2016	2	2016
F-22 v13.0 Fielding	1	2017	1	2017
A-10 Suite 8 Fielding	1	2015	1	2015
B-1 Release 7 Fielding	1	2014	1	2014
B-1 Release 8 Fielding	4	2015	4	2015
B-1 Release 9 Fielding	4	2017	4	2017
B-1 Release 10 Fielding	4	2019	4	2019
AMC Modernization C-5 AMP Release 1 Fielding	3	2015	3	2015
AMC Modernization Tankers Release 1 Fielding	1	2016	1	2016
AMC Modernization Airdrop Release 1 Fielding	3	2016	3	2016
SMACC E-3 / E-8 Release 2 Fielding	1	2014	1	2014
SMACC EC-130H Release 1 Fielding	3	2014	2	2015
SMACC E-3 / E-8 Release 3 Fielding	4	2014	4	2016
SMACC RC-135 Release 3 Fielding	3	2014	2	2015
SMACC EC-130H Release 2	1	2015	4	2016
SMACC CSAR Tools CC Release 1 Fielding	1	2015	1	2015
SMACC CSAR MPS v1 Release 1 Fielding	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SMACC E-8 Release 4.0 Fielding	1	2018	1	2018
SMACC E-3 Release 4.0 Fielding	3	2018	3	2018
MAFPS Release 1 Fielding	2	2016	2	2016
MAFPS Release 2 Fielding	4	2017	4	2017
Program Support	1	2014	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0208059F / *CYBER COMMAND ACTIVITIES*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	36.824	67.057	-	-	-	-	-	-	-	-	103.881
676002: *Cyber Systems Modernization*	-	36.824	67.057	-	-	-	-	-	-	-	-	103.881
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, Project 646008, US Cyber Command Technology Development, to consolidate all USCYBERCOM programs

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 research's, develops, and test technologies and capabilities that allow 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. Additionaly, 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 componenents to develop deconflicted offensive cyber capabilites.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208059F / *CYBER COMMAND ACTIVITIES*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	38.099	67.057	73.790	-	73.790
Current President's Budget	36.824	67.057	-	-	-
Total Adjustments	-1.275	-	-73.790	-	-73.790
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.275	-			
• Other Adjustments	-	-	-73.790	-	-73.790

Change Summary Explanation

In FY 2016, 676002, Cyber Systems Modernization, efforts were transferred to PE 030650F, Cyber Operations Technology Development,646008, US CYBER COMMAND Technology Development, to align all USCYBEROM investment funding into one Program Element and WSC.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Combatant Command Support	19.406	23.562	-
Description: Funding supported development and testing of various tools critical to achieve COCOM military objectives. To include research, studies, integration, analysis, access development and operational assessment of cyberspace capabilities, methodologies and tactics in support of COCOM objectives. ***FY 2014 Accomplishments:*** Supported studies, analysis, testing and development of cyber operations capabilities and tools in support of Combatant Command military objectives. Supports 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. ***FY 2015 Plans:*** Supports studies, analysis, testing and development of cyber operations capabilities and tools in support of Combatant Command military objectives. Supports advanced reverse engineering efforts, development of 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.			
Title: Defend the Nation	8.289	23.369	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208059F / *CYBER COMMAND ACTIVITIES*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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 include research, integration, analysis, access development, training, testing, and assessments for offensive, defensive, and situational awareness capabilities. ***FY 2014 Accomplishments:*** Supported development, prototyping, and testing of tools for Defend the Nation cyber operations. Supported advanced, transition and technology assessment of a joint cyber operations infrastructure technologies, research supporting secure technology to protect critical infrastructure, development of the process and sustainment structure for Cyber Mission Force teams, and technical and subject matter expertise for systems engineering and technical assurance. ***FY 2015 Plans:*** Funding supports development, prototyping, and testing of tools to support Defend the Nation requirements and cyber operations. Supports technology research for critical infrastructure protection, and advanced development, transition and technology assessment of a joint cyber operations infrastructure. Additionally, funding will provide technical and subject matter expertise for systems engineering and technical assurance, cyber capability strategy, guidance and requirements.			
Title: Operate and Defend the DoDIN and CYBER Situational Awareness ***Description:*** Funding supports 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. ***FY 2014 Accomplishments:*** Supported cyber operations tools development, engineering, data strategy, and development of a common operating picture to support USCYBERCOM in planning, coordinating, integrating, synchronizing and conducting operations in defense of specified Department of Defense information networks. Funding supported tool development for Joint Cyber Centers with an event detection capability and engineering support to ensure smooth integration and development. Funding supported efforts to solve operational limitations, vulnerabilities and requirements. ***FY 2015 Plans:*** Funding supports 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. Funding supports tool development for Joint Cyber Centers with an event detection capability and engineering support to ensure smooth integration and development. Funding supports efforts to solve operational limitations, vulnerabilities and requirements.	9.129	20.126	-
Accomplishments/Planned Programs Subtotals	36.824	67.057	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208059F / *CYBER COMMAND ACTIVITIES*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• O&M: BA07: PE 0208059F: *Operation & Maintenance*	68.098	131.431	166.554	-	166.554	189.386	181.652	161.834	163.235	Continuing	Continuing
• OPAF: BA03: Line Item # 837300: *Base Comm Infrastructure*	-	-	3.952	-	3.952	-	-	-	-	-	-
• OPAF: BA03: Line Item # 833140: *Strategic Command & Control*	-	-	7.948	-	7.948	7.937	5.950	-	-	-	-

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208059F / *CYBER COMMAND ACTIVITIES*	Project (Number/Name) 676002 / *Cyber Systems Modernization*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combatant Command Support	Various	Service Partners : Various,	-	17.257	Nov 2013	22.726	Nov 2014	-		-		-	-	39.983	-
Defend the Nation	Various	Other partners : Various,	-	8.714	Apr 2014	23.369	Apr 2014	-		-		-	-	32.083	-
Operate and Defend the DoDIN and Cyber Situational Awareness	Various	Other partners : Various,	-	4.037	Jan 2014	14.146	Jan 2015	-		-		-	-	18.183	-
		Subtotal	-	30.008		60.241		-		-		-	-	90.249	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - FFRDC	C/CPAF	Various : Ft Meade, Md	-	6.816	Oct 2013	6.816	Oct 2014	-		-		-	-	13.632	-
		Subtotal	-	6.816		6.816		-		-		-	-	13.632	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208059F / *CYBER COMMAND ACTIVITIES*	Project (Number/Name) 676002 / *Cyber Systems Modernization*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	36.824		67.057		-		-		-	-	103.881	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208059F / *CYBER COMMAND ACTIVITIES*	**Project (Number/Name)** 676002 / *Cyber Systems Modernization*

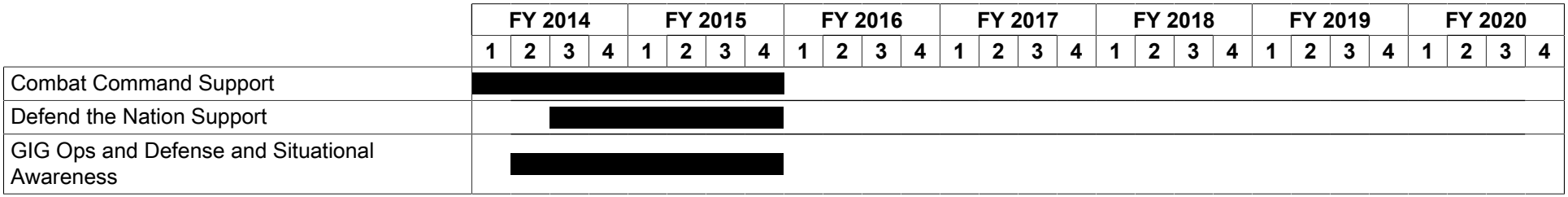

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208059F / *CYBER COMMAND ACTIVITIES*	**Project (Number/Name)** 676002 / *Cyber Systems Modernization*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Combat Command Support	1	2014	4	2015
Defend the Nation Support	3	2014	4	2015
GIG Ops and Defense and Situational Awareness	2	2014	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0208087F / *AF Offensive Cyberspace Operations*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	13.610	13.355	12.874	-	12.874	25.274	26.344	27.020	27.504	Continuing	Continuing
670375: *Network Warfare Systems and Support*	-	13.610	13.355	12.874	-	12.874	25.274	26.344	27.020	27.504	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF Offensive Cyberspace Operations 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). 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 include Cyber Mission Platform(CMP), access and capabilities.

OCPL provides cyber warfare capabilities to the 24th Air Force in direct support of 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, and the latest AF Space Command (AFSPC) Offensive Cyberspace Operations System Flight Plan, and other formal requirements documents. Planned areas of study, prototyping, and technology demonstration will be used to provide warfighters access, platforms, Offensive Cyber Operations (OCO) production (e.g. test and budgets), infrastructure (e.g. mission planning, intelligence, Command and Control/Situational Awareness (C2SA)), and 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), and 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.

The FY2016 funding request was reduced by $1.085 million to account for the availability of prior execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208087F / *AF Offensive Cyberspace Operations*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	14.047	13.355	13.959	-	13.959
Current President's Budget	13.610	13.355	12.874	-	12.874
Total Adjustments	-0.437	-	-1.085	-	-1.085
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.437	-			
• Other Adjustments	-	-	-1.085	-	-1.085

Change Summary Explanation

The FY2016 funding request was reduced by $1.085 million to account for the availability of prior execution balances.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Platforms	4.287	5.057	6.486

Description: The platforms capability area includes Cyber Mission Platform (CMP) and provides the hardware/software host for offensive cyber operations, i.e., architecture that enables mission planning, generation, syncronization, de-confliction, execution, and assessment by integrating Offensive Cyber Production Line (OCPL) developed capabilities into a common framework. This capability area also facilitates key upgrades and modifications to the Network Attack System (NAS). The CMP effort will standardize current and future cyberspace operations capabilities by designing and delivering a common user interface and reusable, modular components.

FY 2014 Accomplishments:

Initiated CMP development contract and continues to develop platforms, via necessary upgrades, modifications, equipment modernization, market research, integration and follow-on OCO platform(s). This funding will also continue to provide the program office manpower required for oversight required to integrate numberous acquisition programs into the CMP architecture. Some of these activities are protected under AF Nework Warfare Special Access Programs.

FY 2015 Plans:

Continuing to develop platforms via necessary upgrades, modifications, equipment modernization, market research, integration and follow-on OCO platform(s). Intiate CMP Spiral 3 integration of Planning, Generation, Execution, Analysis & Reporting (PGEAR) services into the system core (Spiral 2). This funding will also continue to provide the program office manpower

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208087F / *AF Offensive Cyberspace Operations*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
required for oversight required to integrate numerous acquisition programs into the CMP architecture. Some of these activities are protected under AF Network Warfare Special Access Programs. ***FY 2016 Plans:*** Will continue to develop platforms via necessary upgrades, modifications, equipment modernization, market research, integration, and follow-on OCO platform(s). FY16 will also deliver end-to-end CMP Spiral 3 system for operational testing and acceptance. This funding will also continue to provide the program office manpower required for oversight required to integrate numerous acquisition programs into the CMP architecture. Some of these activities are protected under AF Network Warfare Special Access Programs.			
Title: Access ***Description:*** Access capabilities provide operators with the means to enable offensive cyber operations. Specific details are classified and available upon request. ***FY 2014 Accomplishments:*** Maintained the current access programs via necessary upgrades, modifications, equipment modernization, market research, integration, and follow-on access programs. This funding also continued to provide the program office manpower required to develop or maintain offensive cyber access programs. Some of these activities are protected under AF Network Warfare Special Access Programs. ***FY 2015 Plans:*** Continuting to maintain the current access programs via necessary upgrades, modifications, equipment modernization, market research, integration and follow-on access programs. This funding will also continue to provide the program office manpower required to develop or maintain offensive cyber access programs. Some of these activities are protected under AF Network Warfare Special Access Programs. ***FY 2016 Plans:*** Will continue to maintain the current access programs via necessary upgrades, modifications, equipment modernization, market research, integration and follow-on access programs. This funding will also continue to provide the program office manpower required to develop or maintain offensive cyber access programs. Some of these activities are protected under AF Network Warfare Special Access Programs.	0.578	0.500	0.500
Title: Capabilities ***Description:*** The cyber capability area delivers desired effects to the target. Specific details are classified and available upon request.	8.019	6.866	4.928

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208087F / *AF Offensive Cyberspace Operations*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: Continued support of anticipated USCENTCOM Joint Urgent Operational Needs (JUON(s), USCYBERCOM JUON(s), Weapons System(s) modernization, and AFSPC Urgent Operations Needs (UON(s) and AF Cyber Need Forms (CNFs) and will continue transition of Offensive Cyber Operations technologies to meet capability gaps required by major commands, unified commands, and capabilities documents. Some of these activities are protected under AF Network Warfare Special Access Program(s). ***FY 2015 Plans:*** Continuing support of anticipated USCENTCOM JUON(s), USCYBERCOM JUON(s), Weapons System(s) modernization, and AFSPC UON(s) and AF Cyber Need Forms and will continue transition of Offensive Cyber Operations technologies to meet capability gaps required by major commands, unified commands, and capabilities documents. Some of these activities are protected under AF Network Warfare Special Access Program(s). ***FY 2016 Plans:*** Will continue support of anticipated USCENTCOM JUON(s), USCYBERCOM JUON(s), Weapons System(s) modernization, and AFSPC UON(s) and AF Cyber Need Forms and will continue transition of Offensive Cyber Operations technologies to meet capability gaps required by major commands, unified commands and capabilities documents. Some of these activities are protected under AF Network Warfare Special Access Program(s).			
Title: Test & Evaluation 46TS Det 2 ***Description:*** Test and Evaluation: 46th Test Squadron Det 2 provides both developmental testing of new tool development and a secure network environment for such testing. ***FY 2014 Accomplishments:*** Continued to provide the required developmental testing for new tool capability development prior to future fielding to the operational platform. This funding also provided for the secure network environment for such testing. ***FY 2015 Plans:*** Continues to provide the required developmental testing for new tool capability development prior to future fielding to the operational platform. This funding also provides for the secure network environment for such testing. ***FY 2016 Plans:*** Will continue to provide the required developmental testing for new tool capability development prior to future fielding to the operational platform. This funding also provides for the secure network environment for such testing.	0.726	0.932	0.960
Accomplishments/Planned Programs Subtotals	13.610	13.355	12.874

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208087F / *AF Offensive Cyberspace Operations*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834320: *C3 Countermeasures*	8.297	9.894	6.332	-	6.332	12.140	12.033	10.631	10.819	Continuing	Continuing
• OPAF: BA03: Line Item # 834010: *General Information Technology*	1.150	1.705	1.329	-	1.329	1.805	1.777	1.691	1.722	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. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Platforms	C/CPFF	Northrup Grumman : Dayton, OH	-	0.770	Jul 2014	2.700	Dec 2014	3.546	Jan 2016	-		3.546	Continuing	Continuing	-
Access	MIPR	Army : Ft Belvoir, VA	-	0.578	Dec 2013	0.500	Apr 2015	0.500	Jan 2016	-		0.500	Continuing	Continuing	-
Capabilities	C/Various	Various : Various,	-	5.674	Nov 2013	5.004	Feb 2015	3.110	Jan 2016	-		3.110	Continuing	Continuing	-
		Subtotal	-	7.022		8.204		7.156		-		7.156	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
46TS Det 2 Support	MIPR	TASC : San Antonio, TX	-	0.726	Dec 2013	0.932	Dec 2014	0.959	Dec 2015	-		0.959	Continuing	Continuing	-
		Subtotal	-	0.726		0.932		0.959		-		0.959	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Engineering & Technical Assistance Support Services (ETASS & FFRDC)	C/FFP	Various : San Antonio, TX	-	4.713	Dec 2013	2.884	Dec 2014	3.173	Oct 2015	-		3.173	Continuing	Continuing	-
PMA - Acquisition Support	C/Various	Various : San Antonio, TX	-	1.149	Nov 2013	1.335	Oct 2014	1.586	Oct 2015	-		1.586	Continuing	Continuing	-
		Subtotal	-	5.862		4.219		4.759		-		4.759	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	13.610		13.355		12.874		-		12.874	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

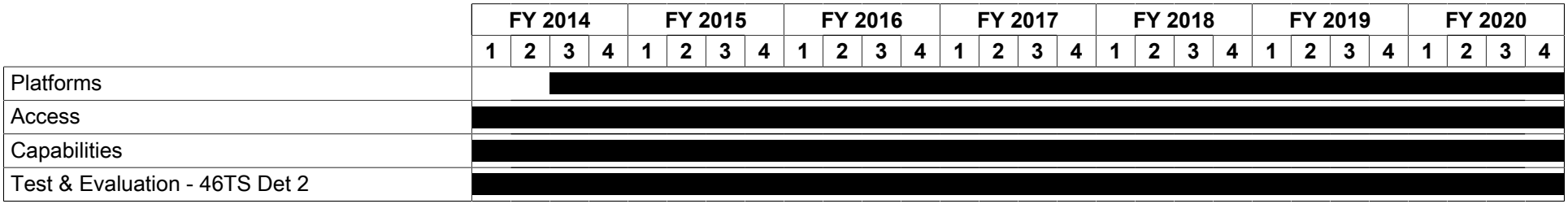

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208087F / *AF Offensive Cyberspace Operations*	**Project (Number/Name)** 670375 / *Network Warfare Systems and Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Platforms	3	2014	4	2020
Access	1	2014	4	2020
Capabilities	1	2014	4	2020
Test & Evaluation - 46TS Det 2	1	2014	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	5.853	5.576	7.681	-	7.681	22.474	33.471	31.690	23.614	Continuing	Continuing
677820: *Computer Security RDTE: Firestarter*	-	5.853	5.576	6.064	-	6.064	2.333	2.373	2.414	2.457	Continuing	Continuing
677821: *Cyberspace Vulnerability Assessment*	-	-	-	0.143	-	0.143	19.651	19.006	19.641	20.642	Continuing	Continuing
677822: *Cyber Defense Analysis*	-	-	-	0.252	-	0.252	0.246	2.925	0.258	0.268	Continuing	Continuing
677823: *AFCERT*	-	-	-	1.222	-	1.222	0.244	9.167	9.377	0.247	Continuing	Continuing

Note

In FY16, this program element includes new start efforts for Cyberspace Vulnerability Assessment, Cyber Defense Analysis, and AFCERT activities.

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 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,

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force	Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*

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, 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

In FY16 this program element will include funding for Air Force Defensive Cyberspace Operations (1) Firestarter (2) Cyberspace Vulnerability Assessment (3) Cyber Defense Analysis and (4) AFCERT.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	5.853	5.576	32.500	-	32.500
Current President's Budget	5.853	5.576	7.681	-	7.681
Total Adjustments	-	-	-24.819	-	-24.819
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-24.819	-	-24.819

Change Summary Explanation

The FY2016 funding request was reduced by $24.819M in support of higher Air Force priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677820: *Computer Security RDTE: Firestarter*	-	5.853	5.576	6.064	-	6.064	2.333	2.373	2.414	2.457	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,

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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*

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 2014	FY 2015	FY 2016
Title: Cyber Forensic Tools & Methodologies	2.040	1.655	1.742
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. ***FY 2014 Accomplishments:*** Efforts continued the development of methods and technologies to enhance "real time" cyber network forensic analysis. ***FY 2015 Plans:*** Continue the development of methods and technologies to enhance "real time" cyber network forensic analysis. ***FY 2016 Plans:*** Will continue the development of methods and technologies to enhance "real time" cyber network forensic analysis.			
Title: Cyber Threat Recognition	1.357	1.375	1.508
Description: Enhancing cyber platform technology to identify zero-day threats in real time. ***FY 2014 Accomplishments:*** Effort continued development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries. ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
Continue development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries. ***FY 2016 Plans:*** Will continue development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries.			
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 2014 Accomplishments:*** Effort continued development of technologies to detect and attribute distributed computer network attacks, over time and distance, to specific adversaries. ***FY 2015 Plans:*** Continue development of technologies to detect and attribute distributed computer network attacks, over time and distance, to specific adversaries. ***FY 2016 Plans:*** Will continue development of technologies to detect and attribute distributed computer network attacks, over time and distance, to specific adversaries.	1.462	1.482	1.615
Title: Transition of Cyber and IA 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 2014 Accomplishments:*** Effort continued enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation provided by AFSPC. ***FY 2015 Plans:*** Continue 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:***	0.994	1.064	1.199

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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 2014	FY 2015	FY 2016
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	5.853	5.576	6.064

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• N/A: *N/A*	-	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

All major contracts within this project are awarded using full and open competition, and utilize evolutionary capability and incremental development.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677820 / *Computer Security RDTE: Firestarter*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing	C/CPFF	Various : Various,	-	0.800	Jan 2014	0.824	Jan 2015	0.849	Jan 2016	-		0.849	Continuing	Continuing	-
Development	C/CPFF	Various : Various,	-	3.477	Jan 2014	3.315	Jan 2015	3.624	Jan 2016	-		3.624	Continuing	Continuing	-
Integration	C/CPFF	Various : Various,	-	1.176	Jan 2014	1.025	Jan 2015	1.167	Jan 2016	-		1.167	Continuing	Continuing	-
		Subtotal	-	5.453		5.164		5.640		-		5.640	-	-	-

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	C/CPFF	Various : Various,	-	0.400	Jan 2014	0.412	Jan 2015	0.424	Jan 2016	-		0.424	Continuing	Continuing	-
		Subtotal	-	0.400		0.412		0.424		-		0.424	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
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*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.853		5.576		6.064		-		6.064	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
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*

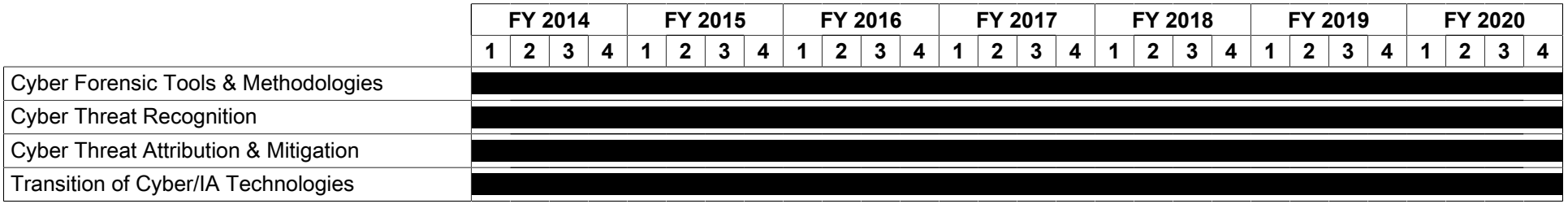

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677820 / *Computer Security RDTE: Firestarter*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Forensic Tools & Methodologies	1	2014	4	2020
Cyber Threat Recognition	1	2014	4	2020
Cyber Threat Attribution & Mitigation	1	2014	4	2020
Transition of Cyber/IA Technologies	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677821: *Cyberspace Vulnerability Assessment*	-	-	-	0.143	-	0.143	19.651	19.006	19.641	20.642	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, this project, Cyberspace Vulnerability Assessment, includes new start efforts for cyber threat mitigation.

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 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 2014	FY 2015	FY 2016
Title: Cyber Threat Mitigation	-	-	0.143
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 2014 Accomplishments:*** No CVA/H funding in FY2014. ***FY 2015 Plans:*** No CVA/H funding in FY2015. ***FY 2016 Plans:*** FY16 effort provides 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).			
Accomplishments/Planned Programs Subtotals	-	-	0.143

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677821 / *Cyberspace Vulnerability Assessment*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: 831010: *Intrusion/ Vulnerability Assessment*	1.536	0.619	18.822	-	18.822	19.855	19.220	19.812	20.826	-	-

Remarks

D. Acquisition Strategy

The Cyberspace Vulnerability Assessment/Hunter (CVA/H) program office will utilize existing contractual vehicles such as 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, NETCENTS(mandatory for all IT services and supplies), and competitive contracts (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 many 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*	Project (Number/Name) 677821 / *Cyberspace Vulnerability Assessment*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Specialized Engineering Support (FFRDC)	C/FFP	AFLCMC/PZ : Bedford, MA	-	-		-		0.143	Oct 2015	-		0.143	Continuing	Continuing	-
Subtotal			-	-		-		0.143		-		0.143	-	-	-

Remarks

Provides program engineering continuity, technical maturation and expertise, and access to an extensive professional network for future capabilities.

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.143		-		0.143	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677821 / *Cyberspace Vulnerability Assessment*

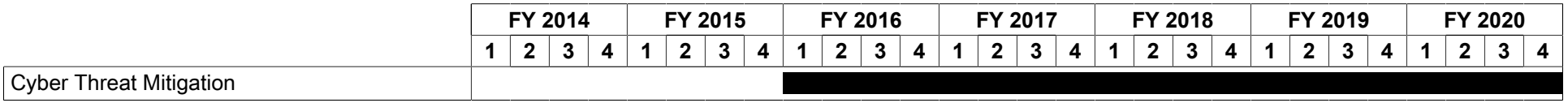

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677821 / *Cyberspace Vulnerability Assessment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Threat Mitigation	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*	Project (Number/Name) 677822 / *Cyber Defense Analysis*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677822: *Cyber Defense Analysis*	-	-	-	0.252	-	0.252	0.246	2.925	0.258	0.268	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, this project, Cyber Defense Analysis, includes new start efforts for cyber defense assessments.

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 2014	FY 2015	FY 2016
Title: Cyber Defense Assessments	-	-	0.252
Description: Cyberspace Defense Analysis (CDA) includes assessment of non-secure telecommunications during peace time and contingency operations. ***FY 2014 Accomplishments:*** No CDA funding in FY2014. ***FY 2015 Plans:*** No CDA funding in FY2015 ***FY 2016 Plans:*** Effort will support CDA technical maturation and development of technologies to prevent disclosure of sensitive and/or classified information to adversaries.			
Accomplishments/Planned Programs Subtotals	-	-	0.252

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: 831010: *Cyberspace Defense Analysis*	-	-	2.150	-	2.150	0.248	2.950	0.260	0.270	-	-

Remarks

D. Acquisition Strategy

The Cyberspace Defense Analysis (CDA) program office 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, 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 many 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*	Project (Number/Name) 677822 / *Cyber Defense Analysis*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Specialized Engineering Support (FFRDC)	C/FFP	AFLCMC/PZ : Bedford MA,	-	-		-		0.252	Oct 2014	-		0.252	Continuing	Continuing	-
Subtotal			-	-		-		0.252		-		0.252	-	-	-

Remarks

Provides program engineering continuity, technical maturation and expertise, and access to an extensive professional network for future capabilities.

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		0.252		-		0.252	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677822 / *Cyber Defense Analysis*

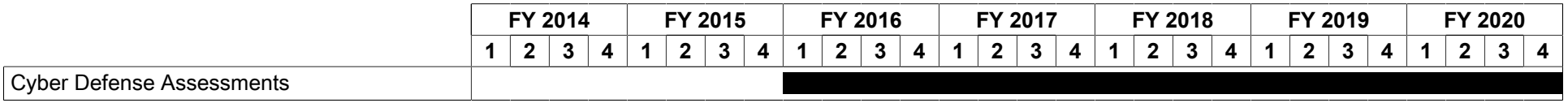

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677822 / *Cyber Defense Analysis*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Defense Assessments	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*	Project (Number/Name) 677823 / *AFCERT*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677823: *AFCERT*	-	-	-	1.222	-	1.222	0.244	9.167	9.377	0.247	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, this project, AFCERT, includes new start efforts for computer threat response.

A. Mission Description and Budget Item Justification

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Computer Threat Response	-	-	1.222
Description: Air Force Computer Emergency Response Team (AFCERT) prevention, detection, and response to adversarial penetration into AF unclassified and classified networks. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Development in support of the AF Cyberspace Defensive (ACD) weapon system includes development of technologies to prevent, detect, and respond to adversarial penetration in AF networks.			
Accomplishments/Planned Programs Subtotals	-	-	1.222

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
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)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: 831010: *AF Computer Emergency Response Team (AFCERT)*	-	-	0.239	-	0.239	0.198	9.193	9.457	0.298	-	-

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / *AF Defensive Cyberspace Operations*	Project (Number/Name) 677823 / *AFCERT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Computer Threat Response	Various	Not specified. : ,	-	-		-		1.222	Dec 2015	-		1.222	Continuing	Continuing	-
		Subtotal	-	-		-		1.222		-		1.222	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		1.222		-		1.222	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677823 / *AFCERT*

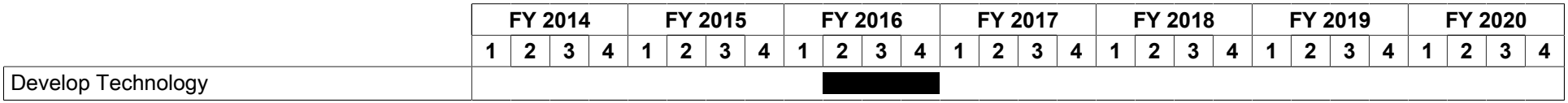

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208088F / *AF Defensive Cyberspace Operations*	**Project (Number/Name)** 677823 / *AFCERT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Develop Technology	2	2016	4	2016