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DEPARTMENT OF THE AIR FORCE

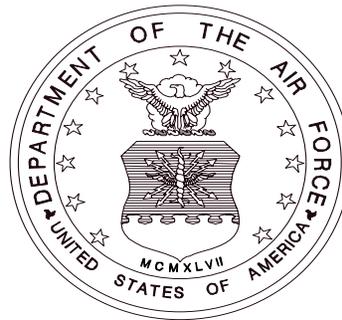
FISCAL YEAR (FY) 2008/2009 BUDGET ESTIMATES

RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)

DESCRIPTIVE SUMMARIES, VOLUME II

BUDGET ACTIVITIES 4 - 6

FEBRUARY 2007



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**Fiscal Year 2008/2009 Budget Estimates
RDT&E Descriptive Summaries, Volume II
Budget Activities 4 - 6
February 2007**

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 2008 President's Budget.
 - 3) 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.
 - 4) 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 2008 RDT&E program with the exception of classified program elements. The formats and contents of this document are in accordance with the guidelines and requirements of the Congressional committees insofar as possible.
 - b) The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
 - c) There are no "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E, included in this submission.

2. (U) CLASSIFICATION

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

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National Polar-Orbiting Op Env Satellite	0305178F	833
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Support Systems Development	0708611F	2223
TAC AIRBORNE CONTROL SYSTEM	0207418F	1555
Tactical AIM Missiles	0207161F	1443
Test and Evaluation Support	0605807F	1281
Theater Battle Management (TBM) C4I	0207438F	1575
Threat Simulator Development	0604256F	1241
Transformational SATCOM (TSAT)	0603845F	707
University Research Initiatives	0601103F	61
USAF Modeling and Simulation	0207601F	1647
Warfighter Rapid Acquisition Program	0203761F	1377
Wargaming and Simulation Centers	0207605F	1671
Distributed Training and Exercises	0207697F	1677
WEATHER SERVICE	0305111F	1847
Wideband MILSATCOM (Space)	0603854F	749
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1779

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DEPARTMENT OF DEFENSE
FY 2008 RDT&E PROGRAM

22 JAN 2007

SUMMARY
(\$ IN THOUSANDS)

APPROPRIATION -----	FY 2006 -----	FY 2007 -----	FY 2008 -----
Research, Development, Test & Eval, AF	22,190,943	24,420,623	26,711,940
Total Research, Development, Test & Evaluation	22,190,943	24,420,623	26,711,940

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DEPARTMENT OF DEFENSE
FY 2008 RDT&E PROGRAM

22 JAN 2007

SUMMARY
(\$ IN THOUSANDS)

Summary Recap of Budget Activities -----	FY 2006 -----	FY 2007 -----	FY 2008 -----
Basic Research	374,335	408,547	375,199
Applied Research	1,039,305	1,155,523	1,011,075
Advanced Technology Development	974,770	1,037,521	577,266
Advanced Component Development & Prototypes	2,178,587	2,539,678	2,938,712
System Development & Demonstration	4,592,979	4,671,927	4,319,233
RDT&E Management Support	1,376,255	1,060,430	1,054,328
Operational Systems Development	11,654,712	13,546,997	16,436,127
Total Research, Development, Test & Evaluation	22,190,943	24,420,623	26,711,940
Summary Recap of FYDP Programs -----			
Strategic Forces	109,692	201,421	136,178
General Purpose Forces	3,352,770	3,949,267	3,666,904
Intelligence and Communications	8,218,167	9,315,800	11,970,886
Mobility Forces	757,616	777,078	1,096,094
Research and Development	9,575,886	9,875,249	9,561,730
Central Supply and Maintenance	127,353	240,089	188,985
Training Medical and Other	3,216	3,467	3,243
Administration and Associated Activities	42,661	54,356	83,879
Support of Other Nations	3,582	3,896	4,041
Total Research, Development, Test & Evaluation	22,190,943	24,420,623	26,711,940

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DEPARTMENT OF THE AIR FORCE

FY 2008 RDT&E PROGRAM

SUMMARY
(\$ IN THOUSANDS)

22 JAN 2007

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FY 2008 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
1	0601102F	Defense Research Sciences	01	256,565	281,156	258,259	U
2	0601103F	University Research Initiatives	01	105,698	115,035	104,304	U
3	0601108F	High Energy Laser Research Initiatives	01	12,072	12,356	12,636	U
	Basic Research			----- 374,335	----- 408,547	----- 375,199	
4	0602015F	Medical Development	02		23,810		U
5	0602102F	Materials	02	114,877	153,293	122,794	U
6	0602201F	Aerospace Vehicle Technologies	02	102,792	118,901	131,948	U
7	0602202F	Human Effectiveness Applied Research	02	111,369	109,174	79,856	U
8	0602203F	Aerospace Propulsion	02	153,760	218,657	179,161	U
9	0602204F	Aerospace Sensors	02	114,934	133,235	108,055	U
10	0602500F	Multi-disciplinary Space Technology	02	89,761			U
11	0602601F	Space Technology	02	103,604	103,472	109,566	U
12	0602602F	Conventional Munitions	02	58,012	61,868	57,804	U
13	0602605F	Directed Energy Technology	02	43,287	50,019	54,883	U
14	0602702F	Command Control and Communications	02	95,676	128,680	116,705	U
15	0602805F	Dual Use Science and Technology Program	02	962			U
16	0602890F	High Energy Laser Research	02	50,271	52,136	50,303	U
17	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	02		2,278		U
18	0301555F	Classified Programs	02				
19	0301556F	Special Program	02				
	Applied Research			----- 1,039,305	----- 1,155,523	----- 1,011,075	

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EXHIBIT R-1

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Date: 22 JAN 2007

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
20	0603112F	Advanced Materials for Weapon Systems	03	65,193	82,290	39,730	U
21	0603203F	Advanced Aerospace Sensors	03	38,471	58,228	55,549	U
22	0603211F	Aerospace Technology Dev/Demo	03	38,753	36,286	64,922	U
23	0603216F	Aerospace Propulsion and Power Technology	03	98,901	145,891	117,990	U
24	0603231F	Crew Systems and Personnel Protection Technology	03	33,570	43,890	28,558	U
25	0603270F	Electronic Combat Technology	03	32,247	28,528	23,743	U
26	0603311F	Ballistic Missile Technology	03	11,146	9,365		U
27	0603400F	Joint Unmanned Combat Air Systems (J-UCAS) Advanced Technology Dev and Research	03	80,362			U
28	0603401F	Advanced Spacecraft Technology	03	86,327	101,115	78,704	U
29	0603422F	Global Positioning System (GPS) Extension Program	03			70,758	U
30	0603444F	Maui Space Surveillance System (MSSS)	03	45,943	50,383	5,237	U
31	0603500F	Multi-disciplinary Advanced Development Space Technology	03	51,929			U
32	0603601F	Conventional Weapons Technology	03	35,916	38,530	16,904	U
33	0603605F	Advanced Weapons Technology	03	42,124	76,733	43,999	U
34	0603789F	C3I Advanced Development	03	41,345	48,195	27,357	U
35	0603801F	Special Programs	03	266,984	314,384		U
36	0603924F	High Energy Laser Advanced Technology Program	03	5,559	3,699	3,815	U
37	0207418F	Tactical Airborne Control Systems	03		4		U
38	0301555F	Classified Programs	03				

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EXHIBIT R-1

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Date: 22 JAN 2007

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
39	0301556F	Special Program	03				
		Advanced Technology Development		974,770	1,037,521	577,266	
40	0603260F	Intelligence Advanced Development	04	4,759	4,763	4,930	U
41	0603287F	Physical Security Equipment	04	24,858	1,284	466	U
42	0603421F	NAVSTAR Global Positioning System III	04	89,556	313,401	587,226	U
43	0603430F	Advanced EHF MILSATCOM (SPACE)	04	639,179	630,868	603,179	U
44	0603432F	Polar MILSATCOM (SPACE)	04	6,028	35,470	178,754	U
45	0603438F	Space Control Technology	04	14,598	30,107	37,604	U
46	0603742F	Combat Identification Technology	04	49,569	26,407	26,054	U
47	0603790F	NATO Research and Development	04	3,842	4,080	4,280	U
48	0603791F	International Space Cooperative R&D	04	550	591	619	U
49	0603845F	Transformational SATCOM (TSAT)	04	416,813	729,945	963,585	U
50	0603850F	Integrated Broadcast Service	04	15,930	20,471	21,192	U
51	0603851F	Intercontinental Ballistic Missile	04	56,773	60,907	26,519	U
52	0603854F	Wideband Gapfiller System RDT&E (Space)	04	97,718	37,530	19,213	U
53	0603858F	Space Radar	04	98,062	185,399		U
54	0603859F	Pollution Prevention	04	10,188	7,026	2,838	U
55	0603860F	Joint Precision Approach and Landing Systems	04	6,068	9,908	7,544	U
56	0604015F	Next Generation Bomber	04	24,108	25,491		U
57	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	3,854			U

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
58	0604400F	Joint Unmanned Combat Air Systems (J-UCAS) Advanced Component and Prototype Deve	04	222,540			U
59	0604855F	Operationally Responsive Launch	04	45,155			U
60	0604856F	Common Aero Vehicle (CAV)	04	26,548	33,185	32,806	U
61	0604857F	Operationally Responsive Space	04		35,411	87,032	U
62	0207423F	Advanced Communications Systems	04	3,316			U
63	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	318,575	347,434	334,871	U
		Advanced Component Development & Prototypes		----- 2,178,587	----- 2,539,678	----- 2,938,712	
64	0603840F	Global Broadcast Service (GBS)	05	18,648	24,749	29,407	U
65	0604012F	Joint Helmet Mounted Cueing System (JHMCS)	05	3,590	2,781		U
66	0604222F	Nuclear Weapons Support	05	13,952	14,839	20,319	U
67	0604226F	B-1B	05	76,496	130,053	159,126	U
68	0604233F	Specialized Undergraduate Flight Training	05	9,832	3,689	12,622	U
69	0604239F	F-22	05	71,818			U
70	0604240F	B-2 Advanced Technology Bomber	05	281,671	241,608	244,019	U
71	0604261F	Personnel Recovery Systems	05		200,695	290,059	U
72	0604270F	Electronic Warfare Development	05	97,122	92,832	101,649	U
73	0604280F	Joint Tactical Radio	05	77,130			U
74	0604287F	Physical Security Equipment	05	10,685	93	34	U
75	0604329F	Small Diameter Bomb (SDB)	05	64,474	105,481	145,191	U
76	0604421F	Counterspace Systems	05	28,203	50,253	53,412	U

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
77	0604425F	Space Situation Awareness Systems	05		121,696	187,804	U
78	0604429F	Airborne Electronic Attack	05	29,833	12,374	20,007	U
79	0604441F	Space Based Infrared System (SBIRS) High EMD	05	706,560	664,880	587,004	U
80	0604443F	Alternative Infrared Space System (AIRSS)	05		67,552	230,887	U
81	0604600F	Munitions Dispenser Development	05	14,472			U
82	0604602F	Armament/Ordnance Development	05	7,613	5,020	1,985	U
83	0604604F	Submunitions	05	5,368	8,327	1,988	U
84	0604617F	Agile Combat Support	05	11,045	10,056	10,623	U
85	0604618F	Joint Direct Attack Munition	05		15,392		U
86	0604706F	Life Support Systems	05	12,047	14,216	12,649	U
87	0604735F	Combat Training Ranges	05	8,336	16,700	17,657	U
88	0604740F	Integrated Command & Control Applications (IC2A)	05	27,976	23,664	189	U
89	0604750F	Intelligence Equipment	05	2,728	4,907	1,469	U
90	0604762F	Common Low Observables Verification System (CLOVerS)	05	12,737	4,483		U
91	0604800F	Joint Strike Fighter (JSF)	05	2,264,836	2,132,924	1,780,874	U
92	0604851F	Intercontinental Ballistic Missile	05	30,952			U
93	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	19,050	19,738		U
94	0605011F	RDT&E for Aging Aircraft	05	37,404	26,490	17,021	U
95	0605807F	Test and Evaluation Support	05			3,044	U
96	0207434F	Link-16 Support and Sustainment	05	156,851	173,216	199,363	U

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
97	0207443F	Family of Interoperable Operational Pictures (FIOP)	05	35,067			U
98	0207450F	E-10 Squadrons	05	378,871	366,012	39,703	U
99	0207451F	Single Integrated Air Picture (SIAP)	05		39,973	4,976	U
100	0207701F	Full Combat Mission Training	05	25,723	35,010	87,096	U
101	0305176F	Combat Survivor Evader Locator	05	16,817			U
102	0401138F	Joint Cargo Aircraft (JCA)	05	1,400	15,723	42,368	U
103	0401318F	CV-22	05	33,672	26,501	16,688	U
	System Development & Demonstration			4,592,979	4,671,927	4,319,233	
104	0604256F	Threat Simulator Development	06	31,387	37,987	39,892	U
105	0604759F	Major T&E Investment	06	62,753	61,671	59,064	U
106	0605101F	RAND Project Air Force	06	33,098	26,510	30,999	U
107	0605306F	Ranch Hand II Epidemiology Study	06	4,024			U
108	0605502F	Small Business Innovation Research	06	339,887			U
109	0605712F	Initial Operational Test & Evaluation	06	28,184	34,670	30,203	U
110	0605807F	Test and Evaluation Support	06	701,064	739,708	737,558	U
111	0605860F	Rocket Systems Launch Program (SPACE)	06	25,365	26,005	15,145	U
112	0605864F	Space Test Program (STP)	06	49,315	46,135	47,430	U
113	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	65,494	55,472	59,131	U
114	0605978F	Facilities Sustainment - Test and Evaluation Support	06	31,697	28,072	30,865	U
115	0804731F	General Skill Training	06	309	304		U

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Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
116	0909999F	Financing for Cancelled Account Adjustments	06	96			U
117	1001004F	International Activities	06	3,582	3,896	4,041	U
		RDT&E Management Support		----- 1,376,255	----- 1,060,430	----- 1,054,328	
118	0605024F	Anti-Tamper Technology Executive Agency	07	10,029	7,984	10,930	U
119	0605798F	Analysis Support Group	07				
120	0101113F	B-52 Squadrons	07	23,071	75,991	41,916	U
121	0101120F	Advanced Cruise Missile	07	2,712	6,957		U
122	0101122F	Air-Launched Cruise Missile (ALCM)	07	3,050	3,722	4,672	U
123	0101313F	Strat War Planning System - USSTRATCOM	07	28,869	28,577	20,340	U
124	0101314F	Night Fist - USSTRATCOM	07	4,803	5,107	5,296	U
125	0101815F	Advanced Strategic Programs	07				
126	0102326F	Region/Sector Operation Control Center Modernization Program	07	22,453	14,744	23,495	U
127	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	22,130	30,469	14,245	U
128	0205219F	MQ-9 UAV	07			61,069	U
129	0207131F	A-10 Squadrons	07	55,713	31,850	1,963	U
130	0207133F	F-16 Squadrons	07	124,482	151,997	90,620	U
131	0207134F	F-15E Squadrons	07	135,009	137,541	101,251	U
132	0207136F	Manned Destructive Suppression	07	7,229	513		U
133	0207138F	F-22A Squadrons	07	341,789	472,475	743,593	U
134	0207141F	F-117A Squadrons	07	11,349	14,040		U

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Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
135	0207161F	Tactical AIM Missiles	07	14,974	8,817	7,927	U
136	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	31,803	43,253	36,838	U
137	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	07			5,338	U
138	0207224F	Combat Rescue and Recovery	07	50,672			U
139	0207247F	AF TENCAP	07	11,660	11,160	11,526	U
140	0207248F	Special Evaluation Program	07	286,451	527,588		U
141	0207253F	Compass Call	07	9,598	9,931	4,603	U
142	0207268F	Aircraft Engine Component Improvement Program	07	146,527	153,736	139,042	U
143	0207277F	CSAF Innovation Program	07	1,626	1,587		U
144	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	58,820	40,727	12,152	U
145	0207410F	Air & Space Operations Center (AOC)	07	51,796	76,849	111,557	U
146	0207412F	Control and Reporting Center (CRC)	07	26,746	8,743	16,505	U
147	0207417F	Airborne Warning and Control System (AWACS)	07	129,334	164,982	152,721	U
148	0207418F	Tactical Airborne Control Systems	07		2,303	3,387	U
149	0207423F	Advanced Communications Systems	07	22,166	42,905	33,584	U
150	0207424F	Evaluation and Analysis Program	07	5,992	2,590	650,608	U
151	0207433F	Advanced Program Technology	07	287,311	311,932		U
152	0207438F	Theater Battle Management (TBM) C4I	07	54,085	31,701	9,961	U
153	0207445F	Fighter Tactical Data Link	07	115,818	112,755	39,545	U
154	0207446F	Bomber Tactical Data Link	07	133,836	100,744	37,130	U

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Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
155	0207448F	C2ISR Tactical Data Link	07	14,219	4,322	1,809	U
156	0207449F	Command and Control (C2) Constellation	07	39,123	43,686	45,049	U
157	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	110,852	155,615	65,924	U
158	0207590F	Seek Eagle	07	19,108	16,364	22,969	U
159	0207591F	Advanced Program Evaluation	07	269,037	435,328		U
160	0207601F	USAF Modeling and Simulation	07	24,303	23,670	23,044	U
161	0207605F	Wargaming and Simulation Centers	07	6,087	6,570	6,490	U
162	0207697F	Distributed Training and Exercises	07	4,045	6,115	7,522	U
163	0208006F	Mission Planning Systems	07	115,002	129,259	105,371	U
164	0208021F	Information Warfare Support	07	14,250	20,657	12,111	U
165	0208161F	Special Evaluation System	07			760,312	U
166	0301310F	National Air Intelligence Center	07				
167	0301314F	COBRA BALL	07				
168	0301315F	Missile and Space Technical Collection	07				
169	0301324F	FOREST GREEN	07				
170	0301386F	GDIP Collection Management	07				
171	0302015F	E-4B National Airborne Operations Center (NAOC)	07	14,281	282	19,529	U
172	0303112F	Air Force Communications (AIRCOM)	07			2,022	U
173	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	48,234	63,765	103,846	U
174	0303140F	Information Systems Security Program	07	103,288	184,610	229,657	U

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
175	0303141F	Global Combat Support System	07	22,696	19,820	10,631	U
176	0303150F	Global Command and Control System	07	3,358	3,290	3,397	U
177	0303158F	Joint Command and Control Program (JC2)	07	4,982	5,768	5,841	U
178	0303601F	MILSATCOM Terminals	07	254,052	269,926	388,491	U
179	0304111F	Special Activities	07				
180	0304260F	Airborne SIGINT Enterprise	07	87,762	117,390	139,627	U
181	0304311F	Selected Activities	07				
182	0304348F	Advanced Geospatial Intelligence (AGI)	07				
183	0305099F	Global Air Traffic Management (GATM)	07	6,760	6,595	6,681	U
184	0305110F	Satellite Control Network (SPACE)	07	24,609	19,783	27,256	U
185	0305111F	Weather Service	07	27,505	35,701	39,747	U
186	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	5,908	3,467	4,672	U
187	0305116F	Aerial Targets	07	5,388	5,183	7,376	U
188	0305124F	Special Applications Program	07				
189	0305127F	Foreign Counterintelligence Activities	07				
190	0305128F	Security and Investigative Activities	07	470	507	829	U
191	0305142F	Applied Technology and Integration	07				
192	0305159F	Defense Reconnaissance Support Activities (SPACE)	07				
193	0305160F	Defense Meteorological Satellite Program (SPACE)	07	3,749	963		U

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DEPARTMENT OF THE AIR FORCE
FY 2008 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
194	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	111,710	133,574	93,267	U
195	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	174,530	176,721	120,931	U
196	0305172F	Combined Advanced Applications	07				
197	0305173F	Space and Missile Test and Evaluation Center	07		4,657	3,089	U
198	0305174F	Space Warfare Center	07	383	723	1,678	U
199	0305182F	Spacelift Range System (SPACE)	07	49,515	38,509	27,300	U
200	0305193F	Intelligence Support to Information Operations (IO)	07	3,566	3,785	1,134	U
201	0305202F	Dragon U-2	07	10,012			U
202	0305206F	Airborne Reconnaissance Systems	07	55,711	52,624	64,869	U
203	0305207F	Manned Reconnaissance Systems	07	18,074	16,669	12,672	U
204	0305208F	Distributed Common Ground/Surface Systems	07	36,550	125,267	107,117	U
205	0305219F	MQ-1 Predator A UAV	07	54,100	67,885	22,296	U
206	0305220F	Global Hawk UAV	07	257,687	247,726	298,501	U
207	0305221F	Network-Centric Collaborative Targeting	07	8,508	8,467	8,641	U
208	0305887F	Intelligence Support to Information Warfare	07	944	5,144	5,362	U
209	0305906F	NCMC - TW/AA System	07	55,306	43,271	11,882	U
210	0305910F	SPACETRACK (SPACE)	07	182,779			U
211	0305913F	NUDET Detection System (SPACE)	07	32,265	59,917	38,974	U
212	0305917F	Space Architect	07	12,331			U
213	0305924F	National Security Space Office	07		13,365	10,821	U

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DEPARTMENT OF THE AIR FORCE
FY 2008 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
214	0305940F	Space Situation Awareness Operations	07		31,282	23,980	U
215	0307141F	NASS, IO Technology Integration & Tool Dev	07	14,507	15,391	15,681	U
216	0308699F	Shared Early Warning (SEW)	07	2,959	2,975	3,152	U
217	0401115F	C-130 Airlift Squadron	07	232,342	230,709	188,069	U
218	0401119F	C-5 Airlift Squadrons (IF)	07	225,730	150,638	203,585	U
219	0401130F	C-17 Aircraft (IF)	07	160,608	173,125	181,734	U
220	0401132F	C-130J Program	07	11,401	40,389	74,223	U
221	0401133F	Aeromedical Evacuation	07	1,989			U
222	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	49,951	40,463	19,324	U
223	0401218F	KC-135s	07	1,456	1,122	8,766	U
224	0401219F	KC-10s	07	12,907	4,763	36,790	U
225	0401221F	KC-135 Tanker Replacement	07	24,095	69,632	314,454	U
226	0401314F	Operational Support Airlift	07			4,868	U
227	0401839F	Air Mobility Tactical Data Link	07		22,000		U
228	0408011F	Special Tactics / Combat Control	07	2,065	2,013	5,225	U
229	0702207F	Depot Maintenance (Non-IF)	07	1,349	1,452	1,510	U
230	0702806F	Acquisition and Management Support	07	10,739	17,614	22,317	U
231	0708011F	Industrial Preparedness	07	56,683	66,122	39,906	U
232	0708012F	Logistics Support Activities	07	2,682	1,295		U
233	0708610F	Logistics Information Technology (LOGIT)	07	32,837	120,851	114,176	U
234	0708611F	Support Systems Development	07	23,063	32,755	11,076	U

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DEPARTMENT OF THE AIR FORCE
 FY 2008 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 22 JAN 2007

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2006 -----	FY 2007 -----	FY 2008 -----	
235	0804757F	Joint National Training Center	07	2,801	3,050	3,128	U
236	0808716F	Other Personnel Activities	07	106	113	115	U
237	0901202F	Joint Personnel Recovery Agency	07	931	988	5,377	U
238	0901212F	Service-Wide Support (Not Otherwise Accounted For)	07			6,495	U
239	0901218F	Civilian Compensation Program	07	13,759	7,750	8,070	U
240	0901220F	Personnel Administration	07	15,078	18,193	16,832	U
241	0901538F	Financial Management Information Systems Development	07	12,797	27,425	47,105	U
		Operational Systems Development		11,654,712	13,546,997	16,436,127	
		Total Research, Development, Test & Eval, AF		22,190,943	24,420,623	26,711,940	

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (By BUDGET ACTIVITY)

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

0601102F Defense Research Sciences

REMARKS

In FY 2008, Space environment effort from Project 2311 and physical mathematics effort from Project 2304 will be moved to this Project in FY 2008 to more accurately align basic research efforts in Physics.

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

0602605F Directed Energy Technology

In FY 2008, relay mirror technology efforts in Project 55SP, Laser and Imaging Space Technology, will transfer to Project 4866, Lasers and Imaging Technology, within this PE in order to more effectively manage the efforts.

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

0603211F Aerospace Technology Dev/Demo

In FY 2008, the remaining efforts in Project 6399SP were transferred into Project 4920 within this PE, as the planned efforts were not space unique.

0603216F Aerospace Propulsion and Power Technology

In FY 2008, the funding in this PE has been increased in FY 2008 and out due to emphasis on component development in support of adaptive cycle demonstrations, highly efficient embedded turbine engines, and small heavy fueled engines.

0603605F Advanced Weapons Technology

In FY 2008, funds for the FY 2006 Congressionally-directed Aerospace Relay Mirror System in the amount of \$2.100 million were transferred to PE 0603605F, Advanced Weapons Technology, from PE 0603500F, Multi-Disciplinary Advanced Development, for execution. Also in FY 2008, this effort moves into Project 3151 in this program element.

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

0603430F Advanced (EHF MILSATCOM (Space))

In FY 2008, funds for qualification and productization of radiation-hardened components for USAF/DOD space programs have been transferred from PE 63430F, Advanced MILSATCOM (Space), to PE 63845F, Transformational SATCOM.

0603845F Transformational SATCOM (TSAT)

In FY 2008, funds for qualification and productization of radiation-hardened components for USAF/DOD space programs have been transferred from PE 63430F, Advanced MILSATCOM (Space), to PE 63845F, Transformational SATCOM.

0603851F ICBM - DEM/VAL

In FY 2008 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.

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

0207434F	Link 16 Support and Sustainment	In FY 2008, Project 655262 was established to consolidate gateway efforts within the Link 16 Support & Sustainment program element. Beginning in FY08, all TDL funding for gateway programs moved from Project 655050 to new Project 655262, Family of Gateways.
0207701F	Full Combat Mission Training	In FY 2008, funding previously documented in BPAC 4673 is consolidated in BPAC 5012
0401138F	Joint Cargo Aircraft	In FY 2008, FY10-FY13: Final AF JCA requirements and procurement quantities are still being defined. These requirements will be validated by early FY08. The AF intends to transfer a portion of APAF funds to RDT&E in the FY10 POM to support any resulting aircraft, training system, test, and support system development requirements that remain.
0604261F	Personnel Recovery Systems	In FY 2008, Project Number 5249, HC-130 Recap, includes new start efforts. Procurement funding for CSAR-X and HC-130 Recap remains in PE 0207224F and is reported in P-Docs.
0604425F	Space Situation Awareness Systems	In FY 2008, this project 65A008 was renamed from Space Situation Awareness Initiatives to its present name.
0604602F	Armament/Ordnance Development	In FY 2008, moved all funds and activities from the other 2 project to project 3133 Armament Subsystems (new name, old name was Bombs & Fuzes). This is done to consolidate and simplify the program element.
0604604F	Submunitions	In FY 2008, for this PE, the T&E funding alignment begins in FY08.
0604617F	Agile Combat Support	In FY 2008, Project 2895, Civil Engineering Readiness (CE), includes two new-start efforts.
0604708F	Civil, Fire, Environmental, Shelter	In FY 2008, the Air Force is in the process of consolidating three small dollar Civil Engineer (CE) readiness R&D programs (PE64617f - Agile Combat Support; PE64708f - Civil , Fire, Environmental, Shelters; and the 3600 portion of PE28031f - War Reserve Material) under PE 64617. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable CE Readiness modernization effort.
0207450F	E-10 Squadrons	In FY 2008, 1 E-10A Testbed Aircraft (Commercial 767-400ER delivered in FY 2008) 1 GH DU radar for radar lab mode checkout and troubleshooting

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

0604759F	Major T&E Investment	In FY 2008, Project 4597, Air Force Test Investments, includes new start efforts
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BUDGET ACTIVITY #7: OPERATIONAL SYSTEM DEVELOPMENT (Volume 3)

0205219F	MQ-9 Development and Fielding	In FY 2008, This program moved from PE 0305219F.
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0207410F	Air and Space Operations Center - Weapon System	In FY 2008, Space C2 funds were transferred to the 674372 project line in the AOC PE to consolidate and unify Air Force air and space C2 development and integration.
		Starting in FY08 Project 674790 in PE 0207438F (Theater Battle Management Core Systems) was transferred to PE 0207410F (AOC WS) and placed into Projects 675218 (Applications Development) and 675220 (Unit Level).
0207438F	Theater Battle Management (TBM) C4I	In FY 2008, Project 674790 (Theater Battle Management Core Systems) was transferred to PE 0207410F (Air and Space Operations Center Weapon System), Projects 675218 (Applications Development) and 675220 (Unit Level).
0208021F	Information Warfare Support	In FY 2008, Funding for the Information Operations Planning Capability Joint (IOPC-J) BPAC 674871 transferred to JFCOM's PE 33166D beginning in FY08. FY08 - 13 funding decrease in BPAC 670374 as a result of alignment and correction of IW Support to JFCOM's PE 33166D.
0303112F	Aircomm	In FY 2008, this is a new start effort.
0305193F	Intel SPT to Info Ops	In FY 2008, the funding for the Joint Integrative Analysis and Planning Capability (JIAPC) was transferred to PE 33166D managed by JFCOM
0305219F	Predator Development/Fielding	In FY 2008, the MQ-9 Program moves to PE 0205219F. Historical MQ-9 accomplishments remain in this document.
0708611F	Support Systems Development	In FY 2008, the small amount of funds remaining for project 5044 (FY 2010) will be realigned during the FY 2008 budget cycle.

In accordance with the President's Management Agenda, Budget and Performance Integration initiative, these programs have been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the Expectmore.gov website.

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

<u>No.</u>	<u>Title</u>
0603801F	Special Programs
0605798F	Analysis Support Group
0101815F	Advanced Strategic Program
0207248F	Special Evaluation Program
0207433F	Advanced Program Technology
0207424F	Evaluation and Analysis Program
0207591F	Advance Program Evaluation
0208160F	Technical Evaluation System
0208161F	Special Evaluation System
0301310F	National Air Intelligence Center
0301314F	COBRA BALL
0301315F	Missile and Space Technical Collection
0301324F	FOREST GREEN
0301386F	GDIP Collection Management
0304111F	Special Activities
0304311F	Selected Activities
0304312F	Special Applications Program
0304348F	Advanced Geospatial Intelligence (AGI)
0305124F	Special Applications Program
0305127F	Foreign Counterintelligence Activities
0305142F	Applied Technology and Integration
0305159F	Defense Reconnaissance Support Activities (SPACE)
0305172F	Combined Advanced Applications
0101314F	Night Fist

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PE NUMBER: 0603422F
 PE TITLE: GPS Extension Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603422F GPS Extension Program
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	Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	0.000	0.000	70.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3834	GPS Extension Program	0.000	0.000	70.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) Extension Program is a study to examine a potential way to augment existing DoD positioning, navigation and timing capabilities. This study will develop Iridium-compatible handsets to examine the feasibility of using signals from commercial Iridium satellites and the DoD's GPS constellation (consisting of GPS IIR, IIR-M and future IIF and GPS III satellites) to increase anti-jam, positional and timing accuracy.

This program requires New Start notification to Congress. The Department is examining the possibility of submitting New Start notification to Congress in FY07 with a reprogramming request to lower the FY08 executibility risk.

This program is a Budget Activity 3 - Advanced Technology Development (ATD) vice BA 4; will be corrected in the next budget cycle.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	70.758	0.000
(U) Total Adjustments	0.000			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY08 funding to develop handsets capable of using signals from Iridium and GPS satellites.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603422F GPS Extension Program				PROJECT NUMBER AND TITLE 3834 GPS Extension Program		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3834 GPS Extension Program	0.000	0.000	70.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) Extension Program is a study to examine a potential way to augment existing DoD positioning, navigation and timing capabilities. This study will develop Iridium-compatible handsets to examine the feasibility of using signals from commercial Iridium satellites and the DoD's GPS constellation (consisting of GPS IIR, IIR-M and future IIF and GPS III satellites) to increase anti-jam, positional and timing accuracy.

This program requires New Start notification to Congress. The Department is examining the possibility of submitting New Start notification to Congress in FY07 with a reprogramming request to lower the FY08 executibility risk.

This program is a Budget Activity 4 - Advanced Component Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) GPS Extension Program - Handset Development	0.000	0.000	50.758	0.000
(U) System Engineering	0.000	0.000	10.000	0.000
(U) Program Support	0.000	0.000	10.000	0.000
(U) Total Cost	0.000	0.000	70.758	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

OSD directed sole source acquisition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0603422F GPS Extension Program						3834 GPS Extension Program				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Handset Development	CPAF	TBD	0.000	0.000		0.000		50.758	Jan-08	0.000		0.000	50.758	
Subtotal Product Development			0.000	0.000		0.000		50.758		0.000		0.000	50.758	0.000
Remarks:														
(U) <u>Support</u>														
Program Support	TBD	TBD	0.000	0.000		0.000		10.000	Jan-08	0.000		0.000	10.000	
System Engineering	TBD	TBD	0.000	0.000		0.000		10.000	Jan-08	0.000		0.000	10.000	
Subtotal Support			0.000	0.000		0.000		20.000		0.000		0.000	20.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	0.000		0.000		70.758		0.000		0.000	70.758	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603422F GPS Extension Program

PROJECT NUMBER AND TITLE

3834 GPS Extension Program

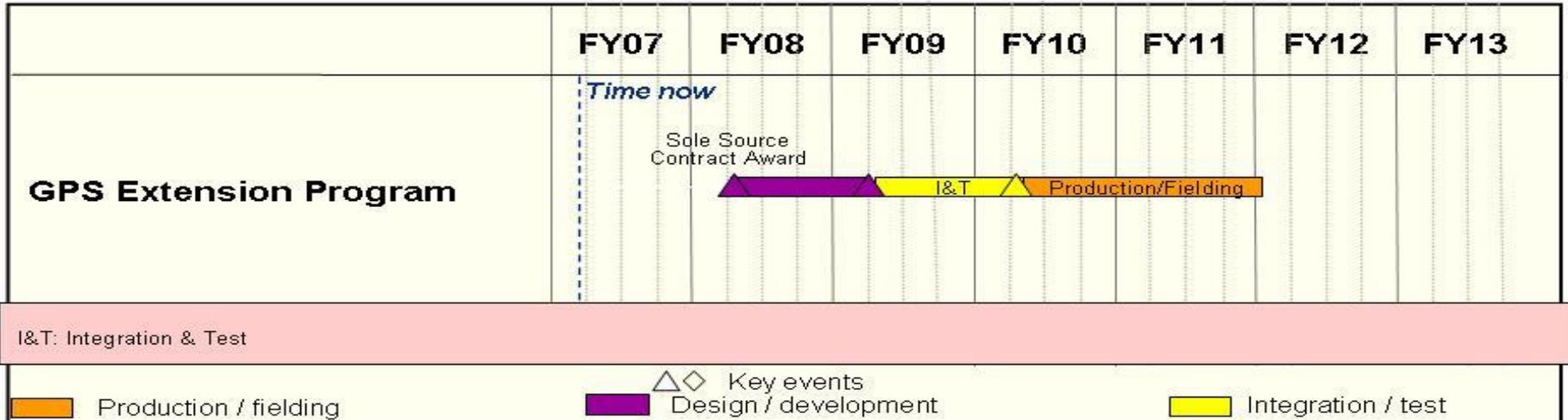


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603422F GPS Extension Program

PROJECT NUMBER AND TITLE

3834 GPS Extension Program

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Contract Award

2Q

(U) Preliminary Design Review (PDR)

4Q

(U) Critical Design Review (CDR)

2Q

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PE NUMBER: 0603260F

PE TITLE: Intelligence Advanced Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.759	4.763	4.930	5.030	5.144	5.206	5.305	5.414	Continuing	TBD
3479 Advanced Sensor Exploitation	1.185	1.293	1.819	1.850	1.878	1.901	1.918	1.928	Continuing	TBD
3480 Automated Imagery Exploitation	1.406	0.995	0.645	0.861	0.936	0.938	0.961	0.989	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1.573	1.754	1.516	1.594	1.599	1.622	1.668	1.737	Continuing	TBD
3482 Science & Tech Intelligence Methodology	0.595	0.721	0.950	0.725	0.731	0.745	0.758	0.760	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) Intelligence Advanced Development (IAD) demonstrates and validates advanced technologies required to support warfighter needs for timely all-source intelligence information. IAD research supports global awareness, consistent battlespace knowledge, precision information, and the execution of time-critical missions. IAD projects provide better on-time information to the warfighter by using new and existing data sources, streamlining data analyses, reducing the required intelligence footprint, and by extending the life of sensors in place as well as enhancing their performance. Air Force Research Laboratory, Rome Research Site (AFRL/IFE) works directly with users, employing a rapid prototyping evolutionary approach, then integrating finished modules directly into the field. The programs are oriented towards specific shortfalls and deficiencies as documented by the major commands, combatant commands, and intelligence organizations in their mission and functional area plans. The goal of this program is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF program is focused on technology insertion to correct AF intelligence deficiencies at tactical and operational levels. The program bridges the transition of new technologies from Advanced Technology Demonstrations and Integrated Technology Thrust Programs into current/new systems, and also supports the associated Defense Technology Objectives. IAD may reallocate existing resources to support out-of-cycle new/updated warfighter requirements.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technologies that enhance information / intelligence systems' capabilities and techniques.

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Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.761	4.776	4.878	4.963
(U) Current PBR/President's Budget	4.759	4.763	4.930	5.030
(U) Total Adjustments	-0.002			
(U) Congressional Program Reductions				
Congressional Rescissions		-0.019		
Congressional Increases		1.000		
Reprogrammings	-0.002	-0.994		
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY07 Congressional Add for TASS Advanced Communications (\$1.0M) was administratively reprogrammed (minus Congressional rescissions) to PE 63287, Physical Security Equipment for proper execution.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0603260F Intelligence Advanced Development		PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation	
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3479 Advanced Sensor Exploitation	1.185	1.293	1.819	1.850	1.878	1.901	1.918	1.928	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The project objectives are to develop, demonstrate and evaluate a near-real-time all source correlation/fusion capability by applying state-of-the-art data processing techniques for the receipt, correlation, templating, and analysis of battlefield information. Capabilities will be developed in an open systems architecture environment allowing for the greatest efficiency in terms of integrating or interfacing with other systems. There are Air Force, DoD, and Coalition needs to correlate various sources of intelligence information (Communications Intelligence - COMINT, Electronic Intelligence - ELINT, Imagery Intelligence - IMINT) within seconds/minutes as opposed to hours/days with current manual and semi-automated methods. The project includes development of data correlation and predictive intelligence algorithms as well as target analysis and prioritization, air order of battle update, and tactical analysis techniques. This computerized approach will speed up the correlation of data from diverse sources of intelligence information, including COMINT, ELINT, and IMINT; providing faster situational awareness and threat assessment, and replace manual systems with automated capabilities.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue / Complete Predictive Battlespace Awareness (Live Electronic Order of Battle)	1.185	1.035	0.598	
(U) Initiate / Complete Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)		0.258	0.390	
(U) Initiate / Continue Ubiquitous Collaboration			0.831	0.877
(U) Initiate Semi-Autonomous Intelligence Fusion				0.973
(U) Total Cost	1.185	1.293	1.819	1.850

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

(U) D. Acquisition Strategy

Requirements for new advanced sensor exploitation technologies are gathered and prioritized by the Air Force Command and Control Intelligence Surveillance and

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0603260F Intelligence Advanced
Development**

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

Reconnaissance Center (AFC2ISRC). Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Predictive Battlespace Awareness (Live Electronic Order of Battle)	C/CPFF	Northrop-Grumman, Bellevue, NE and Intelligent Software Solutions, Colorado Springs, CO	1.516	1.185	Nov-05	1.035	Jan-07	0.598	Nov-07	0.000		0.000	4.334	4.334
Web Automated Assistance with Intelligence Preparation of the Battlefield (WA2IPB)	C/TBD	TBD	0.000	0.000		0.258	Feb-07	0.390	Nov-07	0.000		0.000	0.648	0.648
Ubiquitous Collaboration	C/TBD	TBD	0.000	0.000		0.000		0.831	Jan-08	0.877	Nov-08	4.332	6.040	TBD
Semi-Autonomous Intelligence Fusion	C/TBD	TBD	0.000	0.000		0.000		0.000		0.973	Jan-09	2.400	3.373	TBD
Subtotal Product Development			1.516	1.185		1.293		1.819		1.850		6.732	14.395	TBD
Remarks:														
<u>(U) Total Cost</u>			1.516	1.185		1.293		1.819		1.850		6.732	14.395	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

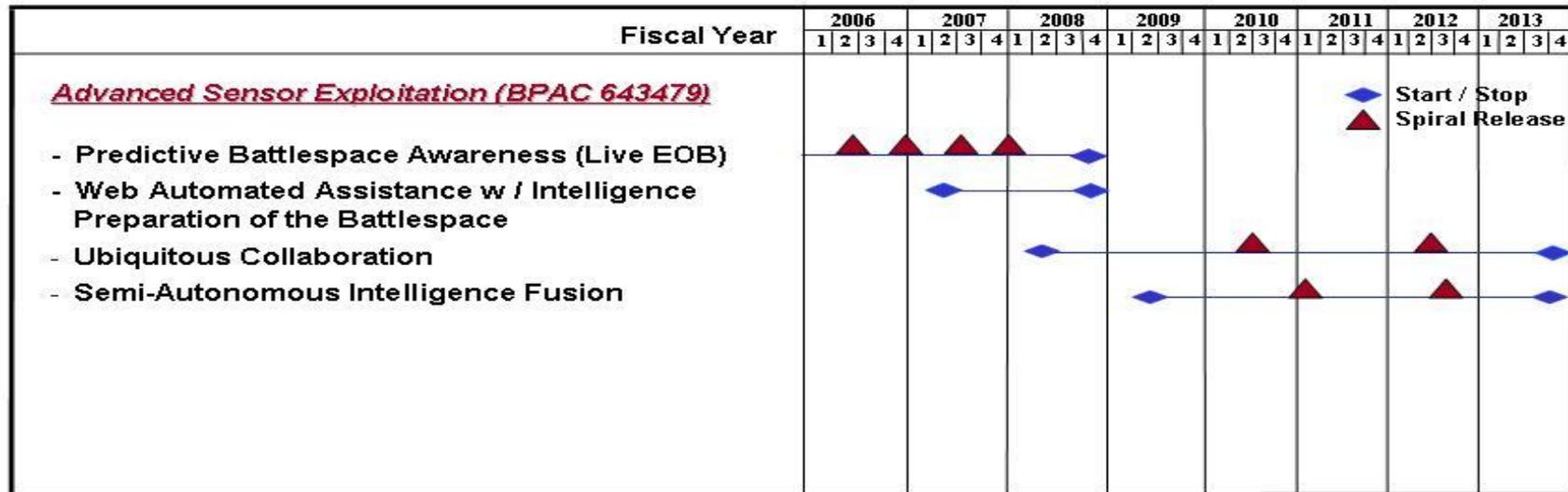
PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

Intelligence Advanced Development Program—Advanced Sensor Exploitation Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Continue / Complete Predictive Battlespace Awareness (Live Electronic Order of Battle)	1-4Q	1-4Q	1-4Q	
(U) Initiate / Complete Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)		2-4Q	1-4Q	
(U) Initiate / Continue Ubiquitous Collaboration			2-4Q	1-4Q
(U) Initiate Semi-Autonomous Intelligence Fusion				2-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3480 Automated Imagery Exploitation	1.406	0.995	0.645	0.861	0.936	0.938	0.961	0.989	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project demonstrates and validates the capability to more accurately and quickly interpret digital imagery and video by developing/evaluating computer-assisted techniques to manipulate and overlay imagery, cartographic data, signals intelligence (SIGINT), and on-line intelligence data. The result of this effort will be more precise target locations and identifications, precise target reference scenes, and more accurate damage assessments for the operator; all developed for easy supportability on low-cost, commercially-available computer workstations.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Completed UAV Motion Imagery Exploitation (MIE)	0.300			
(U) Initiated / Completed AVT234-Smart Camera Development with Target Motion Cueing (FY06 Congressional Add)	0.246			
(U) Continued / Complete Dynamic Motion Imagery Annotation & Exploitation Tools	0.460	0.330		
(U) Continued / Complete Operational Imagery Protection and Authentication	0.400	0.358		
(U) Initiate / Continue / Complete Multi-View Toolkit for Imagery Assessment and Exploitation		0.307	0.354	0.559
(U) Initiate / Continue Persistent Surveillance			0.291	0.302
(U) Total Cost	1.406	0.995	0.645	0.861

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

(U) D. Acquisition Strategy

Requirements for new computer assisted techniques for interpretation of digital imagery and video are gathered and prioritized by the Air Force Command and Control Intelligence Surveillance and Reconnaissance Center (AFC2ISRC). Development of new / improved capabilities to meet the requirements is managed by

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0603260F Intelligence Advanced
Development**

PROJECT NUMBER AND TITLE

**3480 Automated Imagery
Exploitation**

AF Research Laboratory (Rome Research Site). The prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
UAV Motion Imagery Exploitation (MIE)	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.682	0.300	Nov-05			0.000		0.000		0.000	0.982	0.982
AVT234-Smart Camera Development with Target Motion Cueing (FY06 Congressional Add)	C/CPFF	P&L E-Communications, Rochester, NY	0.000	0.246	Jun-06	0.000		0.000		0.000		0.000	0.246	0.246
Dynamic Motion Imagery Annotation & Exploitation Tools	C/CPFF	SAIC, Fairborn, OH	0.150	0.460	Nov-05	0.330	Nov-06	0.000		0.000		0.000	0.940	0.940
Operational Imagery Protection and Authentication	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.218	0.400	Nov-05	0.358	Nov-06	0.000		0.000		0.000	0.976	0.976
Multi-View Toolkit for Imagery Assessment and Exploitation	C/TBD	TBD	0.000	0.000		0.307	Feb-07	0.354	Nov-07	0.559	Nov-08	0.000	1.220	TBD
Persistent Surveillance		TBD	0.000	0.000		0.000		0.291	Jan-08	0.302	Nov-08	3.777	4.370	TBD
Subtotal Product Development			1.050	1.406		0.995		0.645		0.861		3.777	8.734	TBD
Remarks:														
<u>(U) Total Cost</u>			1.050	1.406		0.995		0.645		0.861		3.777	8.734	TBD

Exhibit R-4, RDT&E Schedule Profile

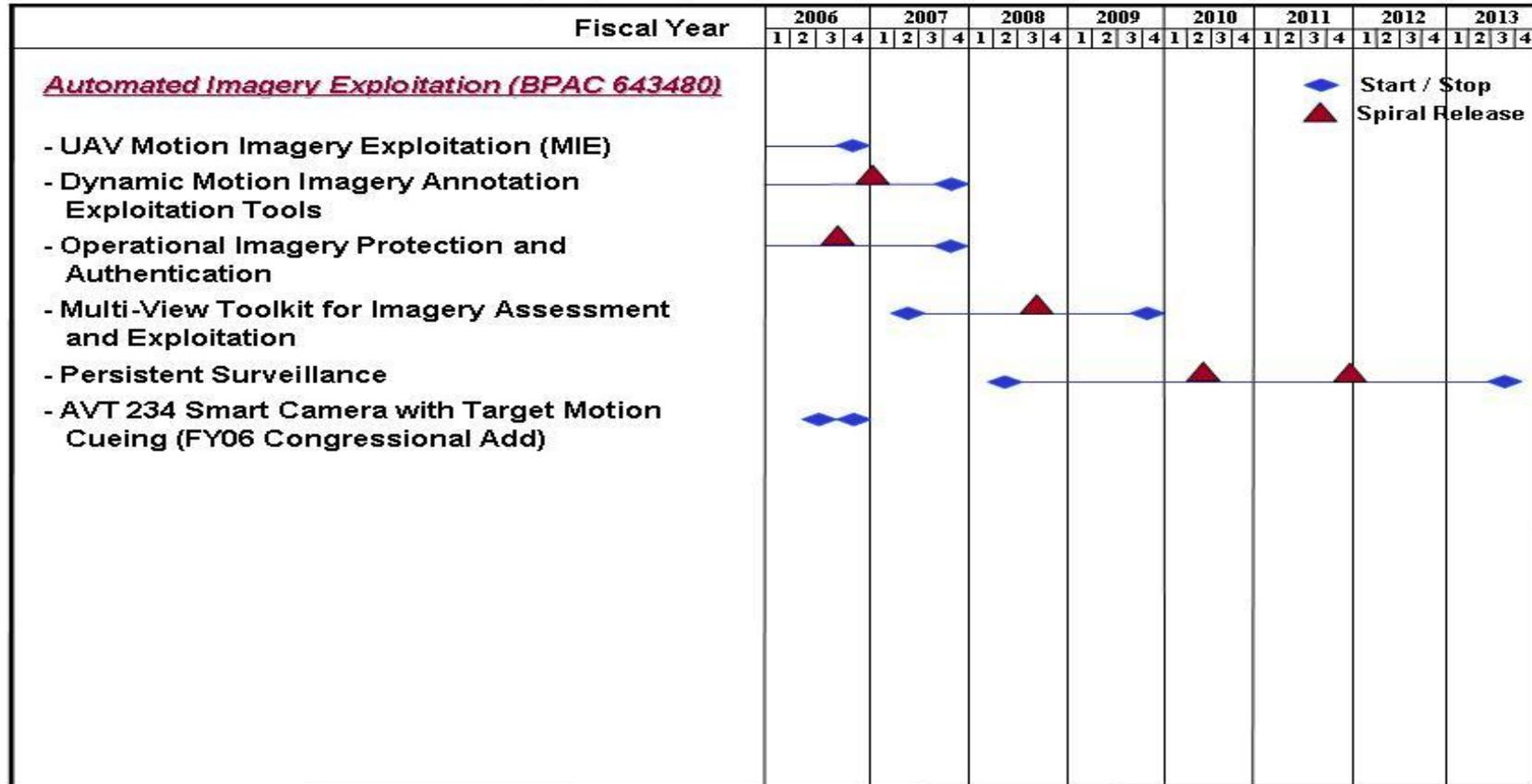
DATE
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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE
3480 Automated Imagery Exploitation

Intelligence Advanced Development Program—Automated Imagery Exploitation Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Completed UAV Motion Imagery Exploitation (MIE)	1-4Q			
(U) Initiated / Completed AVT234-Smart Camera Development with Target Motion Cueing (FY06 Congressional Add)	3-4Q			
(U) Continued / Complete Dynamic Motion Imagery Annotation Exploitation Tools	1-4Q	1-4Q		
(U) Continued / Complete Operational Imagery Protection and Authentication	1-4Q	1-4Q		
(U) Initiate / Continue / Complete Multi-View Toolkit for Imagery Assessment and Exploitation		2-4Q	1-4Q	1-4Q
(U) Initiate / Continue Persistent Surveillance			2-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3481 Knowledge Based Tech For Intelligence	1.573	1.754	1.516	1.594	1.599	1.622	1.668	1.737	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project improves Global Awareness, Dynamic Planning, and Execution by providing knowledge bases and inference engines to exploit collected data for nine major commands and AF intelligence organizations. The development of the analytical aids is based on artificial intelligence techniques. The increased timeliness, efficiency and effectiveness derived will provide enhanced warning time and accuracy, allowing national/military authorities a greater range of options to avert, diminish or control a crisis.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information/intelligence systems' capabilities and techniques.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Completed Counter Terrorism / Information Operations (CT / IO) Target Data Access	0.100			
(U) Completed Multi Information Domain Access Web Server (MIDAS)	0.350			
(U) Continued / Complete High Throughput Imagery Guard (H-TIG)	0.100	0.100		
(U) Continued / Complete Enterprise Workflow Management (EWM)	0.600	0.454	0.150	
(U) Initiated / Continue / Complete Non-Traditional Intelligence / Surveillance / Reconnaissance (ISR) Production Management	0.423	1.200	0.900	
(U) Initiate / Continue Dynamic ISR for Non-Traditional Adversarial Methods			0.466	0.625
(U) Initiate Net Enabled Dynamic Security				0.969
(U) Total Cost	1.573	1.754	1.516	1.594

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

(U) D. Acquisition Strategy

Requirements for new / improved analytical aids to exploit collected intelligence data are gathered and prioritized by the Air Force Command and Control

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence
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Intelligence Surveillance and Reconnaissance Center (AFC2ISRC). Development of new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Counter Terrorism /Information (CT / IO) Operations Target Data Access	C/CPFF	Northrop Grumman Corp, Bellevue, NE	0.443	0.100	Nov-05	0.000		0.000		0.000		0.000	0.543	0.543
Multi-Information Domain Access Web Server (MIDAS)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.550	0.350	Nov-05	0.000		0.000		0.000		0.000	0.900	0.900
High Throughput Imagery Guard (H-TIG)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.392	0.100	Nov-05	0.100	Dec-06	0.000		0.000		0.000	0.592	0.592
Enterprise Workflow Management	C/CPFF	Northrop Grumman Corp, Bellevue, NE	0.512	0.600	Nov-05	0.454	Nov-06	0.150	Nov-07	0.000		0.000	1.716	1.716
Non-Traditional ISR Production Management (NTIPM)	C/IDIQ	Northrop-Grumman Corp, Bellevue NE & Intelligent Software Solutions, Colorado Springs, CO	0.000	0.423	Mar-06	1.200	Nov-06	0.900	Nov-07	0.000		0.000	2.523	2.523
Dynamic ISR for Non-Traditional Adversarial Methods	C/TBD	TBD	0.000	0.000		0.000		0.466	Jan-08	0.625	Nov-08	3.745	4.836	TBD
Net-Enabled Dynamic Security	C/TBD	TBD	0.000	0.000		0.000		0.000		0.969	Jan-09	2.800	3.769	TBD
Subtotal Product Development			1.897	1.573		1.754		1.516		1.594		6.545	14.879	TBD
Remarks:														
<u>(U) Total Cost</u>			1.897	1.573		1.754		1.516		1.594		6.545	14.879	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For Intelligence

Intelligence Advanced Development Program—Knowledge Based Technologies for Intelligence Schedule

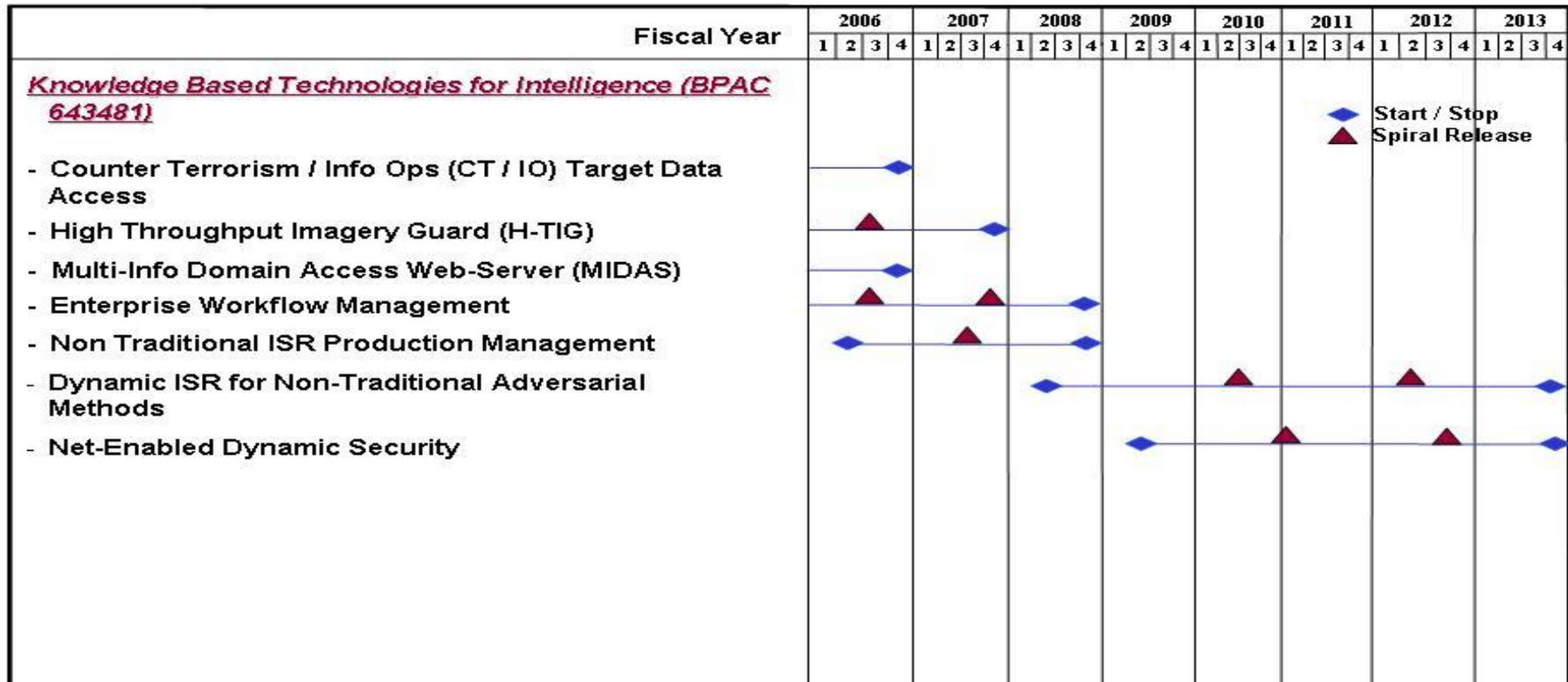


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Completed Counter-Terrorism/Information Operations (CT / IO) Target Data Access	1-4Q			
(U) Continued / Complete High Throughput Imagery Guard (H-TIG)	1-4Q	1-4Q		
(U) Completed Multi Information Domain Access Web Server (MIDAS)	1-4Q			
(U) Continued / Complete Enterprise Workflow Management Tool	1-4Q	1-4Q	1-4Q	
(U) Initiated / Continue / Complete Non-Traditional ISR Production Management	2-4Q	1-4Q	1-4Q	
(U) Initiate / Continue Dynamic ISR for Non-Traditional Adversarial Methods			2-4Q	1-4Q
(U) Initiate Net-Enabled Dynamic Security				2-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT NUMBER AND TITLE 3482 Science & Tech Intelligence Methodology		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3482 Science & Tech Intelligence Methodology	0.595	0.721	0.950	0.725	0.731	0.745	0.758	0.760	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The project demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Intelligence Agency (AIA) requirements. The methods and techniques will help AIA improve their analysis of current and future foreign weapon systems, and prevent technological surprises to our warfighters with regard to the capabilities of these systems.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

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

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Continued / Complete Dynamic Information Operations Decision Environment / Automated Correspondence Analysis System (DIODE / ACAS)	0.250	0.100		
(U) Continued / Complete Command & Control (C2) Process Models	0.294	0.281		
(U) Initiated/ Continue / Complete Integrated Denial & Deception Signatures and Materials (IDMATS)	0.051	0.184	0.626	
(U) Initiate / Continue Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)		0.156	0.324	0.725
(U) Total Cost	0.595	0.721	0.950	0.725

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

	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E										
(U) Other APPN										
None										

(U) **D. Acquisition Strategy**

Requirements for new / improved techniques for operational employment of simulation models are gathered and prioritized by the Air Force Command and Control Intelligence Surveillance and Reconnaissance Center (AFC2ISRC). Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3482 Science & Tech Intelligence Methodology
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> DIODE / ACAS	C/CPFF	Prediction Systems, Inc., Spring Lake, NJ	0.430	0.250	Nov-05	0.100	Nov-06			0.000		0.000	0.780	0.780
Command and Control (C2) Process Models	C/CPFF	Northrop-Grumman, Dayton OH	0.308	0.294	Nov-05	0.281	Nov-06	0.000		0.000		0.000	0.883	0.883
Integrated Denial & Deception Signatures and Materials (IDMATS)	C/CPFF	SAIC, Dayton OH	0.000	0.051	Jul-06	0.184	Nov-06	0.626	Nov-07	0.000		0.000	0.861	0.861
Adversary Tactics, Training, and Readiness Knowledge Base	C/TBD	TBD	0.000	0.000		0.156	Mar-07	0.324	Nov-07	0.725	Nov-08	0.398	1.603	TBD
Subtotal Product Development			0.738	0.595		0.721		0.950		0.725		0.398	4.127	TBD
Remarks:														
<u>(U) Total Cost</u>			0.738	0.595		0.721		0.950		0.725		0.398	4.127	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

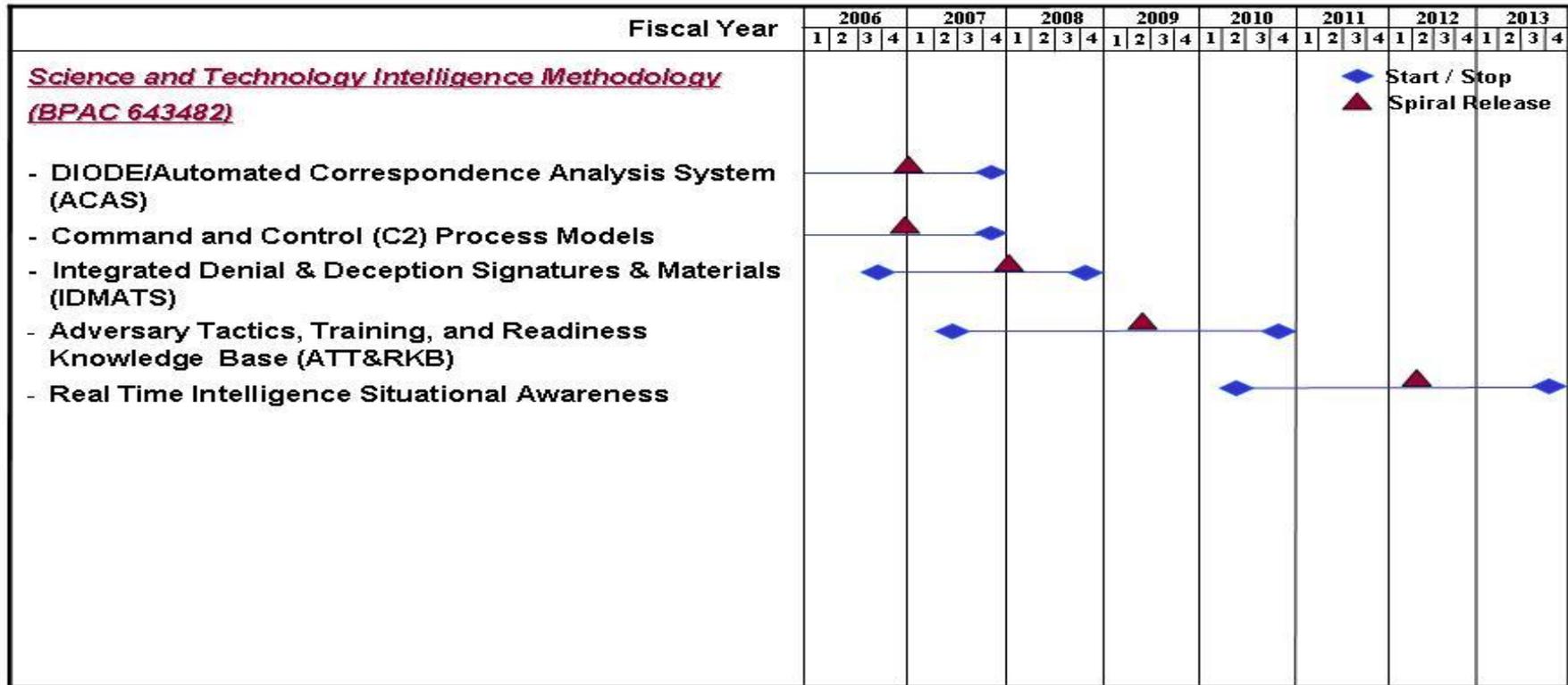
PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3482 Science & Tech Intelligence Methodology

Intelligence Advanced Development Program—Science & Technology Intelligence Methodology Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3482 Science & Tech Intelligence Methodology
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete DIODE / ACAS	1-4Q	1-4Q		
(U) Continued / Complete Command and Control (C2) Process Models	1-4Q	1-4Q		
(U) Initiate / Continue / Complete IDMATS Program	3-4Q	1-4Q	1-4Q	
(U) Initiate / Continue Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)		2-4Q	1-4Q	1-4Q

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PE NUMBER: 0603287F
 PE TITLE: Physical Security Equipment

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	24.858	1.284	0.466	0.481	0.483	0.497	0.507	0.517	Continuing	TBD
5121 Physical Security Equipment	24.858	1.284	0.466	0.481	0.483	0.497	0.507	0.517	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consist of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Intelligence (USD(I)). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security use.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	21.937	0.298		
(U) Current PBR/President's Budget	24.858	1.284	0.466	0.481
(U) Total Adjustments	2.921			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.374			
Congressional Increases	4.000			
Reprogrammings	-0.705			
SBIR/STTR Transfer				

(U) Significant Program Changes:

In FY 2007, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment, in order to recognize the synergy between nuclear weapons and conventional physical security and to leverage common solutions to common capability gaps.

Exhibit R-2, RDT&E Budget Item Justification

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February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

These residual funds will be reprogrammed.

Exhibit R-2a, RDT&E Project Justification

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February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603287F Physical Security Equipment			PROJECT NUMBER AND TITLE 5121 Physical Security Equipment			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5121 Physical Security Equipment	24.858	1.284	0.466	0.481	0.483	0.497	0.507	0.517	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consist of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Intelligence (USD(I)). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security use.

(U) B. Accomplishments/Planned Program (\$ in Millions)

(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
	11.080			

- Awarded LKMD SDD contract. Conduct Production Qualification LKMD testing.
- Issued Federal Business Opportunities Announcement for the Tactical Video Surveillance System (TVSS).
- Conducted market survey for the TVSS.
- Conducted Concept Exploration for the best technical approach to integrate TVSS with other phenomenology for tactical intrusion detection.
- Conducted operational testing of ASPSS.
- Refined and researched improvements for the Smart Gate program.
- Continued TASS P3I efforts including improvements to the annunciator.
- Continued to manage, develop, evaluate, and test Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.
- Continued to prepare operational systems improvement plans; develop technology roadmap, update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security
Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
- Began to develop the XML Wide Area Sensor.				
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		1.284		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT			0.466	
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.				
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT				0.481
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION	1.524			
- Demonstrated ability to network robotic systems to provide enhanced detection, surveillance, and response in all aspects of installation force protection and installation security.				
- Continued efforts to improve the operational capability and safety of integrated weapon systems and robotics platforms employed in force protection and security missions.				
- Continues imagery improvements for the FPASS.				
- Developed a Digital Network Centric capability for the Remotely Operated Weapons System (ROWS).				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				
In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2008 plans.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) WATERSIDE SECURITY SYSTEM	2.500			
- Began the C3 integration of Pierside and Shipboard Security Systems.				
- Began the upgrade of Swimmer Detection sonars.				
(U) WATERSIDE SECURITY SYSTEM				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security
Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) WATERSIDE SECURITY SYSTEM				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.				
(U) WATERSIDE SECURITY SYSTEM				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) EXPLOSIVE DETECTION EQUIPMENT	7.011			
- Invested in the integration of image and chem/bio detection to counter the WMD threat. - Invested in the reduction of the manpower footprint associated with the detection of vehicle and cargo explosive threats. - Awarded the development contract for Video/Radar Concealed Bomb Detection. - Began to build the infrastructure to test Shaped Energy X-Ray Detection Systems.				
(U) EXPLOSIVE DETECTION EQUIPMENT				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				
(U) EXPLOSIVE DETECTION EQUIPMENT				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.				
(U) EXPLOSIVE DETECTION EQUIPMENT				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) LOCKS, SAFES, VAULTS	1.332			
- Completed the light-weight weapons armory door ILD prototype. - Developed ILD design improvements to increase operational capability and improved resistance against forced entry. - Continued evaluating Lock technology and attack tools.				
(U) LOCKS, SAFES, VAULTS				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				
(U) LOCKS, SAFES, VAULTS				
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.				
(U) LOCKS, SAFES, VAULTS				

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) COMMERCIAL-OFF-THE-SHELF TESTING - Delivered FPED V After Action Report - Distributed FPED V CDs - Launched FPED VI on-line registration - Prepared to execute FPED VI. - Continued to seek near-term (commercial) solutions for immediate force protection needs.	1.411			
(U) COMMERCIAL-OFF-THE-SHELF TESTING In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.				
(U) COMMERCIAL-OFF-THE-SHELF TESTING In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.				
(U) COMMERCIAL-OFF-THE-SHELF TESTING In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.				
(U) Total Cost	24.858	1.284	0.466	0.481

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not Applicable										
(U) <u>D. Acquisition Strategy</u> Not Applicable										

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
HQ ESC (Air Force)	PO			8.070	Nov-06	1.284	Nov-07	0.466		0.481		Continuing	TBD	TBD
PM-PSE (US Army)	MIPR			4.964	Nov-06							Continuing	TBD	TBD
CNO-N34 (US Navy)	MIPR			7.058	Nov-06							Continuing	TBD	TBD
DTRA	MIPR			1.773	Nov-06							Continuing	TBD	TBD
Subtotal Product Development			0.000	21.865		1.284		0.466		0.481		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>													0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Program Office Support				2.993	Nov-06							Continuing	TBD	TBD
Subtotal Management			0.000	2.993		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Not Applicable</u>														
(U) Total Cost			0.000	24.858		1.284		0.466		0.481		Continuing	TBD	TBD
Remarks:														

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

Date: January 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

PE0603287F Physical Security Equipment

PROJECT NUMBER AND NAME

5121 Physical Security Equipment

Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C3 Integration of Pierside and Shipboard Security Systems.																▲																				
T&E COTS VMD products for Shoreline Intrusion Detection												▲																								
Follow-on Early User Appraisal for MDARS																▲																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																Date: January 2006																				
BUDGET ACTIVITY								PE NUMBER AND TITLE								PROJECT NUMBER AND NAME																				
04 Advanced Component Development and Prototypes (ACD&P)								PE0603287F Physical Security Equipment								5121 Physical Security Equipment																				
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate LRIP of the Laser IMS Handheld Explosive Detector.								▲																												
Award development contract for Video/Radar Concealed Bomb Detection.												▲																								
Develop Test for Hybrid System																▲																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: January 2006																
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT NUMBER AND NAME																
04 Advanced Component Development and Prototypes (ACD&P)										PE0603287F Physical Security Equipment										5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Market Survey for TVSS																																				
TVSS Prototype Design, Fabrication, & Integration																																				
PAS Market Survey and Investigation																																				

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603287F Physical Security
Equipment

PROJECT NUMBER AND TITLE
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: January 2006																
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)										PE NUMBER AND TITLE PE0603287F Physical Security Equipment										PROJECT NUMBER AND NAME 5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Refine MMW technology to counter standoff and suicide bomber threats											▲																									
C3 integration of Pierside and Shipboard Security Systems															▲																					
Initiate LRIP of Laser IMS HH ED											▲																									

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

Date: January 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

PE0603287F Physical Security Equipment

PROJECT NUMBER AND NAME

5121 Physical Security Equipment

Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award IKMD SDD contract																																				
Continue TASS P3I efforts including the annunciator																																				
Continue Imagery improvements for the FPASS.																																				
Begin Smart Gate P3I																																				
Design MPP modular architecture																																				

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Conduct market survey for the TVSS	2Q			
(U) TVSS Prototype Design, Fabrication, & Integration	2Q			
(U) PAS Market Survey and Investigation	2Q			
(U) Continue TASS P3I efforts including the annunciator	1Q			
(U) Conduct a Leap Ahead assessment of current PSE technology		3Q		
(U) Follow-on Early User Appraisal for MDARS	3Q			
(U) Buy Equipment to build a Hybrid Image/Trace EDE system	4Q			
(U) C3 integration of Pierside and Shipboard Security Systems	3Q			

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PE NUMBER: 0603421F
 PE TITLE: GLOBAL POSITIONING SYSTEM

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	89.556	313.401	587.226	868.852	839.868	755.699	642.740	569.885	Continuing	TBD
4993 GPS III	89.556	313.401	587.226	868.852	839.868	755.699	642.740	569.885	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation Control Segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, modernized control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, 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 a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development to meet a Block approach (i.e., Block III A, Block III B, etc.).

In the FY07 PB, a restructure of the GPS III program provided funds for the GPS III SV and OCX. The FY08 PB completes the GPS III restructure. Funding for OCX supports an additional Prime Contractor to support OCX concept development, which includes, in addition to GPS III capabilities, the ability to control modernized signals.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	85.172	315.314	492.094	781.671
(U) Current PBR/President's Budget	89.556	313.401	587.226	868.852
(U) Total Adjustments	4.384	-1.917		
(U) Congressional Program Reductions		-1.194		
Congressional Rescissions		-0.723		
Congressional Increases				
Reprogrammings	6.999	0.004		
SBIR/STTR Transfer	-2.615			

(U) Significant Program Changes:

FY06: +\$6.999 for GPS III development efforts

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING SYSTEM

FY08: +\$95.132M for GPS III space vehicle (SV) requirements and the next generation control segment (OCX)

FY09: +\$87.181M for GPS III SV requirements and OCX

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM			PROJECT NUMBER AND TITLE 4993 GPS III			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4993 GPS III	89.556	313.401	587.226	868.852	839.868	755.699	642.740	569.885	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation Control Segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, modernized control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, 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 a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development to meet a Block approach (i.e., Block III A, Block III B, etc.).

In the FY07 PB, a restructure of the GPS III program provided funds for the GPS III SV and OCX. The FY08 PB completes the GPS III restructure. Funding for OCX supports an additional Prime Contractor to support OCX concept development, which includes, in addition to GPS III capabilities, the ability to control modernized signals.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue GPS III Space Vehicle (SV) Development	65.963	145.475	261.742	357.944
(U) Continue Next Generation Control Segment (OCX)	0.000	140.437	289.367	471.508
(U) Continue Program Support for GPS III SV/OCX, to include Systems Engineering and Integration	23.593	27.489	36.117	39.400
(U) Total Cost	89.556	313.401	587.226	868.852

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) PE 0305165F Navstar GPS (Space & Ground), R-191	174.530	176.721	120.931	92.626	57.192	35.939	36.221	36.959	Continuing	TBD
(U) Other APPN										

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT NUMBER AND TITLE 4993 GPS III
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	60.722	74.620	80.075	83.472	92.584	98.920	100.710	102.878	Continuing	TBD
(U) Missile Procurement (PE 0305165F, BA 5-Space and Other Support, P-22, 23)	336.845	84.585	210.261	127.392	169.626	501.608	726.313	790.504	Continuing	TBD
(U) Other Procurement (PE 0305165F, BP 83-Electronics and Telecommunications Equipment, WSC 836790, P-70 and WSC 836730; BP 86 - Spares & Repair Parts WSC 86190A, P-62)	13.370	12.218	11.680	25.456	10.947	18.468	28.008	20.756	Continuing	TBD

(U) D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to GPS III space vehicle (SV) development and the next generation control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach follows the "Back to Basics" space program acquisition philosophy which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach, consistent with the National Security Space (NSS) 03-01 Acquisition Policy, focuses on mission success and on time delivery. In parallel with these activities, the GPS III SV program and OCX will continue their Phase A and Program R&D Announcement (PRDA) risk reduction activities until contracts are awarded.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT NUMBER AND TITLE 4993 GPS III
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Phase A Continuation Contracts													0.000	
Phase A Contracts (Boeing)	CPFF	Huntington Beach, CA	18.691	12.922	Aug-06	0.000		0.000		0.000		0.000	31.613	24.257
Phase A Contracts (Lockheed Martin)	CPFF	King of Prussia, PA	18.668	24.088	Aug-06	0.000		0.000		0.000		0.000	42.756	24.234
Anticipated OCX Contract	CPFF	TBD	0.000	0.000		140.437	Aug-07	289.367	Nov-07	471.508	Nov-08	Continuing	TBD	
Anticipated Block IIIA Contract	CPAF	TBD	0.000	0.000		101.575	Jun-07	210.456	Nov-07	308.059		Continuing	TBD	
GPS III Development PRDAs	Various	Various	1.805	5.207	Jan-06	0.000		0.000		0.000		0.000	7.012	
Mod System Engineering & Technical Support	Various	Various	70.235	23.746	Jan-06	43.900	Nov-06	51.286	Nov-07	49.885	Nov-08	Continuing	TBD	
Subtotal Product Development			109.399	65.963		285.912		551.109		829.452		Continuing	TBD	48.491
Remarks:														
<u>(U) Support</u>														
Wing Support for GPS III / OCX	Various	Various	24.950	20.662	Jan-06	22.889	Nov-06	31.379	Nov-07	34.520	Nov-08	Continuing	TBD	
Other Agency Support for GPS III/ OCX	Various	Various	11.674	2.931	Jan-06	4.600	Nov-06	4.738	Nov-07	4.880	Nov-08	Continuing	TBD	
Subtotal Support			36.624	23.593		27.489		36.117		39.400		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			146.023	89.556		313.401		587.226		868.852		Continuing	TBD	48.491

Exhibit R-4, RDT&E Schedule Profile

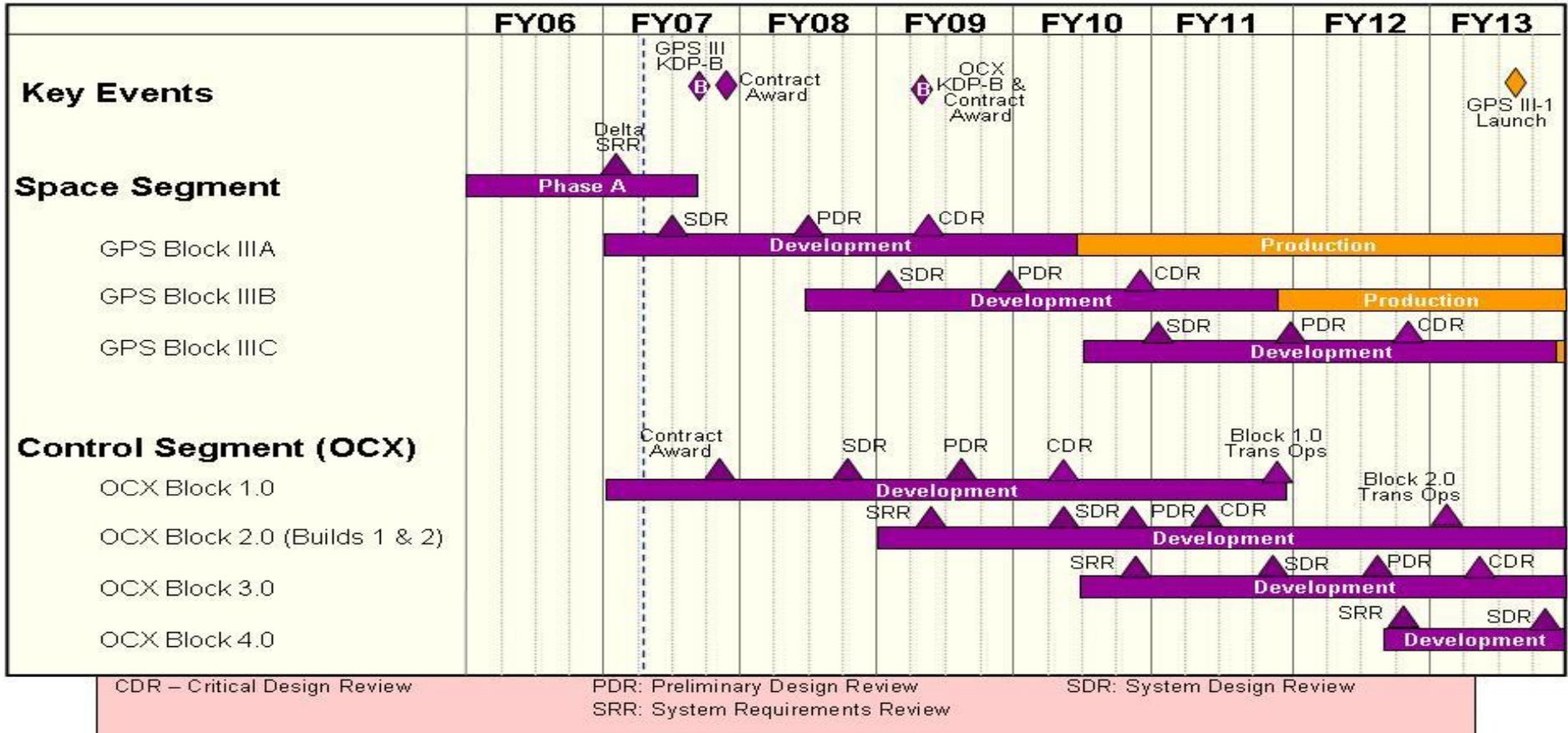
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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE
4993 GPS III



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT NUMBER AND TITLE 4993 GPS III
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block III Award Payload Risk Reduction	3Q			
(U) Block III Award Delta System Requirements Review (SRR) Contracts	4Q			
(U) Block III Award System Design Review (SDR)/KDP-B Contracts		1Q		
(U) Block III Delta SRR		1Q		
(U) Block III Request for Proposal (RFP)		2Q		
(U) Block III SDR		2Q		
(U) Block III KDP-B		3Q		
(U) Block III Contract Award		4Q		
(U) OCX Award 2 Contracts			1Q	
(U) OCX SRRs			1Q	
(U) Block IIIA PDR			2Q	
(U) Block IIIA KDP-C			3Q	
(U) OCX SDR & Prototype Demo			4Q	
(U) OCX KDP-B & Downselect				2Q
(U) Block IIIA Critical Design Review (CDR)				2Q
(U) Block IIIA Build Approval				3Q
(U) OCX PDR				3Q
(U) OCX KDP-C				4Q

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PE NUMBER: 0603430F

PE TITLE: Advanced (EHF MILSATCOM (Space))

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	639.179	630.868	603.179	363.582	110.727	26.333	0.000	0.000	0.000	5,536.830
4050 Advanced MILSATCOM	639.179	630.868	603.179	363.582	110.727	26.333	0.000	0.000	0.000	5,536.830

Beginning FY08, funds for qualification and productization of radiation-hardened components for USAF/DOD space programs have been transferred from PE 63430F, Advanced MILSATCOM (Space), to PE 63845F, Transformational SATCOM.

(U) A. Mission Description and Budget Item Justification

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04 and awarded on 12 Jan 06. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program to meet Full Operational Capability (FOC). The Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. The Department of Defense in its Quadrennial Defense Review (as part of the FY07 PB) and the FY08 PB reaffirms the decision to buy three AEHF satellites and use the first TSAT satellite to complete the eXtended Data Rate (XDR) constellation. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	655.779	633.258	429.268	227.743
(U) Current PBR/President's Budget	639.179	630.868	603.179	363.582
(U) Total Adjustments	-16.600	-2.390		
(U) Congressional Program Reductions	-0.020			
Congressional Rescissions		-2.390		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-16.580			

(U) Significant Program Changes:

Funded program disconnects to keep first launch April 2008. 1) Variance at Completion (FY08/09 \$177M): funds Assembly Integration and Test to maintain first launch;

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603430F Advanced (EHF MILSATCOM (Space))

driven by technical issues (e.g., qualification re-work on Antennas and Solar Arrays). 2) FAB-T work-arounds (FY08/09 \$130M): FAB-T program replan delayed delivery of terminals required to support first AEHF launch. Mitigation plan requires alternate payload C2 terminal and support. 3) Milstar Backwards Compatibility (FY08 \$28M): funds incorporation of changes to the 2001 Milstar baseline (i.e., detailed analysis of ~2700 changes to Milstar baseline identified/costed items that must be fixed in order for AEHF to be backwards compatible with Milstar)
FY08-09 \$44M transferred to TSAT PE 63845F for radiation-hardened parts.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))			PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4050 Advanced MILSATCOM	639.179	630.868	603.179	363.582	110.727	26.333	0.000	0.000	0.000	5,536.830
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04 and awarded on 12 Jan 06. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program to meet Full Operational Capability (FOC). The Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. The Department of Defense in its Quadrennial Defense Review (as part of the FY07 PB) and the FY08 PB reaffirms the decision to buy three AEHF satellites and use the first TSAT satellite to complete the eXtended Data Rate (XDR) constellation. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue SDD of the AEHF satellites and MCS, continue build of Satellite 1 and 2 flight hardware, and intermediate software increments for bus, payload and MCS	544.954	533.840	544.758	317.328
(U) Continue satellite cryptographic development	28.632	27.682	16.250	7.304
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	20.000	21.000		
(U) Government Furnished Property (e.g., Launch Prep, Radiation Hardening Testing, Communication Circuit)	2.848	4.567	3.317	2.019
(U) Continue Technical Analysis	21.590	22.774	21.684	22.551
(U) Continue Program Office and related support activities, to include Systems Engineering and Integration	21.155	21.005	17.170	14.380
(U) Total Cost	639.179	630.868	603.179	363.582

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603430F Advanced (EHF
MILSATCOM (Space))

PROJECT NUMBER AND TITLE

4050 Advanced MILSATCOM

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Proc:										
(U) MPAF, PE 0303604F, Advanced EHF, P-17/18	521.888	0.000	0.744	16.787	40.078	22.444	12.444	8.451	0.000	700.021
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-52	19.216	6.634	19.213	12.606	13.402	10.024	9.168	6.629	Continuing	TBD
(U) OPAF, PE 0303600F Wideband Gapfiller System, Project #836780, CCS-C	0.285	0.000	0.535	0.000	0.000	0.000	0.000	0.000	0.000	17.664
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-175	254.052	269.926	388.491	372.443	357.847	244.607	193.949	192.759	Continuing	TBD

(U) **D. Acquisition Strategy**

The Advanced MILSATCOM, also known as Advanced EHF (AEHF), program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of the satellite payload). This team will perform the Advanced Component Development and Prototypes (ACD&P) and SDD of three satellites and associated mission command and control ground capabilities under Cost Plus Award Fee line items on the contract. AEHF will incorporate lessons learned and improvements from Milstar and commercial SATCOM practices into the next generation EHF secure, anti-jam military communications satellite system.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2007		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))					PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
NSA	MIPR	Camden, NJ	175.670	28.632	Feb-06	27.682	Dec-06	16.250	Dec-07	7.304	Dec-08	0.000	255.538	
JTEO	PR	San Diego, CA	15.491									0.000	15.491	
MIT/LL	MIPR	Hanscom AFB, MA	4.988									0.000	4.988	
Hughes	CPFF	El Segundo, CA	67.175									0.000	67.175	
TRW	CPFF	Redondo Beach, CA	62.083									0.000	62.083	
Various	Various	Various	66.659									0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011									0.000	225.011	
Hughes	FFP	El Segundo, CA										0.000	0.000	
SDD Contractor (Lockheed Martin)	CPAF		2,331.795	544.954	Nov-05	533.840	Dec-06	544.758	Dec-07	317.328	Dec-08	Continuing	TBD	
Radiation Hardened parts developers	Various		59.000	20.000		21.000							100.000	
Subtotal Product Development			3,007.872	593.586		582.522		561.008		324.632		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Various	Various		123.696									Continuing	TBD	
Technical Support				21.590	Oct-05	22.774	Dec-06	21.684	Dec-07	22.551	Dec-08	Continuing	TBD	
GFP				2.848		4.567		3.317		2.019		Continuing	TBD	
Program Office Support			31.394	21.155		21.005		17.170		14.380		Continuing	TBD	
Subtotal Support			155.090	45.593		48.346		42.171		38.950		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			3,162.962	639.179		630.868		603.179		363.582		Continuing	TBD	0.000

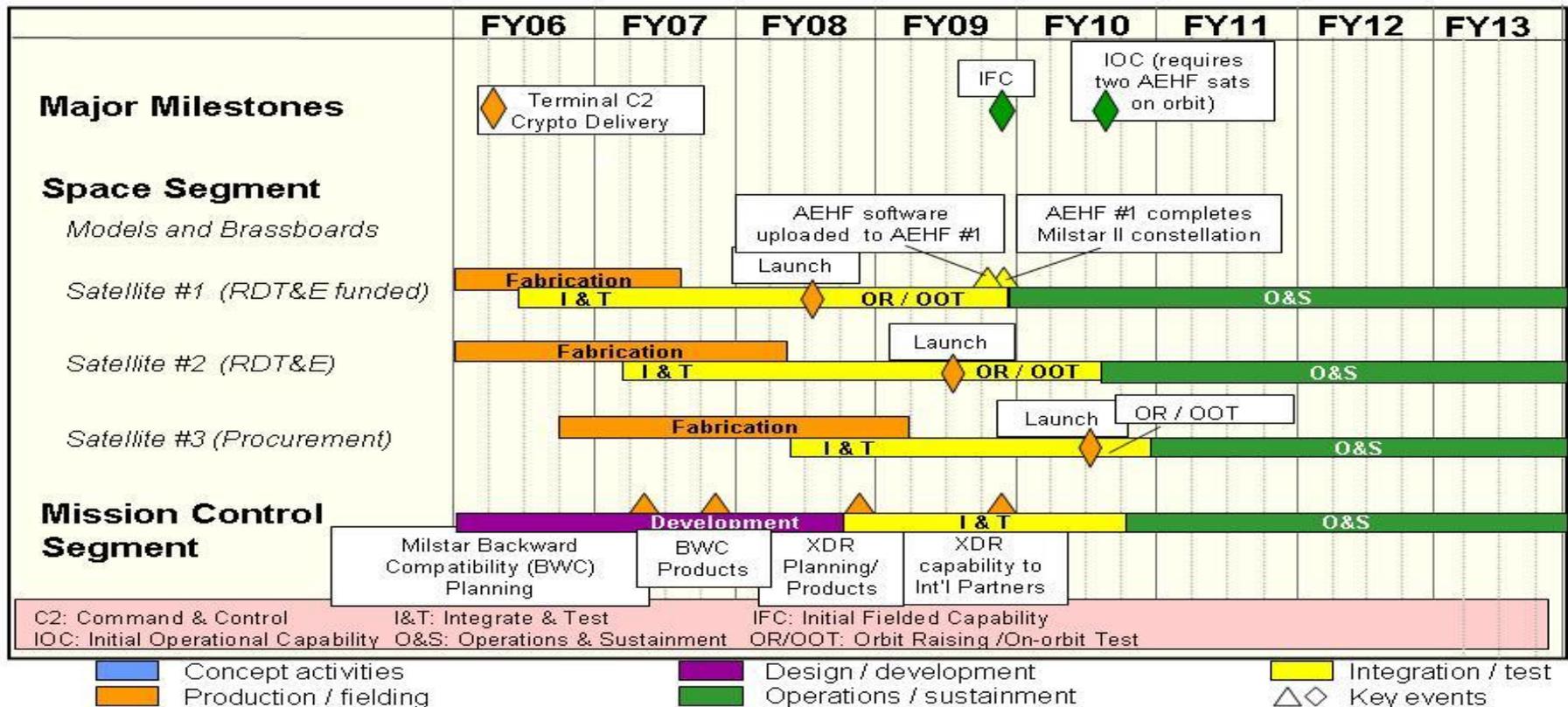
Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603430F Advanced (EHF)
MILSATCOM (Space)

PROJECT NUMBER AND TITLE
4050 Advanced MILSATCOM



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Field Ground Segment Software Increment 3 (World-wide Planning for Resource Allocation of 5 Milstar payloads and 1st AEHF Comm Payload)		2Q		
(U) Payload delivery for integration onto Space Vehicle		2Q		
(U) Field Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5 Milstar satellites and 1 AEHF satellite)		4Q		
(U) Launch first satellite			3Q	
(U) Field Ground Segment Software Increment 5 (XDR Planning/Products)			4Q	
(U) Launch second satellite				3Q
(U) Field Ground Segment Software Increment 6 (XDR capability to International Partners)				4Q
(U) AEHF Software uploaded to AEHF #1				4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.028	35.470	178.754	244.127	267.385	178.581	116.001	65.951	Continuing	TBD
4052 Polar Satellite Communications	6.028	35.470	178.754	244.127	267.385	178.581	116.001	65.951	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Project 4052, Polar Satellite Communications, has previously funded (through FY05) three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region. Two packages are on-orbit, and the final LDR package will be available in FY07. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

FY06 initiated requirements analyses and design trade studies for the next generation capability, known as the Enhanced Polar System (EPS), leading to a Defense Space Acquisition Board in May 2007. The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The Air Force has awarded Program Research and Development Announcement efforts to Boeing Space Systems and Northrop Grumman Space Technologies to assist in payload system definition and provide supporting data for the Department of Defense acquisition decision process. The revised Capability Development Document, Joint Requirements Oversight Council approved Sep 2006, is based on a two-package, hosted XDR program with operational availability in FY14 and FY16.

FY08 will complete the EPS package development and initiate the fabrication of the first hosted EPS package (EPS #1) and will begin concept definition for the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2.154	35.685	121.481	129.581
(U) Current PBR/President's Budget	6.028	35.470	178.754	244.127
(U) Total Adjustments	3.874	-0.215		
(U) Congressional Program Reductions		-0.080		
Congressional Rescissions		-0.135		
Congressional Increases				
Reprogrammings	4.000			
SBIR/STTR Transfer	-0.126			

(U) **Significant Program Changes:**

FY06 \$4M reprogramming funds two Program Research and Development Announcement (PRDA) study contracts for the EPS payload package. FY08-09 increase required to fully fund the EPS payload package development and integration into host spacecraft.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)				0603432F Polar MILSATCOM (Space)				4052 Polar Satellite Communications		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4052 Polar Satellite Communications	6.028	35.470	178.754	244.127	267.385	178.581	116.001	65.951	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Project 4052, Polar Satellite Communications, has previously funded (through FY05) three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region. Two packages are on-orbit, and the final LDR package will be available in FY07. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

FY06 initiated requirements analyses and design trade studies for the next generation capability, known as the Enhanced Polar System (EPS), leading to a Defense Space Acquisition Board in May 2007. The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The Air Force has awarded Program Research and Development Announcement efforts to Boeing Space Systems and Northrop Grumman Space Technologies to assist in payload system definition and provide supporting data for the Department of Defense acquisition decision process. The revised Capability Development Document, Joint Requirements Oversight Council approved Sep 2006, is based on a two-package, hosted XDR program with operational availability in FY14 and FY16.

FY08 will complete the EPS package development and initiate the fabrication of the first hosted EPS package (EPS #1) and will begin concept definition for the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Conduct requirements analyses and design trade studies for Enhanced Polar packages	4.412	19.138	3.500	1.000
(U) Conduct design and development of Enhanced Polar packages		10.934	169.443	236.891
(U) Provide Program Office Support and other related support activities, including Systems Engineering and Integration	1.616	3.165	3.489	3.821
(U) Provide Technical Analysis		2.233	2.322	2.415
(U) Total Cost	6.028	35.470	178.754	244.127

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None.

The Navy has used its own PE(s) to modify control systems and terminals to work with the Interim Polar System.

(U) **D. Acquisition Strategy**

Previously, the Air Force sent funds directly to the classified host program office to modify the host satellite system contract to include three Interim Polar (Low Data Rate) packages. The host program office had total acquisition responsibility for Interim Polar.

Under the direction of the Program Executive Officer for Space, the Enhanced Polar System (EPS) Program Office is developing the EPS Acquisition Strategy through studies and activities leading to a May 2007 Defense Space Acquisition Board for Key Decision Point A entry approval. After the completion of a successful Acquisition Strategy review and a signed Acquisition Decision Memorandum, the classified host program office will award a contract to the host prime contractor for the design, procurement, and integration of two EPS packages.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)	PROJECT NUMBER AND TITLE 4052 Polar Satellite Communications
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>			299.594										299.594	
Classified	Classified													
EPS Requirement Analyses and Design Trade Studies	Various	Various		4.412	Apr-06	19.138	Dec-06	3.500	Dec-07	1.000	Dec-08		28.050	
EPS Design/Development Contract	TBD	TBD				10.934	Jul-07	169.443	Dec-07	236.891	Dec-08	Continuing	TBD	
Subtotal Product Development			299.594	4.412		30.072		172.943		237.891		Continuing	TBD	0.000
Remarks:														
<u>(U) Support</u>														
Technical Support	Various			0.000		2.233	Dec-06	2.322	Dec-07	2.415	Dec-08	Continuing	TBD	
Program Office Support	Various			1.616	Feb-06	3.165	Dec-06	3.489	Dec-07	3.821	Dec-08	Continuing	TBD	
Subtotal Support			0.000	1.616		5.398		5.811		6.236		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
N/A													0.000	
N/A													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			299.594	6.028		35.470		178.754		244.127		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

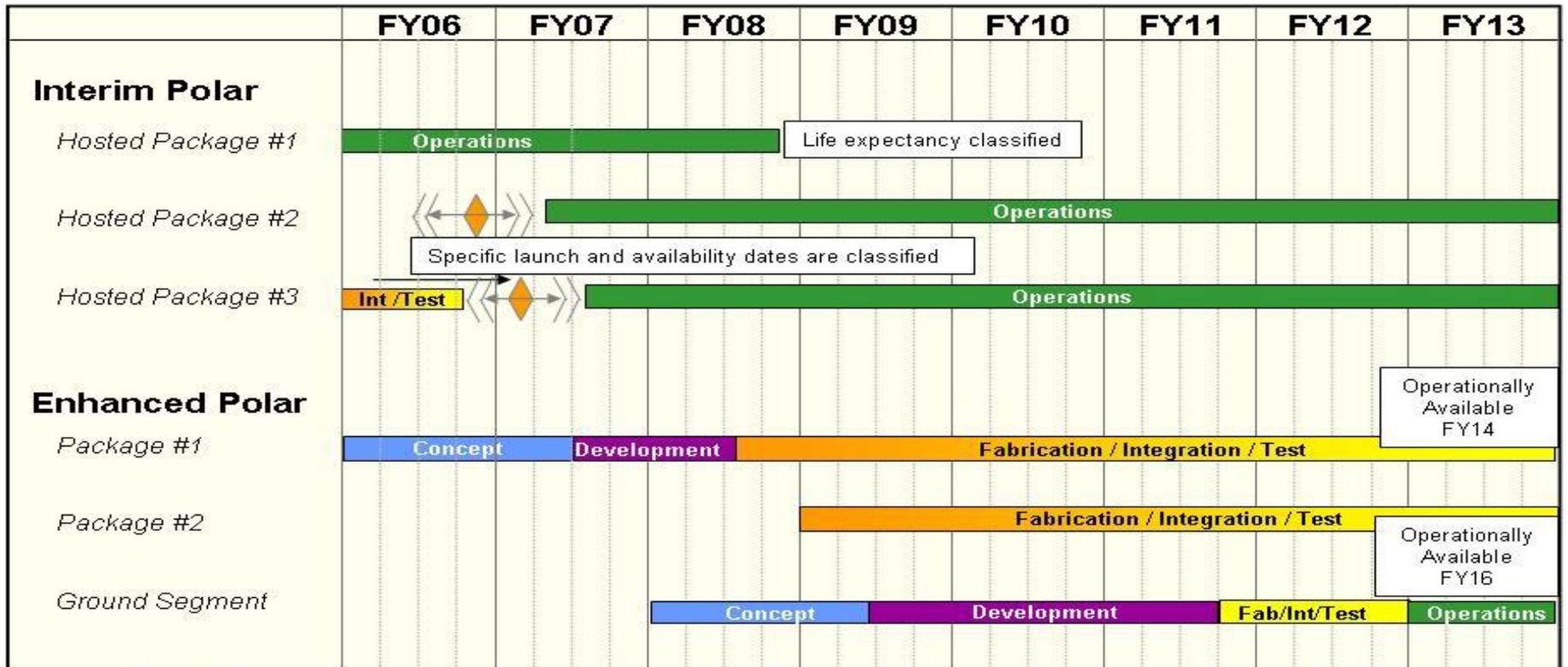
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications



■ Concept activities
 ■ Design / development
 ■ Integration / test
■ Production / fielding
 ■ Operations / sustainment
 △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)	PROJECT NUMBER AND TITLE 4052 Polar Satellite Communications
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Begin requirements analysis for Enhanced Polar packages	3Q			
(U) Begin design and development of Enhanced Polar packages		3Q		
(U) Begin ground segment concept studies			1Q	
(U) Begin fabrication of first Enhanced Polar package			3Q	
(U) Begin fabrication of second Enhanced Polar package				1Q
(U) Begin design and development of the ground segment				2Q

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PE NUMBER: 0603438F
 PE TITLE: Space Control Technology

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.598	30.107	37.604	52.821	54.389	55.518	56.585	57.737	Continuing	TBD
2611 Technology Insertion Planning and Analysis	10.144	24.290	25.541	30.892	31.956	32.726	33.355	34.035	Continuing	TBD
A007 Space Range	4.454	5.817	12.063	21.929	22.433	22.792	23.230	23.702	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

Also supported is the development of the technology and infrastructure for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems.

These two projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	15.606	27.076	37.252	52.179
(U) Current PBR/President's Budget	14.598	30.107	37.604	52.821
(U) Total Adjustments	-1.008	3.031		
(U) Congressional Program Reductions		-0.054		
Congressional Rescissions		-0.115		
Congressional Increases		3.200		
Reprogrammings	-0.601			
SBIR/STTR Transfer	-0.407			
(U) <u>Significant Program Changes:</u>				
FY 2006: Reprogram for higher Air Force priorities				
FY 2007: Congressional add for Multi-Mission Deployable Optical Sensor				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603438F Space Control Technology				PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2611 Technology Insertion Planning and Analysis	10.144	24.290	25.541	30.892	31.956	32.726	33.355	34.035	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control technologies.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies	3.690	7.423	2.452	2.478
(U) Defensive Counterspace efforts. Continue vulnerability assessments, development and demonstration of advanced techniques and technologies for space control prevention systems	2.903	4.498	9.230	13.727
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, critical signal processing technology and advanced counter surveillance, reconnaissance techniques.	1.927	2.557	2.367	2.414
(U) Continue to conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.		7.585	8.455	8.590
(U) Program Office and Other Technical Support	1.624	2.227	3.037	3.683
(U) Total Cost	10.144	24.290	25.541	30.892

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
SSA Development	Various	Various	9.323	3.690	Nov-05	7.423	Nov-06	2.452	Nov-07	2.478	Nov-08	Continuing	TBD	TBD
DCS Activities	Various	Various	22.223	2.903	Nov-05	4.498	Nov-06	9.230	Nov-07	13.727	Nov-08	Continuing	TBD	TBD
OCS Development	Various	Various	40.593	1.927	Nov-05	2.557	Nov-06	2.367	Nov-07	2.414	Nov-08	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	0.000	0.000		7.585	Nov-06	8.455	Nov-07	8.590	Nov-08	Continuing	TBD	TBD
Subtotal Product Development			72.139	8.520		22.063		22.504		27.209		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	6.328	1.624	Nov-05	2.227	Nov-06	3.037	Nov-07	3.683	Nov-08	Continuing	TBD	TBD
Subtotal Support			6.328	1.624		2.227		3.037		3.683		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
None														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U)</u>														
Subtotal			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			78.467	10.144		24.290		25.541		30.892		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

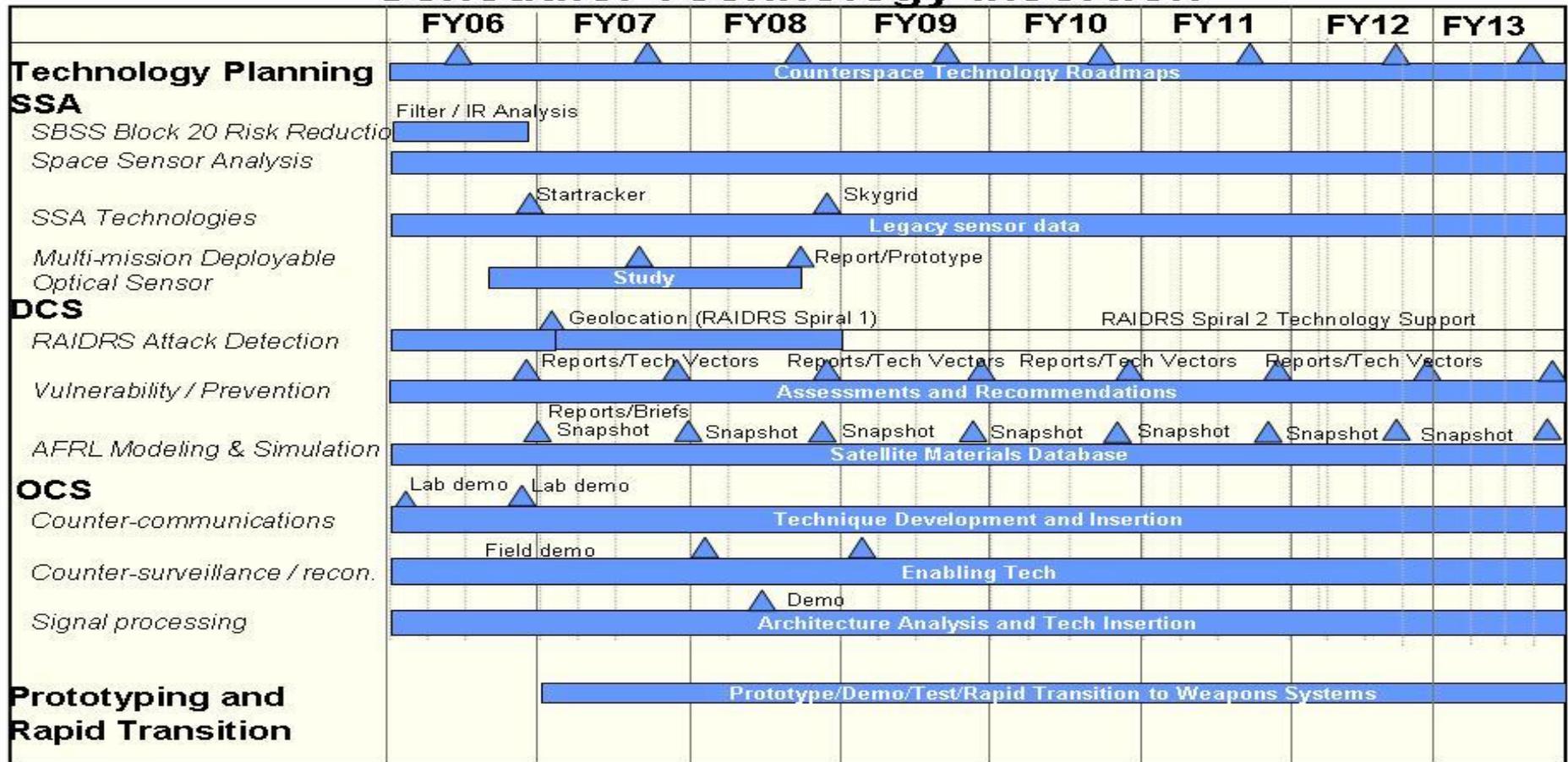
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603438F Space Control Technology

PROJECT NUMBER AND TITLE
2611 Technology Insertion Planning and Analysis

SCT

Schedule: Technology Insertion



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Continue Technology Roadmaps & Planning	1-4Q	1-4Q	1-4Q	1-4Q
(U) SSA- Continue SBSS Risk Reduction	1-4Q			
(U) SSA- Continue sensor development	1-4Q	1-4Q	1-4Q	1-4Q
(U) SSA - Startracker Report	4Q			
(U) SSA - Skygrid Report			4Q	
(U) SSA - Multi-mission Deployable Optical Sensor Prototype			3Q	
(U) DCS - Continue RAIDRS/DCS technology development and evaluation	1-4Q	1-4Q	1-4Q	1-4Q
(U) DCS - Continue Vulnerability and threat assessment report	4Q	4Q	4Q	4Q
(U) DCS - Continue AFRL Data Modelling and Simulation Report	4Q	4Q	4Q	4Q
(U) OCS- Counter Communications technique development and demonstration -- lab demo	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Counter Surveillance/Reconnaissance technology development	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Signal Processing development - demo		2Q		
(U) Prototyping and Rapid Transition to Weapons Systems		1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603438F Space Control Technology				PROJECT NUMBER AND TITLE A007 Space Range		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A007 Space Range	4.454	5.817	12.063	21.929	22.433	22.792	23.230	23.702	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program supports the development of space test and training range capabilities required to support developmental and operational test, training, exercises and tactics development for Space Control systems and related architecture.

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Test & Training Range technologies & infrastructure.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Range Control - Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities 3.977	0.861	1.413	4.040	7.677
(U) Targets - Development and acquisition of terrestrial-based and space-based target environments	2.500	2.613	4.011	8.585
(U) Threats - Development and acquisition of actual and representative threat systems and range protection	0.000	0.000	0.000	0.282
(U) Program Office and Other Technical Support	1.093	1.791	4.012	5.385
(U) Total Cost	4.454	5.817	12.063	21.929

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

	<u>FY 2006</u> Actual	<u>FY 2007</u> Estimate	<u>FY 2008</u> Estimate	<u>FY 2009</u> Estimate	<u>FY 2010</u> Estimate	<u>FY 2011</u> Estimate	<u>FY 2012</u> Estimate	<u>FY 2013</u> Estimate	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) None										

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2007

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)										0603438F Space Control Technology		A007 Space Range			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<u>(U) Product Development</u>															
Leased Bandwidth	CPAF	G2 Satellite Systems, Long Beach, CA	2.860	2.500	Jan-06	2.613	Jan-07	4.011	Jan-08	4.200	Jan-09	0.000	16.184		
MCATS	CPAF	TMC, Las Cruces, NM	2.050	0.861	Jan-06	1.113	Jan-07	3.540	Jan-08	4.531	Jan-09	Continuing	TBD	TBD	
Space Range Operations Complex (SROC)	TBD	TBD				0.300	Jan-07	0.500	Jan-08	3.000	Jan-09	Continuing	TBD		
Ground Based Transponder System Threats	TBD	TBD	4.519						Jan-08	4.531	Jan-09	Continuing	TBD		
System Integration (MAPIC)	CPAF	Northrup Grumman, El Segundo, CA	0.742							0.282	Jan-09	Continuing	TBD		
Subtotal Product Development			10.171	3.361		4.026		8.051		16.544		Continuing	TBD	TBD	
Remarks:															
<u>(U) Support</u>															
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	1.168	1.093	Dec-05	1.791	Dec-06	4.012	Dec-07	5.385	Dec-08	Continuing	TBD	TBD	
Subtotal Support			1.168	1.093		1.791		4.012		5.385		Continuing	TBD	TBD	
Remarks:															
<u>(U) Test & Evaluation</u>															
None													0.000		
None													0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
<u>(U) Management</u>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
<u>(U) Total Cost</u>			11.339	4.454		5.817		12.063		21.929		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

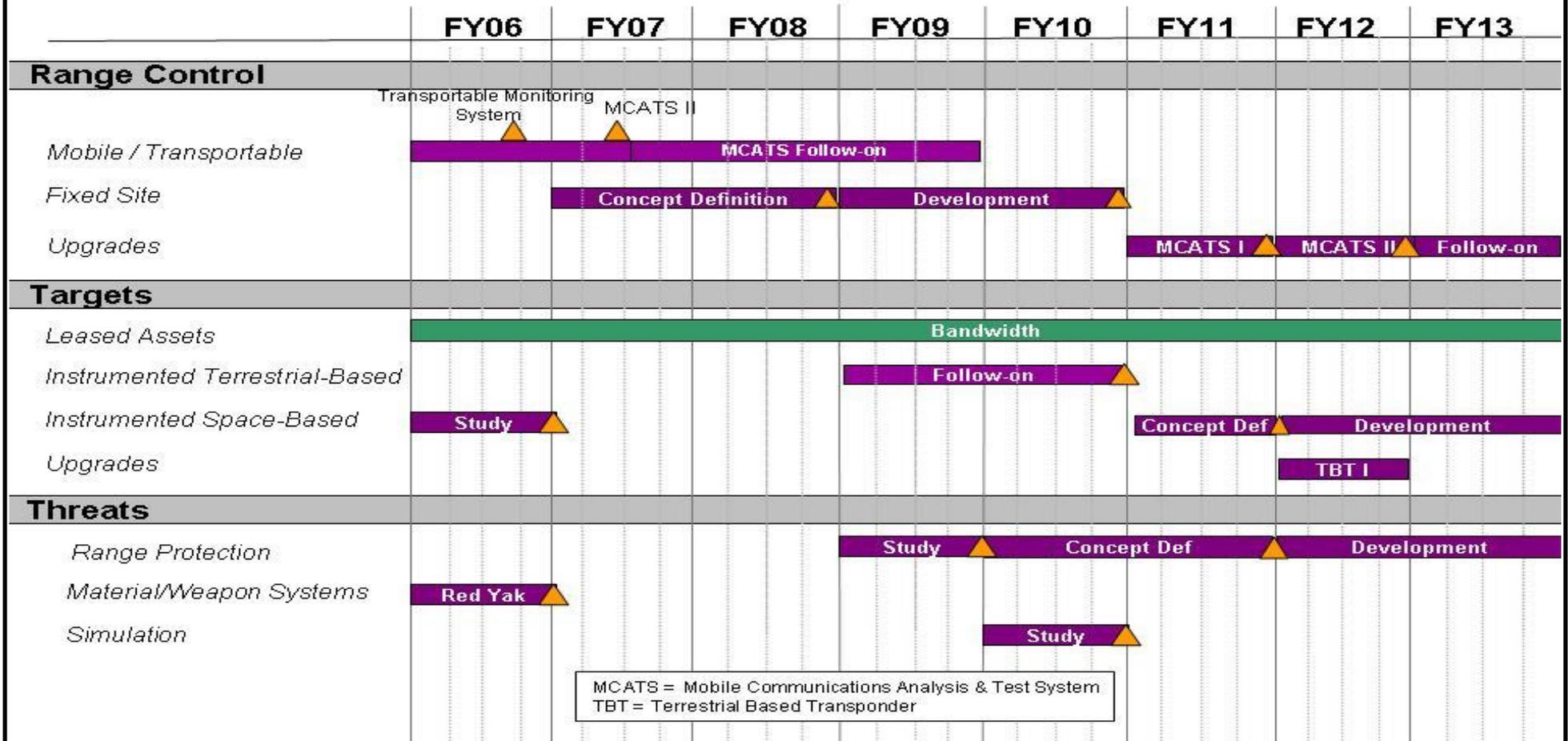
DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603438F Space Control Technology

PROJECT NUMBER AND TITLE
A007 Space Range

SCT Schedule: STTR



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE A007 Space Range
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) RANGE CONTROL				
(U) Develop Mobile /Transportable Systems	1-4Q	1-4Q	1-4Q	1-4Q
(U) Deliver Transportable Monitoring System	3Q			
(U) Deliver MCATS		2Q		4Q
(U) Develop fixed-site capability		1-4Q	1-4Q	1-4Q
(U) Deliver Space Range Operations Center concept			4Q	
(U) Develop Space Test and Training Range Architecture	1-4Q	1-4Q		
(U) TARGETS				
(U) Leased Assets	1-4Q	1-4Q	1-4Q	1-4Q
(U) Develop terrestrial based capabilities	1-4Q	1-4Q		
(U) THREATS				
(U) Develop range protection capabilities				1-4Q
(U) Deliver range protection study				4Q
(U) Develop material/weapon systems	1-4Q			

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PE NUMBER: 0603742F

PE TITLE: Combat Identification Technology

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	49.569	26.407	26.054	26.046	24.602	24.471	24.554	24.977	Continuing	TBD
2597 Noncooperative Identification Subsystems	26.649	17.501	20.275	20.567	20.939	21.121	21.515	21.945	Continuing	TBD
2599 Cooperative Identification Techniques	22.920	8.906	5.779	5.479	3.663	3.350	3.039	3.032	0.000	56.165

(U) A. Mission Description and Budget Item Justification

U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft, battlefield equipment and personnel in order to increase combat effectiveness and prevent fratricide. Numerous Joint needs statements, operational documents, lessons learned, and NATO requirements documents also state the need for positive combat identification (CID). High confidence CID enables combatant commanders to effectively command and control their forces in all weather and day/night.

The Combat Identification (CID) Technology program analyzes, develops, and demonstrates promising target identification technologies in order to transition them into Systems Development/Demonstration (SD/D) programs. These technologies include both cooperative and non-cooperative techniques that will improve our ability to positively identify ground and air targets in both Air-to-Surface and Air-to-Air engagements. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. These technologies include: (1) Laser Vision, an electro-optical imaging system that significantly increases ID ranges and includes the Laser Target Imaging Program (LTIP), Advanced (3D) Laser Sensing (ALS)/ATR Combat ID Program; (2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; (3) the High Range Resolution (HRR) algorithm development program that uses radar signals processing to increase ID range and confidence; (4) The Fusion Vision Program, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) The Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Within these programs the goal is to bring algorithm maturation to the point to allow for data fusion sufficient to support Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR).

Current and future space-based systems can facilitate these processes leading ultimately to Automatic Target Recognition (ATR) fusion and net-centric warfare. Fusion Vision focuses on combining the identifying features of several sensors that sample distinct signatures of air and surface targets, to better accomplish the CID mission. ATR focuses on development, demonstration, and integration of technologies drawing upon all available information data elements or platforms e.g. (national, tactical, fighter, bomber, ISR). The desired outcome would provide the operational-level decision maker a single, fused display of all threats or assets. These technologies must provide near-real time information, to include Special Compartmented Information (SCI) and classified data information, to the operational

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and tactical level decision makers for both ground and airborne systems. Efforts, such as Blue Force Tracking (BFT) and Joint Blue Force Situational Awareness (JBFSAs), focus on development and approval of new technologies so all this information can be shared across security levels, services and with foreign participants.

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and surface-to-air setting, this program element funds the growth to Mark XIIA, the Next Generation Identification Friend or Foe (IFF) standard for NATO and Joint Services, through the development of Mode 5 capability within Mark XII equipment. IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. Mode 5 implementation within the Air Force began with the fielding of new digital Mark XII hardware capable of Mode S for Air Traffic Control (ATC), and upgradeable to Mode 5 with new cryptologic gear, processor cards, and software. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	51.146	26.517	20.643	20.882
(U) Current PBR/President's Budget	49.569	26.407	26.054	26.046
(U) Total Adjustments	-1.577	-0.110		
(U) Congressional Program Reductions		-0.010		
Congressional Rescissions	-0.002	-0.100		
Congressional Increases	0.000			
Reprogrammings	-0.195			
SBIR/STTR Transfer	-1.380			

(U) **Significant Program Changes:**

Mode 5 program increases in FY08, FY09, and FY10 fund Air Force synchronization and systems engineering effort as the AF integrates Mode 5 capability into various platforms.

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603742F Combat Identification Technology				PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2597 Noncooperative Identification Subsystems	26.649	17.501	20.275	20.567	20.939	21.121	21.515	21.945	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. These technologies include: (1) Laser Vision, an electro-optical imaging system that significantly increases ID ranges and includes the Laser Target Imaging Program (LTIP), Advanced (3D) Laser Sensing (ALS)/ATR Combat ID Program; (2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; (3) the High Range Resolution (HRR) algorithm development program that uses radar signals processing to increase ID range and confidence; (4) The Fusion Vision Program, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) The Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Within these programs the goal is to bring algorithm maturation to the point to allow for data fusion sufficient to support Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR).

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). It includes advanced technology demonstrations that help transition technologies from laboratory to operational use.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Transition / convert the High Range Resolution (HRR) synthetic target database developed in conjunction with National Air and Space Intelligence Center (NASIC) to the Target Signature Data Base for use on multiple platforms. Program awaiting target database development.	5.581	0.550	0.000	0.000
(U) Establish and develop the Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Incorporate the analysis and database developed in prior years by the HRR program.		3.094	3.257	0.359
(U) Transition verified air-to-ground and air-to-air identification capabilities for reduced battle space fratricide and enhanced mission performance and develop/demonstrate promising future capabilities. Program candidates include the integration of Laser Vision/LTIP into designated platforms, to include Advanced LTIP projects, development of 1st generation Electro Optical/Automatic Target Cueing/Automatic Target Recognition (EO/ATC/ATR) Laser Vision capability, development/demonstration of advanced 3D Laser Sensing, and insertion of mature/hardened camera technologies into alternate platforms.	18.422	11.125	13.432	15.160

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Establish and develop Fusion Vision program, a fusion of sensor data from multiple sources to create a high confidence in CID of surface and air targets.		0.000	0.875	2.000
(U) Fund Air Traffic Control Radar Beacon Systems Identification Friend or Foe Mark XIIA System (AIMS) Program Office support of the Mark XIIA system to include current and next generation IFF equipment integration, including Mode 5 documentation and individual IFF system/box certification.	0.852	0.863	1.051	1.099
(U) Continue funding Combat Identification technology flight and other engineering support necessary for management of CID efforts.	1.371	1.837	1.298	1.338
(U) Conduct CID-related studies/demos and conferences. Execute Mode 5 IFF flight test preparations and demonstration to assess system operational capacity, interoperability, and equipment integration. Studies and demonstrations will include those directed by Joint Staff and OSD to research and evaluate a family of CID systems, linkage between airborne and ground-based non-cooperative CID technologies/systems, and quantify the relationship between CID and improved combat effectiveness.	0.423	0.032	0.362	0.611
(U) Total Cost	26.649	17.501	20.275	20.567

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) Not Applicable										

(U) D. Acquisition Strategy

The acquisition strategy for CID programs is to investigate, develop, and transition CID capabilities via contract vehicles that provide the greatest benefit to the end-user in the areas of performance, value, and transition timeline.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Raytheon Company	C/CPFF	El Segundo, CA	18.007	3.031	Feb-06	0.210	Feb-07					0.000	21.248	21.248
Northrop Grumman Corporation	C/CPFF	Linthicum Heights, MD	8.010	9.208	Jan-06	7.351	Jan-07	8.152	Jan-08	6.868	Jan-09	Continuing	TBD	TBD
Lockheed Martin	OTA	Orlando FL	15.645	0.146	Dec-05							0.000	15.791	15.791
Northrop Grumman Corporation (JSTARs support)	C/CPFF	Melbourne, FL	0.000	0.758	Aug-06							0.000	0.758	0.760
Science Applications Internation Corporation	SS/CPFF	Dayton, OH	18.185	4.002	Feb-06	2.076	Nov-06	1.159	Nov-07	0.678	Nov-08	Continuing	TBD	TBD
AIMS Program Office	MIPR/PO	Warner Robins, GA	3.224	0.852	Oct-05	0.863	Oct-06	1.051	Oct-07	1.099	Oct-08	Continuing	TBD	TBD
General Dynamics (formerly Veridian)	C/CPFF	Buffalo, NY	1.130	1.345	Mar-06	0.250	Nov-06	0.257	Nov-07	0.265	Nov-08	Continuing	TBD	TBD
Sverdrup Technology	C/CPFF	Ft Walton Beach, FL	1.065	1.307	Feb-06	0.545	Nov-06	0.524	Nov-07	0.540	Nov-08	Continuing	TBD	TBD
Wyle Laboratories	C/PO	Dayton, OH		0.200	Feb-06							0.000	0.200	0.200
CISC Support	C/LH	Fairfax, VA		0.085	Feb-06			0.050	Jan-08	0.100	Jan-09	Continuing	TBD	TBD
DOE - Sandia National Labs	MIPR	Albuquerque, NM	0.390	0.700	Feb-06								1.090	1.090
AFIT	PO	WPAFB, OH	0.027	0.023	Jan-06	0.032	Nov-06	0.033	Nov-07	0.035	Nov-08	Continuing	TBD	TBD
AFRL/SNZ (Fusion Vision)	AF616	WPAFB, OH						0.875	Nov-07	2.000	Nov-08	Continuing	TBD	TBD
AFRL/SNJ (3D Laser)	AF616	WPAFB, OH				0.424	Jan-07	1.500	Dec-07	4.400	Dec-08	Continuing	TBD	TBD
Multi-Sensor DB Analysis	AF616	WPAFB, OH				2.242	Jan-07	2.687	Dec-07	0.359	Dec-08	Continuing	TBD	TBD
Combat ID Analysis	AF616	WPAFB, OH						0.279	Dec-07	0.476	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			65.683	21.657		13.993		16.567		16.820		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
SPO support	Various	Hanscom	8.612	1.926	Oct-05	2.197	Oct-06	2.111	Oct-07	2.174	Oct-08	Continuing	TBD	TBD
Air Force Research Laboratory	MIPR	WPAFB, OH	3.048	0.250	Oct-05	0.275	Oct-06	0.283	Oct-07	0.292	Oct-08	Continuing	TBD	TBD
MITRE	Various	Hanscom AFB, MA	0.637	0.277	Nov-05	0.283	Nov-06	0.291	Nov-07	0.300	Nov-08	Continuing	TBD	TBD
Subtotal Support			12.297	2.453		2.755		2.685		2.766		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
46th Test Wing	MIPR/PO	Eglin AFB, FL	4.689	1.001	Jan-06	0.062	Apr-07	0.500	Dec-07	0.515	Dec-08	Continuing	TBD	TBD
412th Test Wing	MIPR/PO	Edwards AFB, CA	0.616	0.361	Dec-05	0.440	Nov-06	0.453	Nov-07	0.466	Nov-08	Continuing	TBD	TBD
Navy Systems Mgmt Activity	MIPR	Arlington,		0.161	Mar-06							0.000	0.161	0.161

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Exhibit R-3 (PE 0603742F)

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Exhibit R-3, RDT&E Project Cost Analysis								DATE February 2007			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603742F Combat Identification Technology				PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems			
Aberdeen Proving Ground	MIPR	VA Aberdeen Proving Ground, MD	0.075	Feb-06	0.025	Apr-07		0.000	0.100	0.100	
Ft AP Hill	MIPR	Ft. Belvoir, VA	0.025	Aug-06				0.000	0.025	0.025	
DIA & TSMO	MIPR	Redstone Arsenal, AL	0.058	Nov-06				0.000	0.058	0.058	
Have Centaur	PO	Las Vegas, NV	0.110	Feb-06				0.000	0.110	0.110	
Have Centaur	PO	WSMR, NM	0.055	Apr-06				0.000	0.055	0.055	
Have Centaur	PO	Eglin AFB, FL	0.114	May-06				0.000	0.114	0.114	
Naval Air Force	MIPR	San Diego, CA	0.031	Sep-06				0.000	0.031	0.031	
HRR Test Activities	MIPR/PO	Various			0.190	Feb-07	0.070	Jan-07	0.000	0.260	0.260
JSTARS Test Facility	Suballotment	Patrick AFB, FL	0.548	Aug-06				0.000	0.548	0.548	
AFRL - Northrop Grumman	C/CPFF	McLean, VA	5.305	2.539	0.036	Nov-06	0.753	1.023	0.981	0.036	0.036
Subtotal Test & Evaluation									Continuing	TBD	TBD
Remarks:											
(U) <u>Management</u>										0.000	
Subtotal Management			0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Remarks:											
(U) Total Cost			83.285	26.649	17.501		20.275	20.567	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

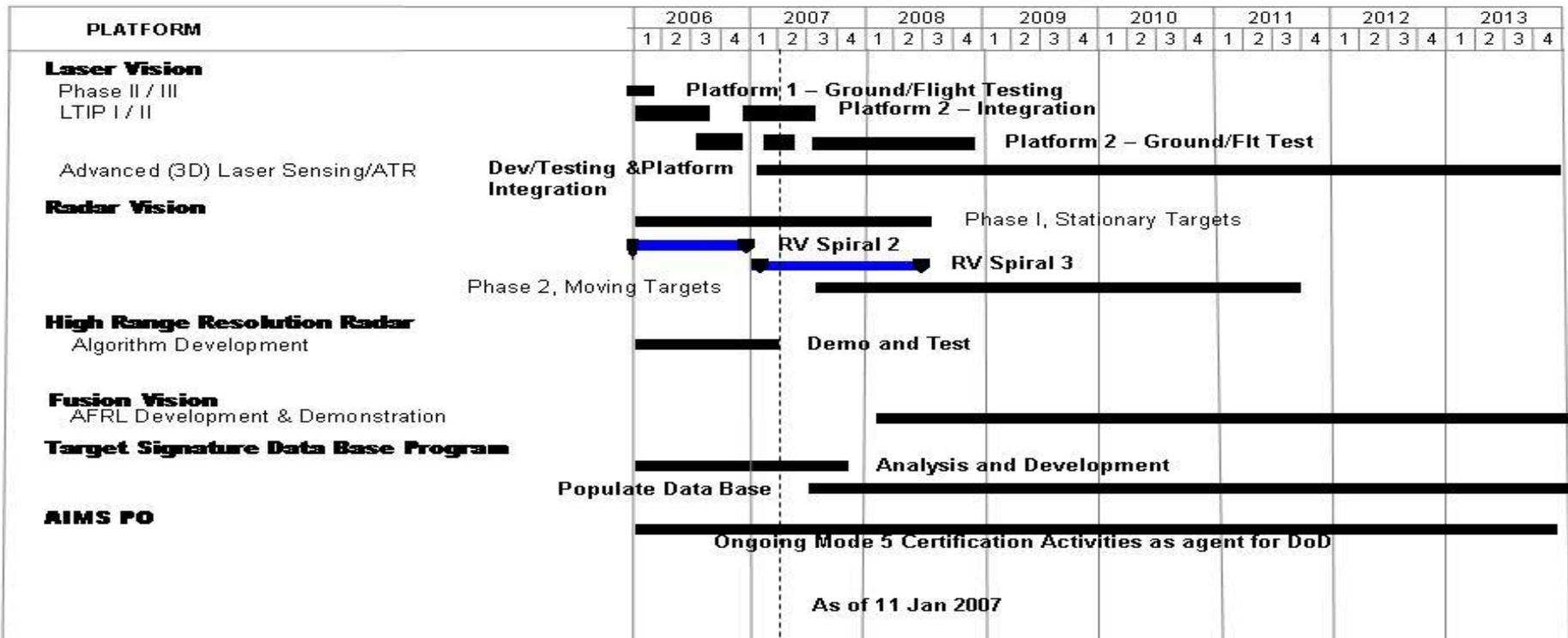
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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE
2597 Noncooperative Identification Subsystems

Combined Schedules and Milestones



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) LASER VISION - Phase II / III	1Q			
(U) LASER VISION - LTIP I / LTIP II Platform 2 Integration	1-4Q	1-3Q		
(U) LASER VISION - LTIP I / LTIP II Platform 2 Ground/Flt Test	3-4Q	1-4Q	1-4Q	
(U) LASER VISION - Advanced Laser Sensing (3D) Development		1-4Q	1-4Q	1-4Q
(U) RADAR VISION - Phase I - Stationary Target Recognition	1-4Q	1-4Q	1-3Q	
(U) RADAR VISION - Radar Vision Spiral 2	1-4Q			
(U) RADAR VISIOV - Radar Vision Spiral 3		1-4Q	1-3Q	
(U) RADAR VISION - Phase 2 - Moving Target Recognition		3-4Q	1-4Q	1-4Q
(U) HIGH RANGE RESOLUTION RADAR - Algorithm Development	1-4Q	1Q		
(U) FUSION VISION - AFRL Development and Demonstration			1-4Q	1-4Q
(U) TARGET SIGNATURE DATA BASE - Analysis & Development	1-4Q	1-4Q		
(U) TARGET SIGNATURE DATA BASE - Database Population		3Q	1-4Q	1-4Q
(U) AIMSPO - IFF Certification Activities	1-4Q	1-4Q	1-4Q	1-4Q

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603742F Combat Identification Technology				PROJECT NUMBER AND TITLE 2599 Cooperative Identification Techniques		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2599 Cooperative Identification Techniques	22.920	8.906	5.779	5.479	3.663	3.350	3.039	3.032	0.000	56.165
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and surface-to-air setting, this program element funds the growth to Mark XIIA, the Next Generation Identification Friend or Foe (IFF) standard for NATO and Joint Services, through the development of Mode 5 capability within Mark XII equipment. IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. Mode 5 implementation within the Air Force began with the fielding of new digital Mark XII hardware capable of Mode S for Air Traffic Control (ATC) and upgradeable to Mode 5 with new cryptologic gear, processor cards, and software. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet.

This project is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use. Also, the project will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). Continue the Mode 5 upgrade to interrogators such as the UPX-40 interrogator on the AWACS. Provide systems engineering and program management to facilitate planned platform integrations, including interoperability testing.	22.920	8.906	5.779	5.479
(U) Total Cost	22.920	8.906	5.779	5.479

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not applicable										

(U) D. Acquisition Strategy

To develop the Mode 5 capability in the digital Mark XII IFF equipment in or planned for use on AF platforms, and provide systems engineering and program management in order to facilitate the integration into all AF mission design series (MDS), or platforms, and transition the AF cooperative ID capability to Mark XIIA.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2599 Cooperative Identification Techniques
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
BAE	C/CPFF	Greenlawn, NY		6.350	Jun-06	3.100	Jan-07	0.380	Nov-07	0.800	Nov-08	Continuing	TBD	TBD
Boeing/Telephonics	C/CPFF	Farmingdale, NY		7.083	Jun-06					0.800	Nov-08	Continuing	TBD	TBD
Raytheon	C/CPFF	Baltimore, MD		7.850	Apr-06	4.211	Jan-07	3.289	Nov-07	0.800	Nov-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	21.283		7.311		3.669		2.400		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
SPO Support	Various	Various		1.053	Mar-06	1.395	Oct-06	1.550	Oct-07	1.554	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	1.053		1.395		1.550		1.554		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
JFCOM	MIPR	Norfolk, VA		0.100	Jun-06			0.110	Mar-08	0.115	Mar-09	Continuing	TBD	TBD
46 Test Wing	PO	Eglin AFB, FL		0.040	Jun-06			0.150	Mar-08	1.100	Mar-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.140		0.000		0.260		1.215		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
Systems Engineering/Program Management (AIMS PO)	AF616	Robins AFB, GA		0.444	Apr-06	0.200	Feb-07	0.300	Feb-08	0.310	Feb-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.444		0.200		0.300		0.310		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	22.920		8.906		5.779		5.479		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

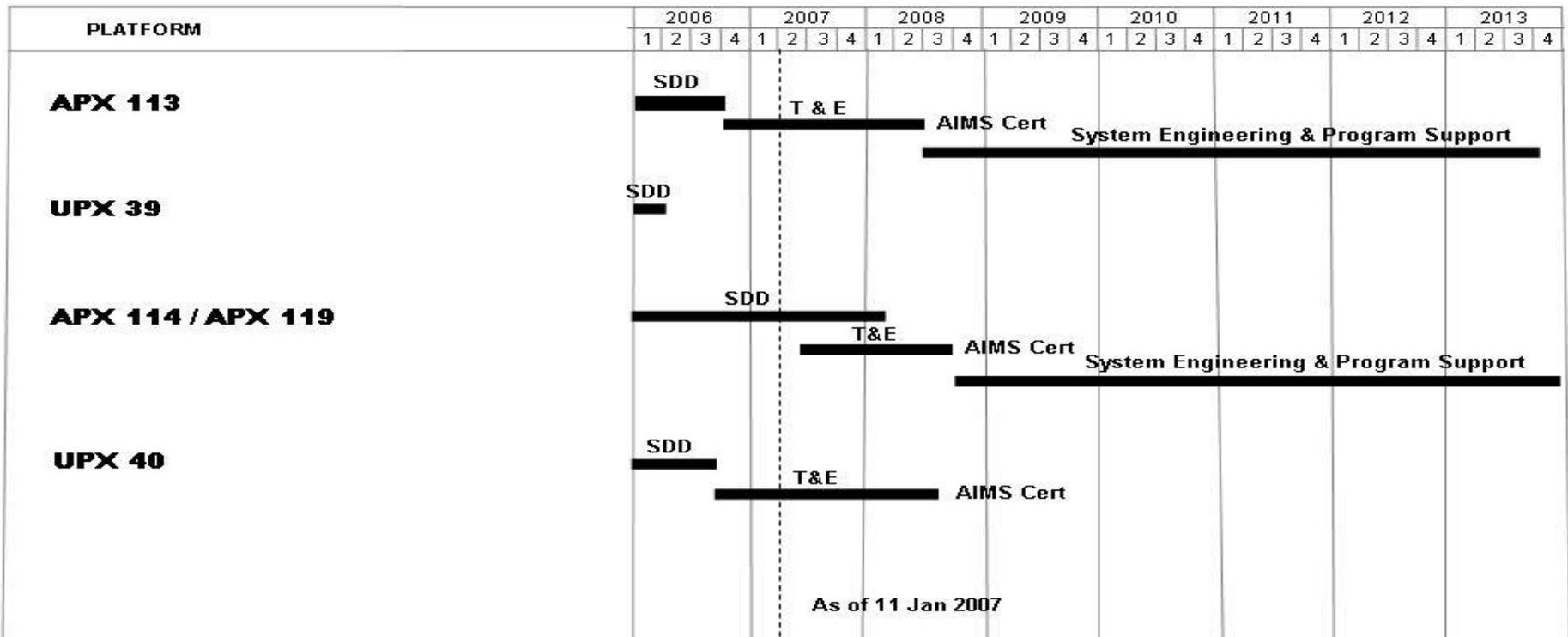
PE NUMBER AND TITLE

0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE

2599 Cooperative Identification Techniques

Combined Schedules and Milestones



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2599 Cooperative Identification Techniques
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) APX-113 - Systems Development/Demonstration	1-3Q			
(U) APX-113 - Test and Evaluation	4Q	1-4Q	1-2Q	
(U) APX-113 - AIMS Certification			1-2Q	
(U) APX-113 System Engineering & Program Support			3-4Q	1-3Q
(U) UPX-39	1Q			
(U) APX-114/APX-119 - Systems Development/Demonstration	1-4Q	1-4Q	1Q	
(U) APX-114/APX-119 - Test and Evaluation		3-4Q	1-3Q	
(U) APX-114/APX-119 - AIMS Certification			2-4Q	
(U) APX-114 / APX-119 System engineering & Program Support			3-4Q	1-4Q
(U) UPX-40 - Systems Development/Demonstration	1-3Q			
(U) UPX-40 - Test and Evaluation	3-4Q	1-4Q	1-2Q	
(U) UPX-40 - AIMS Certification			1-3Q	

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PE NUMBER: 0603790F
 PE TITLE: NATO Cooperative R&D

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2007	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.842	4.080	4.280	4.370	4.479	4.547	4.636	4.731	Continuing	TBD
NATO Nato Coop R&D	3.842	4.080	4.280	4.370	4.479	4.547	4.636	4.731	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.916	3.972		
(U) Current PBR/President's Budget	3.824	4.080	4.280	4.370
(U) Total Adjustments	-0.092			
(U) Congressional Program Reductions				
Congressional Rescissions		-0.015		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer		-0.077		
(U) <u>Significant Program Changes:</u>				
Change Summary Explanation: N/A				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D				PROJECT NUMBER AND TITLE NATO Nato Coop R&D		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
NATO Nato Coop R&D	3.842	4.080	4.280	4.370	4.479	4.547	4.636	4.731	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Visual Process Fit & Accommodation Consulting Tools (AFRL / The Netherlands) - Planned cooperative project to develop web based, comprehensive, international data system on 3-D body size, shape, fit and performance. The new data visualization tools will be used to make information more usable, and additional data on pilot performance will be more dynamic.	0.140			
(U) Coalition Mission Training (AFRL / Canada/UK) - Planned cooperative project is being conducted to enable warfighters to train for coalition air operations while remaining at their home stations. Partner nations will develop distributed simulation technologies, implement a multi-national distributed training network, and conduct a series of coalition force training exercises. Warfighters will use real-time virtual simulators to conduct readiness training for combined air operations within a common synthetic environment. The program sill support incorporation of USAF simulators located outside the Continental US into Distributed Mission Training exercises and will provide the foundation for integrating coalition partners' simulation assets into future multi-national training readiness exercises.	0.600			
(U) Distributed Mission Training (DMT) Technologies (AFRL / Canada) - Planned cooperative project to develop DMT technologies that will enhance allied simulator based training of fighter aircrews and demonstrate proof of concept. Project will complete research and development of next generation visual	0.100			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D			
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
systems for DMT to include ultra-high resolution laser projector, image generator, and collimating display screen materials.					
(U) C2 Warrior (AFRL / Australia) - Planned cooperative project will develop advanced work-centered interface technologies to enhance ISR Collection Management and Air Space Control operations within an Air Operations Center (AOC). The work-centered interface systems will integrate stereoscopic visualization, speech control, head-eye based control, gesture recognition, intelligent interface agents, and face recognition. By combining technical components within a work-centered organizing framework, an interface client system can be developed that will improve information integration, decision making, and operational execution.	0.500				
(U) High-Power Microwave Narrowband Effects Investigations (AFRL / UK) - Planned cooperative project will conduct High-Power Microwave (HPM) electronics effects experiments in the UK. There is a need for HPM effects information on electronic systems in a statistically significant format with high confidence values in order to investigate the impact of future HPM systems on the battlefield. There is a need to perform test series in order to build up a library of electronic asset response distributions. This cooperative project will perform these needed experiments and tests.	0.129	0.071			
(U) Refractive Turbulence and Transient Electronic Disconnectivity (AFRL/VS / Australia) - This cooperative project falls with the AFRL/VS thrust areas of Surveillance and Force Projection, under which is the Optical Turbulence Program, a technical area driven by the operational requirements of the Airborne Laser (ABL) Program and the High Energy Laser-Joint Technology Office (HEL-JTO) AFRL/CC Memorandum for HQ AFMC/DR, stated requirement for stratospheric turbulence research and improved forecasting capability to support of U-2 and UAV operations. The projected use of directed energy weapons, high band-width laser communication (air-to-air, air-to-ground and air-to-space) and high resolution imagery from manned and unmanned aircraft requires knowledge of and the ability to forecast the location, severity, and duration of refractive turbulence structure that limit system performance.	0.075	0.075			
(U) Optical Sensor Protection Development and Evaluation (AFRL / UK) - Planned cooperative project to develop and assess promising electro-optic protection materials, devices, and configurations for laser hazard and threat protection for eyes and sensors. In FY03, development, testing, and analyses will begin.	0.698				
(U) Aero-Engine Component Life Extension, Phase II (AFRL / Australia) - Ongoing cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and	0.500	0.400			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D			
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u> T700. Much of the technology will be generic and flow from one engine to another. In FY03, development of NDE techniques for characterization of residual stress profiles will conclude; activities to address the shortfalls in life prediction capabilities will conclude, and; the final report will be written.					
(U) Network-Centric Strike Controller (AFRL/HECP) - Planned cooperative project to design and develop interface technologies to extend the effectiveness and capabilities of Air Battle Managers (ABMs) working within a network-centric framework. Using simulated AWACS and MC2A work environments, it will make use of networked data, advance data visualization tools, knowledge and content management systems, decision-aiding and automation algorithms, and advance collaboration interface technologies. This approach will enable greater shared battlespace awareness, more efficient and effective individual and team decision-making, increased speed of command, and adaptability. Cognitive engineering and user-centered design methodologies will be employed to identify the appropriate information and interface requirement for operators working within the domain.	0.125	0.150	0.150		
(U) Operator and State Assessment and Aiding Implementation (AFRL / Sweden) - Planned project provides enhanced mission effectiveness by matching the cognitive demands placed on the operator with the current, momentary, capabilities of the human operator. Existing and future systems can easily overload the cognitive capabilities of the human operator. However, these systems are also capable of controlling the amount and rates of information presented to the operator. Accurate assessment of the operator's cognitive state coupled with intelligent agents will permit the real-time tailoring of system demands placed upon the operator to produce enhanced overall system performance and increase mission effectiveness. The proposed project is a follow-on to the very successful Annex E, "Pilot Performance and Mental Workload", to that MOA. This proposed project will permit continuation of our excellent relationship with the Swedish FMV and FOI organizations. AFRL/HEC and FOI have common goals and complementary personnel and facilities. While the AFRL/HEC interests are primarily with unmanned aircraft operators FOI has excellent cockpit and dynamic simulators. Sweden can adapt and test the operator assessment and adaptive aiding technology in these cockpits while AFRL/HEC will focus on the unmanned operator environment. These parallel efforts will permit lessons learned from these two environments to jointly benefit one another.	0.050	0.150	0.200		
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research Program (AFRL / UK) - Planned cooperative project to conduct technical research to increase the level of protection to national and coalition force troops in military facilities worldwide in the event of a terrorist bombing. These research activities and full-scale experiments will involve US Air Force (USAF) and UK Home Office personnel developing and testing blast mitigating resilient structural systems for implementation into	0.100	0.400	0.400		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D			
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
new construction and for retrofit of existing conventional facilities.					
(U) Hard Target Defeat (AFRL / Germany) - PA signed April 15th 1998, established the Hard Target Defeat Technology Project as a Project in accordance with the Memorandum of Understanding between the Secretary of Defense on behalf of the Department of Defense of the United States of America and the Federal Minister of Defense of the Federal Republic of Germany for Research and Technology Projects. The objectives of the Hard Target Defeat (HTD) Technology Project are to investigate the lethality of conventional warheads against targets representative of hardened facilities. This new effort will be the next phase of that research and will improve the predictive accuracy of models that measure the functional degradation resulting from destruction of and/or damage to mission critical components and protective structural components due to internal and external detonations of conventional warheads. In addition, this new effort investigates methods for predicting the effect of engaging a facility containing chemical or biological materials, related research, or production equipment. The results of this proposed investigation are critical for the development, improvement and validation of computer-based methodologies used to predict the weapon effects against hard to defeat targets. Accurate predictions are necessary to provide operational command with targeting options against high value targets.		0.050	0.200	0.200	
(U) Coalition-Interoperable SATCOM Data Broadcast Protocols (GBS-JPO/HQ ESC/NATO / Australia) - Planned groundwork for a US and coalition interoperable satellite data delivery system that ensure the right data is received by warfighters who need them in real-time to save lives and gain tactical advantage and information dominance. The objective of the proposal is to test, analyze and coordinate technical solutions for interoperable data broadcast protocols among three principle international partners and to set the stage for documenting an interoperable coalition agreement in an Annex to the current Draft NATO STANAG 4622, Interoperability Standard for Satellite Broadcast Services (SBS). These three partners are among the world's leaders in technical maturity of data broadcast capability, USAF GBS JPO, NATO Command, Control and Communications Agency (NC3A) and Australian Theatre Broadcast System (TBS). This assists these players in aggressively pursuing military coalition interoperability based on direct broadcast and very small aperture terminal (VSAT) internet capability in the rapidly advancing worldwide satellite broadcast industry.		0.100	0.215	0.300	
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft (AFRL / The Netherlands) - Planned project develops audio, visual, and tactile display symbology to increase situational awareness, decrease pilot workload, and reduce the risk of spatial disorientation in fast jet aircraft. Pilot-vehicle interface development is currently underway for the JSF, which will be the first USAF aircraft with a 3-D audio display capable of directionalizing the warning sounds presented to the pilot. AFRL/HE is		0.100	0.250	0.250	

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Project NATO

Exhibit R-2a (PE 0603790F)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D			
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
currently researching how 3-D audio should be used, in conjunction with visual and tactile displays, to maximize pilot performance and minimize the likelihood of spatial disorientation in USAF aircraft. However, AFRL/HE is unable to evaluate its prototype display designs under the dynamic acceleration conditions that occur in maneuvering fast jet aircraft. This is a critical deficiency, because visual-vestibular and audio-vestibular interactions are known to cause sensory illusions that might enhance or compromise a pilot's ability to make use of audio and visual information presented in a cockpit display.					
(U) International Mission Training Research (AFRL / Sweden) - The objective of this project is to collaboratively conduct research and development activities that will enhance the technologies, processes, and strategies for training based on Distributed Simulation. To achieve these objectives, the participants will cooperatively conduct research efforts to enhance the capabilities of national Distributed Mission Operations (DMO) systems and accelerate collection of research data. Participants will also develop a secure data link between the US and Sweden to support DMO exercises and to develop and evaluate application of DMO for training coalition operations in Peacekeeping Support Operations	0.100	0.325	0.325		
(U) 3-Dimensional Laser Radar Technology and Phenomenology (AFRL / Sweden) - Planned development of FLASH (that is, a sensor that captures the entire image with a single laser pulse) 3-Dimensional laser radar receiver technology. This technology has tremendous potential for improving capabilities to quickly locate and to identify difficult targets (e.g. vehicles hidden behind camouflage or under foliage). However, the data produced by these sensors have many unique properties that do not lend themselves readily to processing and analysis using traditional algorithms and procedures. AFRL/SNJM has a program to characterize these sensors, develop metrics and procedures for quantifying the quality of these data and for extracting target identification information from these data. The results of these activities will be used to determine the utility of these sensors to address mission requirements as well as to identify technical issues that require additional development. Sweden (FOI) has had an extensive effort to develop software to model imaging laser radar performance. They have also developed tools for extracting useful information from these types of data (e.g. segmenting regions of interest from background and clutter, using filters developed from CAD data to identify targets). They have also been investigating atmospheric effects on laser propagation and data quality.	0.050	0.150	0.200		
(U) Policy Enabled Coalition Communication Environment (PECC) (AFRL/IDCP) and Australia, Canada, United Kingdom - Planned cooperative project that will allow overarching "on Paper" mission objectives to be translated into a set of rules/policies (and machine executable code) which dictate the	0.125	0.134	0.175		

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D			
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u> control level of resources at any level. Initially, policies capable of altering the network posture will be implemented for each INFOCON level (Normal, Alpha, Bravo, Charlie, Delta). Other policies could address operational requirements (e.g. higher network precedence given to a specific application for a short-term mission). In all cases, the cyber commander has an understandable interface for making real-time decisions. The Command and Control Enterprise Management System (C2EMS) will also be integrated to provide: real-time readiness; and understanding of how network degradation/failure impacts mission accomplishment.					
(U) Material and Technologies for Laser Protection (AFRL/MLPJ) and Sweden - Planned cooperative agreement to conduct research, develop, and test passive and active laser protection materials. This will be accomplished by exchanging research expertise and novel nonlinear and electro-optic materials. Each country has specialized expertise in different aspects of passive and active laser protection materials. This exchange of materials, models and data obtained from characterization and testing experiments will facilitate the development of realistic laser protection devices. The US will provide expertise in the areas of nonlinear optical, electro-optical, and matrix materials, US developed materials, experimental facilities, data, and analysis. The Swedish Defence Research Agency) will provide expertise in the area of nonlinear optical, electro-optical, and matrix materials, experimental facilities, data, and analysis. Data gathered on provided samples will be shared. The results of this ICR&D project will be used by the participants, independently, in their own development of actual laser protection devices in future work.	0.100	0.050	0.100		
(U) Strike Information Displays (AFRL / UK) - Follow on project to The Strike Warrior Project Arrangement PA. Planned program was approved on 26 April 2000 and is valid through 26 April 2005. This PA has successfully enabled both nations to mutually develop and demonstrate several emerging display technologies. For example, off-boresight symbology improvements and the benefits of panoramic wide-field-of-view Night Vision Goggles (NVGs) over standard NVGs have both been demonstrated. As a result of this PA, there have been several "lessons learned" that serve as the justification for this follow-on proposal. This continuation effort will focus on 1) the exploitation of emerging display technologies that will enhance collaborative information sharing, and 2) the evaluation and implementation of common display symbologies that will foster increased warfighter effectiveness and achieve greater interoperability within the coalition. When considering display technologies, these areas have been identified as the greatest impediments in improving warfighter capabilities. Different phases of warfighter activity will be considered. The assessments will begin in the AWACS platform (AFRL MOLTKE lab) then migrate to Air Operations Centers and Strike Assets. Candidate	0.100	0.050	0.210		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D				
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
collaborative display technologies will include on and off head, in and out of the cockpit, and wireless and tethered technologies.						
(U) Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System Interoperability Analysis and Demonstration (HQ/ESC/AC / NATO) - This planned project is to proactively design interoperability into the operational and technical architectures of the US Air Operations Center (AOC) and NATO's parallel Combined Air Operations Center (CAOC) construct, and to then develop, test and field middleware software that will support the successful prosecution of a combined/joint air operation. This 3-year co-operative effort will begin with a comprehensive study to examine the Command and Control Systems which are the operational backbone of the US AOC (Theater Battle Management Core Systems) and NATO (Air Command and Control System). The product of FY 06 activities will be a detailed analysis of each program's design, the identification of USMTF 2006 and AdatP-3 Baseline 14 message sets that will be implemented, message standards and rules application, data fields and elements structures, as well as data base designs. FY 07 efforts will concentrate on developing prototype middleware that will tested in US and NATO lab environments for potential fielding to provide a seamless exchange of NATO and US operational data used to plan and execute the air war. FY 08 funding will be to support remaining middleware development and to address network security issues and potential resolutions. In the end, the warfighters operating in coalition environments will be able to vastly reduce the time and duplicative effort currently required to manipulate multiple command and control and message standards to plan and execute the air war.	0.000	0.050	0.150			
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board (AFRL / Australia) - Planned collaborative project is to provide the capability for the Coalition/Joint Force Air Component Commander (C/JFACC) and senior staff to develop and continuously assess the progress and contribution of air operations to the coalition's air campaign in order to attain agile and stable control of distributed coalition military operations conducted in an uncertain and rapidly changing environment. The guiding vision of this research is a "Commanders' Virtual Collaboration Portal (CVCP)" or Battle Board (BB). The BB is a distributed, collaborative decision-making environment for commanders and senior staff to share a common knowledge base, collaborate during planning and execution, share assessments of current operations, visualize the operation across spatial and temporal domains, optimize effects-action-resource, and model and project the operational environment for predictive planning and assessment. This project will facilitate the shared research and development of technologies that provide:· Faster recognition and better understanding of changing situations (Agents And Multi-Agent Systems In Dynamic Adversarial Environments)· Faster and more complete exploration of available	0.000	0.100	0.100	0.100		

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>				
courses of action (e.g., Causal Modeling And Analysis)· Faster and more accurate decision-making (e.g. Expert Team Collaboration)Concepts such as Effects Based Operations (EBO) and Predictive Battlespace Awareness (PBA) are two key enablers of this research. The grand challenge of this project is the initial research and development of technologies as the foundation for a "Battle Board" to be used by the C/JFACC and staff providing team-based strategic planning, operational anticipation, and effects-based assessment. The end result will be for both the US and Australian participants to have the technologies necessary to integrate into their separate national tools than from conducting basic and applied research alone. It is in the best interest of both parties to utilize these synergies.				
(U) Development of Electro-Optic and Infrared Countermeasures and Protection Measures (AFRL / UK) - The planned objective of this PA is to increase US and UK capabilities in the area of Electro-Optic and Infrared (EO/IR) countermeasures and protection measures for enhancing survivability and force protection. As such, this PA will provide for collaborative research and development on materials, technologies, devices, and systems for electro-optic and infrared countermeasures and protection measures. It should be noted that the PA for this activity is to span a 10-year period of research and development beginning in January 2006. ICR&D start-up funding support is being requested under this PA to establish testing to evaluate the current state-of-the-art in EO/IR countermeasures and protection measures. The ICR&D funding will allow immediate field trials that are not currently scheduled until FY08. This acceleration of testing will better focus the materials and device development proposed in the PA to better address warfighter needs	0.000	0.150	0.300	0.300
(U) Engagement-level Modeling for HPM Weapons Applications (AFRL / UK) - The objective of this program would be to develop useful engagement modeling "modules" that could be used with little or no modification in USAF battlefield modeling and simulation (M&S) exercises. As the HPM technology advances to the stage where useful weapons and other applications are available for use by US forces that are engaged in military actions it becomes necessary to have companion M&S capability also available so that mission and war planners can include the HPM participation in the M&S exercises that are performed before most actual engagements. AFRL has been working on the necessary mathematical tools to develop the required modules. There are currently "one-on-one" modules that are compatible with the engagement modeling world. AFRL has sponsored the development of the RF-PROTEC code that is the first serious player in the M&S engagement code world. It's current capability is limited to straightforward scenarios with one HPM device and a very limited target set. There is a requirement to develop more complex modules that take into account the situation where there are "many" HPM weapons engaged against "many" potential targets. These "many-on-many"	0.000	0.050	0.200	0.200

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PROJECT NUMBER AND TITLE

NATO Nato Coop R&D

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>modules are ultimately required for HPM weapons to be effectively integrated into modern battlefield M&S. The requirement for new and more advanced modules (or "plug-ins") also includes the requirement to address more scenarios where HPM weapons might be employed. This means looking at the utilization of HPM weapons in rural and urban environments and in special situations such as hardening command centers.</p>				
<p>(U) High-Cycle Fatigue Reduction (AFRL / UK) - The objective of this project is to demonstrate to TRL-6 UK-developed HCF/durability technologies in the US-provided XTE78/LF1 demonstrator engine. The main objective of the High Cycle Fatigue (HCF) Reduction project is to increase engine reliability, enhancing safety to users of gas turbine propulsion systems. This project will enhance the existing US National HCF Program and UK MOD efforts in HCF. The Project will increase the safety and cost effectiveness of airbreathing aircraft engines in both the US and UK by providing additional HCF-related data sources and validations of HCF-related methodologies, all aimed at reducing HCF-caused mishaps, and the costs and maintenance burdens associated with HCF-related corrective and preventive measures.</p>	0.000	0.150	0.150	0.250
<p>(U) Hypersonic Flight Research and Development (AFRL / Australia) - The objectives of this effort are: (1) conduct hypersonic flight research experiments to mature select critical technologies required to develop future prompt global strike and operationally responsive space access systems; and, (2) develop on-board vehicle and propulsion instrumentation to significantly enrich the technology value of flight experiments. This program will consist of multiple research tasks to be jointly executed by several Directorates of the Air Force Research Laboratory and the Australian Defence Science and Technology Organization (DSTO). The scope of this effort includes key technologies for hypersonic, atmospheric flight including airbreathing propulsion, aerodynamics, aerothermodynamics, sensors, materials and structures, and advanced, non-intrusive, in-flight diagnostics.</p>	0.000	0.500	0.500	0.600
<p>(U) US Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System (ACCS) Interoperability analysis and demonstrations (AFRL / NATO) - The overarching objective of this proposed effort is to proactively design interoperability into the operational and technical architectures of the US Air Operations Center (AOC) and NATO's parallel Combined Air Operations Center (CAOC) construct, and to then develop, test and field middleware software that will support the successful prosecution of a combined/joint air operation. This 3-year co-operative effort will begin with a comprehensive study to examine the Command and Control Systems which are the operational backbone of the US AOC (Theater Battle Management Core Systems) and NATO (Air Command and Control System). The product of FY 06 activities will be a detailed analysis of each program's design,</p>	0.000	0.050	0.050	0.000

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Exhibit R-2a, RDT&E Project Justification		DATE February 2007			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D			
		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
the identification of USMTF 2006 and AdatP-3 Baseline 14 message sets that will be implemented, message standards and rules application, data fields and elements structures, as well as data base designs. FY 07 efforts will concentrate on developing prototype middleware that will tested in US and NATO lab environments for potential fielding to provide a seamless exchange of NATO and US operational data used to plan and execute the air war. FY 08 funding will be to support remaining middleware development and to address network security issues and potential resolutions. In the end, the warfighters operating in coalition environments will be able to vastly reduce the time and duplicative effort currently required to manipulate multiple command and control and message standards to plan and execute the air war.					
(U) Study of Insensitive Explosives for High Speed Penetrators (AFRL / Germany) - The joint investigation is concentrated on understanding the changes in the high explosive (HE) and the effects of those changes due to forces acting on the explosive during hard impact. Preliminary studies indicate that that during the penetration event, explosive changes undergo structural changes and consequently, cause the explosive to become more sensitive.		0.000	0.275	0.050	0.075
(U) Integrally Bladed Rotor Repair Validation (AFRL / UK) - The objective of this project is to demonstrate to TRL-6 UK & US developed integrally bladed rotor repair (IBR) in US Provided spin pits and demonstrator engines. An additional objective is to jointly develop & validate best practices for evaluating damage thresholds for repair, repair methodologies, and post-repair re-validation.		0.000	0.035	0.050	0.150
(U) Coalition Airspace Information Sharing (CAIS) (AFRL / NATO) - This effort proposes to demonstrate coalition collaborative airspace management by developing and demonstrating a machine-to-machine connection between the US Joint AirSpace Management And Deconfliction (JASMAD) Net-centric Information Service and NATO's Airspace Manager (ASMAN) module with the Integrated Command and Control (ICC) system. The JASSMAD Advanced Technology Demonstration (ATD) will provide the Future Capabilities required in the Air and Space Operation Center (AOC) Weapon System (WS) and is a substantial improvement over the current capability.		0.000	0.000	0.000	0.600
(U) Distributed Collaboration for Network-Centric Command and Control (AFRL / Australia) - The recently promulgated doctrine of network-centric warfare implies that a dense networking of sensor and shooter nodes will promote enhanced situation awareness (SA) and self-synchronization of forces. The communication of this SA is expected to be achieved through the transmission of a common operational picture (COP) and by suites of collaboration technologies, most of which are commercial-off-the-shelf (COTS) products.		0.000	0.000	0.040	0.400
(U) Toxicity of Engineered Nanomaterials and Their Interaction with Biological systems (AFRL / India) -		0.000	0.000	0.080	0.550

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
The main focus of the collaborative work in India will be animal toxicity studies required to extrapolate from in vitro to invivo toxicity health and safety standards. This research will also significantly aid development of predictive models of nanomaterial toxicity. Work to be conducted by AFRL will address definition of: how nonoparticles (NPs) are taken up by the cells: the physical characteristics (Size, Size Distribution, Aggregation, Purity, Chemical Composition, Surface Characteristics, Functionality. Zeta Potential, Stability Solubility) that impact nanomaterial interactiosn with biological systems; and the mechanisms of toxicity. Both organizations will collaborate to develop nanotoxicoinformatics tools to support nanomaterials R&D across a wide range of applications.				
(U) Mission Planning and NATO Tasking Interoperability (MPNTI) (ESC / UK) - US aircraft mission planning systems do not read nor parse NATO Air Tasking Order (ATO) and NATO Airspace Coordinations Order (ACO) message formats. US air combat tasking is published in the US Message Test Format (USMTF), while NATO uses the Allied Data Publication 3 (AdatP3) message format.	0.000	0.000	0.050	0.475
(U) US Theater Battle Management Core Systems (TBMCS) (ESC / NATO) - The objective of this effort is to implement a process/system which will enable multiple C2 systems, each loaded on separate, multiple security networks/domains, to exchange air C2 mission data amongst each of the systems in near-real-time.	0.000	0.000	0.050	0.670
(U) Management and administrative support and travel	0.100	0.100		
(U) Total Cost	3.842	4.080	4.280	4.370

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not Applicable.										

(U) **D. Acquisition Strategy**
 A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE			
											February 2007			
BUDGET ACTIVITY						PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)						0603790F NATO Cooperative R&D					NATO Nato Coop R&D			
(U) Cost Categories	Contract	Performing	Total	FY 2006	FY 2006	FY 2007	FY 2007	FY 2008	FY 2008	FY 2009	FY 2009	Cost to	Total Cost	Target
(Tailor to WBS, or System/Item Requirements)	Method &	Activity &	Prior to FY	Cost	Award	Cost	Award	Cost	Award	Cost	Award	Complete		Value of
(\$ in Millions)	Type	Location	2006		Date		Date		Date		Date			Contract
(U) <u>Product Development</u>														
Sytronics Dayton, OH	CPFF											Continuing	TBD	TBD
Boston College Boston, MA	CFSR											Continuing	TBD	TBD
RADEX Bedford, MA	CPFF											Continuing	TBD	TBD
Pacific Sierra Research Santa Monica, CA	CPFF											Continuing	TBD	TBD
CPI Fairfax, VA	CPFF											Continuing	TBD	TBD
U of Massachusetts Lowell, MA	CR											Continuing	TBD	TBD
KEO Consultants Brookline, MA	CPFF											Continuing	TBD	TBD
NW Research Associates Bellevue, WA	CPFF											Continuing	TBD	TBD
Visdyne Inc.	CPFF											Continuing	TBD	TBD
U of Texas Austin, TX	CPFF											Continuing	TBD	TBD
Applied Research Lab, U of Texas Austin, TX	CPFF											Continuing	TBD	TBD
Lockheed Martin Orlando, FL	CPFF											Continuing	TBD	TBD
Raytheon TI Systems	CPFF											Continuing	TBD	TBD
Boeing Seattle, WA	CPFF											Continuing	TBD	TBD
UES, Inc Dayton, OH	CPFF											Continuing	TBD	TBD
Pratt & Whitney West Palm Beach, FL	CPFF											Continuing	TBD	TBD
AFRL WPAFB, OH	TBD			3.266	Nov-06	3.395	Nov-07	2.200	Nov-08	2.100	Nov-09	Continuing	TBD	TBD
Boeing Long Beach, CA	CPFF											Continuing	TBD	TBD
Boeing Seattle, WA	CPFF											Continuing	TBD	TBD
Lockheed Marietta, GA	CPFF											Continuing	TBD	TBD
Northrop Hawthorne, CA	CPFF											Continuing	TBD	TBD
Selectech Dayton, OH	CPFF											Continuing	TBD	TBD
AFRL Eglin AFB, FL	TBD											Continuing	TBD	TBD
AFRL Hanscom AFB, MA	TBD											Continuing	TBD	TBD
AFRL Mesa, AZ	TBD											Continuing	TBD	TBD
AFRL Rome, NY	TBD											Continuing	TBD	TBD
None													0.000	
Subtotal Product Development			0.000	3.266		3.395		2.200		2.100		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
AFRL Hanscom AFB, MA				0.476	Nov-06	0.585	Nov-07	2.080	Nov-08	2.270	Nov-09	Continuing	TBD	
AFRL WPAFB, OH												Continuing	TBD	
45th Space Wing Patrick AFB, FL	AF 185											Continuing	TBD	
AFRL Eglin AFB, FL												Continuing	TBD	
Pender Technology, TN	CR											Continuing	TBD	
Veridian Dayton, OH												Continuing	TBD	
None													0.000	
Subtotal Support			0.000	0.476		0.585		2.080		2.270		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)				0603790F NATO Cooperative R&D			NATO Nato Coop R&D		
Remarks:									
(U)	<u>Test & Evaluation</u>								
	Air Force Development Test Center, FL	PO					Continuing	TBD	
	Sverdrup Technology, Inc TN	CPAF					Continuing	TBD	
	Naval Air Warfare CenterPoint Mugu, CA	MIPR					Continuing	TBD	
	Fora Laser System	PO					Continuing	TBD	
	Arnold Engineering Development Center, TN	TBD					Continuing	TBD	
	Fora laser system	PO					0.000	0.000	
	Subtotal Test & Evaluation		0.000	0.000	0.000	0.000	0.000	Continuing	TBD 0.000
Remarks:									
(U)	<u>Management</u>								
	Subtotal Management		0.000	0.100	0.100	0.000	0.000	0.000	0.200 0.000
Remarks:									
(U)	Total Cost		0.000	3.842	4.080	4.280	4.370	Continuing	TBD TBD

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Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603790F NATO Cooperative R&D

PROJECT NUMBER AND TITLE
NATO Nato Coop R&D

Name of ICR&D Project & Int'l Agreement Schedule	Fiscal Year	Start Date	END IA	PE
Distributed Mission Training	FY02	09/14/99	09/14/06	63790F
Optical Sensor Protection Development and Evaluation	FY03			63790F
Virtual Process Fit & Accommodation Consulting Tools	FY04	05/19/05	05/19/10	63790F
Coalition Mission Training	FY04	05/03/03	05/07/10	63790F
O2 Warrior	FY04	07/06/04	07/05/08	63790F
High-Power Microwave Narrowband Effects Investigations	FY04	03/26/02	03/25/07	63790F
Refractive Turbulence and Transient Electronic Disconnectivity	FY05			63790F
Aero-Engine Component Life Enhancement	FY05	10/09/01	10/08/10	63790F
Network-Centric Strike Controller	FY06			63790F
Operator and State Assessment and Aiding Implementation	FY06			63790F
Resilient Structural and Blast Suppression Systems for Blast Protection Research Program	FY06			63790F
Hard Target Defeat	FY06			63790F
Coalition-Interoperable SATCOM Data Broadcast Protocol	FY06			63790F
Multi-modal Situational Awareness Displays for Maneuvering Aircraft	FY06			63790F
International Mission Training Research	FY06	09/28/05	09/27/15	63790F
3-Dimensional Laser Radar Technology and Phenomenology	FY06			63790F
Policy Enabled Coalition Communication Environment (PECC)	FY06			63790F
Material and Technologies for Laser Protection	FY06			63790F
Strike Information Displays	FY06			63790F
Theater Battle Management Core Systems and NATO Air Command and Control System Interoperability Analysis and Demonstration	FY06			63790F
Theater Battle Management Core Systems and NATO Air Command and Control System Interoperability Analysis and Demonstration	FY07			63790F
Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board	FY07			63790F
Development of Electro-Optic and Infrared Countermasures and Protection Measures	FY07			63790F
Engagement-level Modeling for HPM Weapons Applications	FY07			63790F
High-Cycle Fatigue Reduction	FY07			63790F
Hypersonic Flight Research and Development	FY07			63790F
Study of Inertive Explorives for High Speed Penetrators	FY07			63790F
Integrally Bladed Rotor Repair Validation	FY08			63790F
Coalition Airspace Information Sharing	FY08			63790F
Combat Laser Infrared Countermasures Proactive Survivability System (CLIPSS)	FY08			63790F
Distributed Collaboration for Network-Centric Command Control	FY08			63790F
Toxicity of Engineered Nanomaterials and Their Interaction with Biological Systems	FY08			63790F
Development and Testing of a Passive RF/ESM Surveillance Sensor	FY08			63790F
Virtual Munitions Design Environment	FY08			63790F
Virtual Science and Technology for Deployable DMO Simulations	FY08			63790F
Human Modeling for Injury Assessment from Blast (HMIAB)	FY08			63790F
Intelligent Hard Target Fuze	FY08			63790F
Mission Planning and NATO Tarking Interoperability (MPNTI)	FY08			63790F
Joint Surveillance Target Attack Radar System (JSTARS)	FY08			63790F
707 Wide Band Antenna	FY08			63790F
US Theater Battle Management Core Systems (TBMCS)	FY08			63790F

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Exhibit R-4 (PE 0603790F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D		
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Aero-Engine Component Life Extension	4Q			
(U) - Field testing	2Q			
(U) - Test report	1Q			
(U) Optical Sensor Protection Development and Evaluation		1Q		
(U) - Development, testing, and analyses	3Q			
(U) Policy Enabled Coalition Communication Environment		2Q		
(U) - Technology development	4Q			
(U) - Testing & Analysis	3Q			
(U) Network-Centric Strike Controller		4Q		
(U) - Testing & Analysis		3Q		
(U) Operator and State Assessment Aiding Implementation	2-3Q			
(U) - Technology Development	2Q			
(U) - Testing & Analysis	1Q			
(U) US Theater Battle Mgmt Core System and NATO ACCS signed	2Q			
(U) - Pre-study coordination activities	2-3Q			
(U) - Study contract award	1Q			
(U) Material and Technologies for Laser Protection		2Q		
(U) - Technology Development		3Q		
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research		2Q		
(U) - Technical report preparation		2Q		
(U) - Design methodology development		1Q		
(U) - Full-scale blast experiments	1Q			
(U) Refractive Turbulence and Transient Electronic Disconnectivity		1Q		
(U) - Technical Development	3Q			
(U) - Testing and analysis	2Q			
(U) Hard Target Defeat		2Q		
(U) - Technical report preparation		1Q		
(U) - Testing and analysis	4Q			
(U) Coalition-Interoperable SATCOM Data Broadcast Protocols		2Q		
(U) - Technical Development	3Q			
(U) - Testing and Analysis	2Q			
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft		2Q		

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Exhibit R-4a (PE 0603790F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D
(U) - Technical Development	3Q	
(U) - Testing and Analysis	2Q	
(U) 3-Dimensional Laser Radar Technology and Phenomenology		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	2Q	
(U) Strike Information Displays		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	2Q	
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board		2Q
(U) - Technical Development	3-4Q	
(U) - Testing and Analysis	4Q	
(U) Development of Electro-Optic & Infrared Countermeasures and Protection Mesaures		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) Engagement-level Modeling for HPM Weapons Applications		2Q
(U) - Technical Development	3-4Q	
(U) - Testing and Analysis	4Q	
(U) High-Cycle Fatigue Reduction		2-3Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) Hypersonic Flight Research and Development		2Q
(U) - Technical Development	2-3Q	
(U) - Testing and Analysis	4Q	
(U) US Theater Battle Management Core Systems (TBMCS)		2Q
(U) - Technical Development	3-4Q	
(U) - Testing and Analysis	4Q	
(U) International Mission Training Research	2Q	
(U) - Signed Agreement	2Q	
(U) US Theater Battle management Core Systems (TBMCS)		3Q
(U) - Technical Development		1Q
(U) Coalition Airspace Information Sharing (CAIS)		1Q
(U) - Signed Agreement		2-3Q
(U) USTBMCS		1Q

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Exhibit R-4a (PE 0603790F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D
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(U) - Signed Agreement	2-3Q
(U) Mission Planning and NATO Tasking Interoperability	1Q
(U) - Signed Agreement	2-3Q
(U) Study of Insensitive Explosives for High-Speed Penetrators	1Q
(U) - Signed Agreement	2-3Q
(U) Integrally Bladed Rotor Report Validation	1Q
(U) - Signed Agreement	2-3Q
(U) Toxicity of Nano-Engineered Materials	1Q
(U) - Signed Agreement	2-3Q
(U) Distributed Collaboration for Network Centric C2	1Q
(U) - Signed Agreement	2-3Q

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PE NUMBER: 0603791F

PE TITLE: International Space Cooperative R&D

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.550	0.591	0.619	0.633	0.649	0.658	0.670	0.685	Continuing	TBD
5035 Intl Space Coop R&D	0.550	0.591	0.619	0.633	0.649	0.658	0.670	0.685	Continuing	TBD

In FY 2003, from PE 0603790F, 64NATO, NATO Coop R&D, space-related efforts transferred to PE 0603791F, 645035, Intl Space Coop R&D, in order to clearly identify space-related projects and funding.

(U) A. Mission Description and Budget Item Justification

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.566	0.575	0.612	0.625
(U) Current PBR/President's Budget	0.550	0.591	0.619	0.633
(U) Total Adjustments	-0.016			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.016	-0.002		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer		-0.017		

(U) Significant Program Changes:

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603791F International Space Cooperative R&D			PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5035 Intl Space Coop R&D	0.550	0.591	0.619	0.633	0.649	0.658	0.670	0.685	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Hypersonic Airbreathing Propulsion Test Techniques (AEDC / Germany) - Planned project addresses US deficiencies in hypersonic test capabilities and diagnostic techniques, and will leverage German, tri-service, and Arnold AFB investments. The key component of this project will involve complementary testing of a hypersonic engine at Arnold AFB's Aerodynamic and Propulsion Test Unit (APTU) facility and the German Aerospace Center (DLR) High Enthalpy Göttingen (HEG) facility. Ancillary activities will include diagnostics and computer model development, application, and analysis. These activities are needed by the US to enhance conventional defense capabilities into hypersonic flight systems of the future. The Air Force Scientific Advisory Board (SAB) conducted report SAB-TR-00-03 on "Why and Whither Hypersonics research in the US Air Force", which recognized serious shortfalls in ground test facility hypersonic capabilities. The AF published Vision 2020: Global Vigilance, Reach and Power, stated a desire to control and exploit the full aerospace continuum.	0.203	0.050		
(U) Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland (AFRL/Denmark) - Planned cooperative project to accurately model, simulate, recognize, and forecast	0.075	0.025		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603791F International Space
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&D

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
polar ionospheric conditions impacting DoD systems. The project will collect multi-instrument measurements of ionospheric conditions at Station Nord in Greenland for the purpose of furthering basic research into mechanisms creating ionospheric disturbances, improving high-latitude ionosphere models, simulations, and providing space weather situational awareness and forecast tools.				
(U) Cooperation In Navigation Warfare Technology Demonstrator and System Prototype Projects (PA) SMC/GP (GPS Joint Program Office) and ASD/NII/UK - Cooperative project to conduct collaborative studies and cooperatively develop advance counterSATNAV capabilities that can be employed from current and projected EA platforms. Developed technologies will be jointly tested to assure desired effects are achieved and that there is minimal fratricide impact on friendly forces. Additionally, an initial concept of employment or operations will be collectively developed and tested by the participants in order to assess optimal capabilities in varying threat situations.	0.143	0.093		
(U) Forecasting Communication and Navigation Disruptions due to Inonspheric Disturbance During Solar Minumum (AFRL/VSBX) and Australia - Planned cooperative project to collaborate with Australia to study ionospheric phenomena which impact communication, navigation and radio frequency (RF) surveillance systems. The key research focus will be on forecasting ionospheric disturbances and their impact on systems such as Ultra High Frequency (UHF) Satellite Communication (SATCOM) and GLOBAL Positioning System (GPS) navigation. Ionospheric phenomena had an adverse impact on DoD satellite communication and navigation systems in recent operations in Afghanistan and during Operation Iraqi Freedom (OIF); future military operations will almost certainly be conducted in regions where ionospheric disturbances occur and C31 systems may be vulnerable. The Communication/Navigation Outage Forecast System System (C/NOFS) Advance Concept Technical Demonstration (ACTD) is dedicated to providing space-based forecasts of the disturbances that cause impacts on radio frequency (RF) systems.	0.129	0.323	0.275	
(U) Multidemsional Diffusion of High Energy Radiation Belt Electrons (AFRL / UK) - High energy electrons constituting the radiation belts are a primary hazard for USAF and other satellites. They are often enhanced during geomagnetic storms, but not in a reliably predictable way. Thus, understanding and forecasting their behavior is a major research goal. The physics of the radiation belts is believed to be largely controlled by electromajnetic waves, which casue diffusion in the otherwise constant particle energy (E), equatorial pitch angle (a), and radial distance (L shell parameter). The wave amplitudes can become gratly enhanced during magnetic storms and substorms, leading to a rapid increase in particle energy and a rapid decrease in particle distance from the earth (through decrease in L, a0, or both),	0.000	0.100	0.125	0.225

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
which increases the risk to satellites in medium or low earth orbit. Wave-particle interactions are also a dominant lost mechanism for energetic electrons, so the detailed evolution of the particle distribution depends on a complex balance of several diffusion rates.				
(U) Atmospheric Specification and Neutral Density Models (AFRL / Taiwan) - This effort is to improve specification of the ionosphere/thermosphere with the ultimate goal of improved atmospheric neutral density forecast.	0.000	0.000	0.219	0.408
(U) Total Cost	0.550	0.591	0.619	0.633

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) N/A

(U) D. Acquisition Strategy
 A principal goal of the International Space Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in space-related R&D. This program element provides the critical funding incentive needed to pursue space-related ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new space-related RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
AFRL Hanscom AFB, MA	TBD											Continuing	TBD	TBD
AFRL, WPAFB				0.420	Oct-06	0.236	Oct-07	0.254	Oct-08	0.258	Oct-09	Continuing	TBD	TBD
AEDC/DO												Continuing	TBD	TBD
SMC, LAAFB, CA				0.130	Oct-06	0.355	Oct-07	0.365	Oct-08	0.375	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.550		0.591		0.619		0.633		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
AFRL, WPAFB	TBD											Continuing	TBD	TBD
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
TBD	TBD											Continuing	TBD	TBD
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	0.550		0.591		0.619		0.633		Continuing	TBD	TBD

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Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603791F International Space
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&D

Name of ICR&D Project & Int'l Agreement Schedule	Fiscal Year	Start Date	END IA	PE
Impacts of Space environment...	FY03	07/06/04	07/05/09	63791F
Measurement of High-Latitude Ionospheric...	FY04	09/27/05	09/26/11	63791F
Hypersonic Airbreathing Propulsion Test	FY04			63791F
Cooperation Navigation Warfare Technology	FY05			63791F
Forecasting Communication and Navigation Disruptions Due to Ionospheric Disturbances	FY06			63791F
Multidimensional Diffusion of High Energy Radiation Belt Electrons	FY07			63791F
Atmospheric Specification and Neutral Density Models	FY08			63791F

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Exhibit R-4 (PE 0603791F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Forecasting Comm. and Navigation Disruption due to Ionospheric Disturbances During Solar Minimum		1Q		
(U) - Project Agreement signed		1Q		
(U) Cooperation in Navigation Warfare Technology		1Q		
(U) - Project Agreement signed		2-3Q		
(U) - Data collection begins			2-4Q	1-4Q
(U) Measurement of High-Latitude Ionospheric Structures and System Effects		1Q		
(U) - Project agreement signed		2-3Q		
(U) - Data collection begins			2-4Q	1-4Q
(U) Atmospheric Specification and Neutral Density Models			1Q	
(U) - Project agreement signed			2-3Q	
(U) - Data collection begins			3-4Q	
(U) Multidimensional Diffusion of High Energy Radiation Belt Electrons		1Q		
(U) - Project Agreement Signed		2Q		
(U) - Data collection begins			1-4Q	1-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	416.813	732.661	963.585	1,227.784	1,972.504	2,625.118	2,467.029	2,157.843	Continuing	TBD
4944 ADVANCED WIDEBAND SYSTEM	416.813	732.661	963.585	1,227.784	1,972.504	2,625.118	2,467.029	2,157.843	Continuing	TBD

Note: FY08-11 funds for qualification/productization of radiation-hardened (RADHARD) components for USAF/DoD space programs have been transferred from PE 63430F, Advanced EHF MILSATCOM (Space), to PE 63845F, Transformational SATCOM. Additionally, PE 63845F funds FY12/13 RADHARD efforts.

(U) A. Mission Description and Budget Item Justification

The Transformational Satellite Communications System (TSAT) will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). TSAT is essential to global net-centric operations. As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing improved connectivity and data transfer capability, vastly improving satellite communications for the warfighter. TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite will be procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations Systems (TMOS) to provide network management, and ground gateways. The TMOS single contract was awarded in January 2006. In FY08, the TMOS overall efforts will include the development/update of design documentation, Interface Control Documents, and Integration and Test plans. The contractor will also continue to support TSAT interface and integration activities, related risk mitigation, TSAT system level requirement maturation, and will continue design efforts and synchronization with the selected Space Segment contractor in preparation for the TSAT Delta System Design Review.

TSAT will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements that have proven mature by independent testing of integrated subsystem brass boards to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: single and multi-access laser communications (to include wide field-of-view technology), Internet protocol based packet switching, bulk and packet encryption/decryption, battle command-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technology maturation activities are on schedule with the prime contractors and numerous directed technology development contractors. In FY08, the main focus of the technology efforts will be multi-access lasercom and improved processor technology. These technologies will support Block B (satellites 3 - 6). In FY08, the space segment will continue two Risk Reduction/System Definition phase contractors on the path to the TSAT Preliminary Design Review (PDR) in parallel with source selection, culminating with award of the single space segment development and production contract. The space segment contractor will then complete the Delta Space Segment System Design Review and Integrated Baseline Review. Following contract award, the space segment contractor will complete key hardware/software demonstrations in preparation for the PDR. First

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM (TSAT)

launch is 1QFY16.

The Department of Defense is committed to the restructured TSAT program (i.e., block delivery approach) as the best way to ensure delivery of critical net-centric capabilities to tomorrow's warfighter. This strategy reduces risk in the product development phase by implementing a more incremental fielding approach that reduces the complexity/capacity of the two driving technologies (i.e., lasercom and next-generation processor router) on the first two satellites (Block A). Capacities for the remaining three satellites plus spare (Block B) are higher, resulting in a constellation that meets all Key Performance Parameter requirements. Additionally, the program is funded at a higher cost confidence level (CL) vice prior 50/50% cost CL.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering design activities including risk reduction and system definition.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	429.244	867.102	1,536.032	2,051.074
(U) Current PBR/President's Budget	416.813	732.661	963.585	1,227.784
(U) Total Adjustments	-12.431	-134.441		
(U) Congressional Program Reductions		-131.659		
Congressional Rescissions	-0.009	-2.782		
Congressional Increases				
Reprogrammings	-2.100			
SBIR/STTR Transfer	-10.322			

(U) **Significant Program Changes:**

FY06: Reprogram for higher Air Force priorities. FY07 Congressional mark drove a slip of first launch from 4QFY14 to 1QFY15. FY08/09 reductions fund higher Department of Defense priorities resulting in first launch delay from 1QFY15 to 1QFY16 and adjusted cost confidence (ie., from 80% to 60%) prior to Critical Design Review. TSAT program is funded at 80% cost confidence post CDR.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0603845F Transformational SATCOM (TSAT)						4944 ADVANCED WIDEBAND SYSTEM		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4944 ADVANCED WIDEBAND SYSTEM	416.813	732.661	963.585	1,227.784	1,972.504	2,625.118	2,467.029	2,157.843	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Transformational Satellite Communications System (TSAT) will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). TSAT is essential to global net-centric operations. As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing improved connectivity and data transfer capability, vastly improving satellite communications for the warfighter. TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite will be procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations Systems (TMOS) to provide network management, and ground gateways. The TMOS single contract was awarded in January 2006. In FY08, the TMOS overall efforts will include the development/update of design documentation, Interface Control Documents, and Integration and Test plans. The contractor will also continue to support TSAT interface and integration activities, related risk mitigation, TSAT system level requirement maturation, and will continue design efforts and synchronization with the selected Space Segment contractor in preparation for the TSAT Delta System Design Review.

TSAT will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements that have proven mature by independent testing of integrated subsystem brass boards to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: single and multi-access laser communications (to include wide field-of-view technology), Internet protocol based packet switching, bulk and packet encryption/decryption, battle command-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technology maturation activities are on schedule with the prime contractors and numerous directed technology development contractors. In FY08, the main focus of the technology efforts will be multi-access lasercom and improved processor technology. These technologies will support Block B (satellites 3 - 6). In FY08, the space segment will continue two Risk Reduction/System Definition phase contractors on the path to the TSAT Preliminary Design Review (PDR) in parallel with source selection, culminating with award of the single space segment development and production contract. The space segment contractor will then complete the Delta Space Segment System Design Review and Integrated Baseline Review. Following contract award, the space segment contractor will complete key hardware/software demonstrations in preparation for the PDR. First launch is 1QFY16.

The Department of Defense is committed to the restructured TSAT program (i.e., block delivery approach) as the best way to ensure delivery of critical net-centric

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)	PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM
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capabilities to tomorrow's warfighter. This strategy reduces risk in the product development phase by implementing a more incremental fielding approach that reduces the complexity/capacity of the two driving technologies (i.e., lasercom and next-generation processor router) on the first two satellites (Block A). Capacities for the remaining three satellites plus spare (Block B) are higher, resulting in a constellation that meets all Key Performance Parameter requirements. Additionally, the program is funded at a higher cost confidence level (CL) vice prior 50/50% cost CL.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering design activities including risk reduction and system definition.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Definition and technology development for key areas to include laser communications (including enhanced wide field-of-view multi access laser comm), antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking protocols; conduct Integration/Concept of Operations (CONOPS) demonstrations	56.924	94.393	94.663	110.669
(U) Provide Technical Support	35.305	53.825	56.874	58.581
(U) Provide Program Support	8.537	8.601	8.645	8.690
(U) Continue engineering design activities including risk reduction, and complete system design review for the first TSAT satellite	233.088	398.733	107.527	
(U) Award space segment contract and begin preliminary design development			481.948	804.636
(U) Continue TSAT Mission Operations System ground segment and network management/operations management software	52.005	125.694	136.446	165.091
(U) Continue systems engineering and integration support	30.954	51.415	56.083	58.311
(U) Continue qualification and production of radiation-hardened components for USAF/DOD space programs			21.399	21.806
(U) Total Cost	416.813	732.661	963.585	1,227.784

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) RDT&E, AF										
(U) PE 0603854F, Project 644870, CCS-C, R-52	19.216	6.634	19.213	12.606	13.402	10.024	9.168	6.629	Continuing	TBD
(U) PE 0603854F, Project 644811, WGS, R-52	78.502	30.896	0.000	0.000	0.000	0.000	0.000	0.000		304.818

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)	PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) Other APPN

(U) MPAF, PE 0303600F, WGS, P-19,20	71.349	412.520	325.183	22.796	36.702	42.117	30.005	24.265	Continuing	TBD
(U) OPAF, PE 0303600F, CCS-C	0.285	0.000	0.535	0.000	0.000	0.000	0.000	0.000		17.664
(U) OPAF, PE 0303600F, WGS	0.000	0.000	0.000	0.000	1.724	1.724	0.000	0.000		55.448
(U) MILCON, PE 0303602F, TSAT	0.000	0.000	0.000	0.000	5.322	50.212	7.817	4.946	Continuing	TBD

(U) D. Acquisition Strategy

On 20 January 2004, the TSAT program entered Phase B, Risk Reduction and Design Development. Phase B space segment contracts (Cost Plus Fixed Fee) were awarded to Lockheed Martin and Boeing in late January 2004. However, on 20 June 2006, the Milestone Decision Authority rescinded KDP-B approval in order to appropriately align TSAT program activity with the revised National Security Space Acquisition Policy (NSS 03-01). The update to NSS 03-01 revised the space acquisition framework to make it more consistent with critical systems engineering events that must inform acquisition decisions. One result of the revision was the realignment of Key Decision Point B (KDP-B) with completion of a space program's System Design Review (SDR). Following completion of SDR in FY07, the Defense Space Acquisition Board will convene for a new KDP-B approval, scheduled 1QFY08. In 1QFY08, after a full and open competition, the final space segment development contractor will be selected.

In October 2003, after a full and open competition, a Systems Engineering and Integration (SE&I) contract was awarded to Booz Allen Hamilton. The SE&I function spans end-to-end TSAT systems analysis and simulation, architecture refinement, requirements development, interface management and system integration.

TMOS Program Research and Development Announcement (PRDA) contracts were awarded to Raytheon, Lockheed Martin, and Northrop Grumman in November 2003. In January 2006, after a full and open competition, a single TSAT Mission Operations System (TMOS) development contract was awarded to Lockheed Martin.

In an effort to balance higher DoD priorities and sustain an increased cost confidence in the TSAT program, the Department of Defense has adjusted the budget cost confidence from 80% to 60% prior to Critical Design Review (CDR) and maintains an 80% confidence level after CDR and throughout satellite production. Cost growth due to unexpected technical problems usually occurs after CDR.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
04 Advanced Component Development and Prototypes (ACD&P)				0603845F Transformational SATCOM (TSAT)						4944 ADVANCED WIDEBAND SYSTEM					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
<u>Product Development</u>															
Architecture Studies	CPAF	Various	14.900										14.900		
Lockheed Martin: Technology Maturation/Risk Reduction & Program System Definition	CPFF	Sunnyvale, CA	161.616	116.544	Oct-05	199.367	Dec-06	53.764	Dec-07				531.290		
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA	161.616	116.544	Oct-05	199.367	Dec-06	53.764	Dec-07				531.290		
Booz Allen Hamilton: System Engineering & Integration	Time & Materials w/ IF	El Segundo, CA	61.780	30.954	Oct-05	51.415	Dec-06	56.083	Dec-07	58.311	Dec-08	Continuing	TBD		
TMOS PRDAs	FFP	Various	52.454	2.685	Dec-05								55.139		
TMOS: Lockheed Martin Integrated Systems and Solutions	CPAF	San Jose, CA		49.320	Jan-06	125.694	Dec-06	136.446	Dec-07	165.091	Dec-08	Continuing	TBD		
Risk Reduction: Technology Maturation	Various	Various	284.427	56.924	Nov-05	94.393	Dec-06	94.663	Dec-07	110.669	Dec-08	Continuing	TBD		
Risk Reduction: Technology Maturation (Space Segment) Lockheed Martin	CPFF	Sunnyvale, CA	27.651										27.651		
Risk Reduction: Technology Maturation (Space Segment) Boeing	CPFF	El Segundo, CA	27.651										27.651		
Space Segment Development	TBD	TBD						481.948	Dec-07	804.636	Dec-08	Continuing	TBD		
Radiation Hardened Parts Developers	Various	Various						21.399	Dec-07	21.806	Dec-08	Continuing	TBD		
Subtotal Product Development			792.095	372.971		670.235		898.066		1,160.513		Continuing	TBD	0.000	
Remarks:															
<u>Support</u>															
Technical Support	Various		68.470	35.305	Nov-05	53.825	Dec-06	56.874	Dec-07	58.581	Dec-08	Continuing	TBD		
Program Support	Various		17.703	8.537	Nov-05	8.601	Dec-06	8.645	Dec-07	8.690	Dec-08	Continuing	TBD		
Subtotal Support			86.173	43.842		62.426		65.519		67.271		Continuing	TBD	0.000	
Remarks:															
<u>Test & Evaluation</u>															
None													0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
<u>Management</u>															
None													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			878.268	416.813		732.661		963.585		1,227.784		Continuing	TBD	0.000	

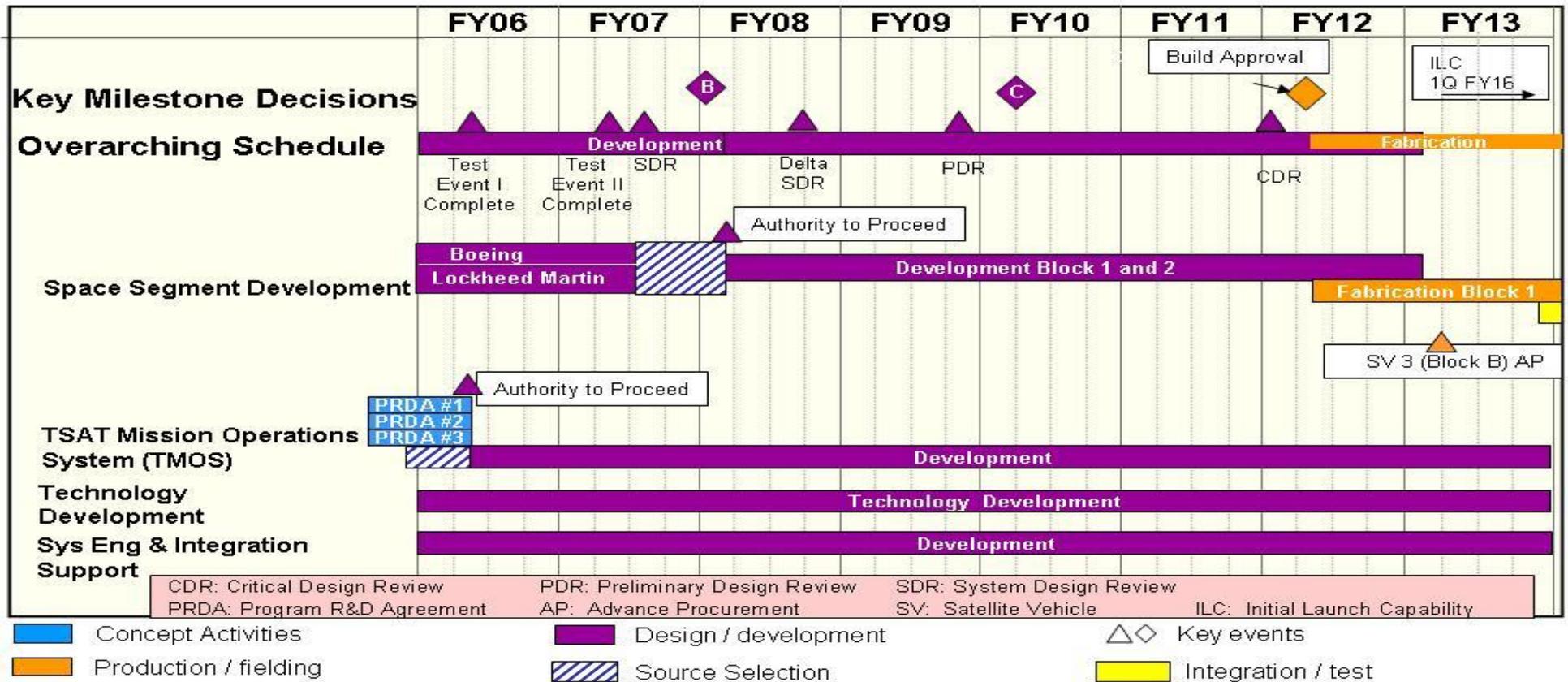
Exhibit R-4, RDT&E Schedule Profile

DATE
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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603845F Transformational SATCOM (TSAT)

PROJECT NUMBER AND TITLE
4944 ADVANCED WIDEBAND SYSTEM



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)	PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) TMOS Segment Design Development Contract Award	2Q			
(U) Technology Maturation -- Processor Router and Lasercom to Technology Readiness Level 6 (last of key critical technologies)		3Q		
(U) System Design Review		3Q		
(U) Key Decision Point B (KDP B)			1Q	
(U) Space Segment Contract Award			1Q	
(U) Delta System Design Review			3Q	
(U) Preliminary Design Review				4Q

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PE NUMBER: 0603850F

PE TITLE: Integrated Broadcast Service (DEM/VAL)

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.930	20.471	21.192	21.372	21.684	21.946	22.369	22.823	Continuing	TBD
4778 Integrated Broadcast Service	15.930	20.471	21.192	21.372	21.684	21.946	22.369	22.823	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. This request funds the IBS system as described below.

- A Common Interactive Broadcast (CIB) on UHF satellite channel using a Common Message Format (CMF) and a MIL-STD Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- IBS includes a Global IBS Network Server (GINS), a Co-GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements.
- A centralized GINS and Co-GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network/broadcast users.
- 4 regional TINs, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- An XML Based Common Message Format (CMF) Data Element Dictionary (DED) that defines IBS messages for broadcast of IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.
- A Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter that provides a modular, platform-independent, multi-use translator to both support migration with legacy radios and to provide a long term solution for IBS FOC radio users.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast Service (DEM/VAL)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	15.063	20.592	21.809	21.248
(U) Current PBR/President's Budget	15.930	20.471	21.192	21.372
(U) Total Adjustments	0.867	-0.121		
(U) Congressional Program Reductions		-0.043		
Congressional Rescissions		-0.078		
Congressional Increases				
Reprogrammings	0.867			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)			PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4778 Integrated Broadcast Service	15.930	20.471	21.192	21.372	21.684	21.946	22.369	22.823	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. This request funds the IBS system as described below.

- A Common Interactive Broadcast (CIB) on UHF satellite channel using a Common Message Format (CMF) and a MIL-STD Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- IBS includes a Global IBS Network Server (GINS), a Co-GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements.
- A centralized GINS and Co-GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network/broadcast users.
- 4 regional TINs, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- An XML Based Common Message Format (CMF) Data Element Dictionary (DED) that defines IBS messages for broadcast of IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.
- A Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter that provides a modular, platform-independent, multi-use translator to both support migration with legacy radios and to provide a long term solution for IBS FOC radio users.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue systems engineering, including development of architectures, system of systems management through the Joint Broadcast Configuration Control Board (JBCCB), and risk reduction studies using Simulation Based Acquisition (SBA) tools	2.408	0.911	2.019	2.089
(U) Continue the Phase II/Engineering, Manufacturing, and Development of the GINS and TINs	9.457	13.946	12.944	13.784
(U) Common Message Formant (CMF) Development	0.901			
(U) Satellite Communications (SATCOM) Broadcast Waveform Development	0.250			
(U) Continue Test & Evaluation	0.565	0.988	1.248	1.298
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution	1.814	1.926	2.153	2.224

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Joint Tactical Radio System (JTRS) Modular Advanced TRanslation and Interchange with XML (MATRIX) Reformatter	0.535	1.900	2.100	1.220
(U) Enterprise Systems Engineering/CMF Integration/CIB Integration/IBS CMF Data Base (ICDB)	0.000	0.800	0.728	0.757
(U) Total Cost	15.930	20.471	21.192	21.372

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) OPAF/PE 0305179F	11.006	11.889	18.257	18.560	12.755	13.016	13.302	13.595	Continuing	TBD
(U) O&M/PE 0305179F	15.648	10.344	18.566	17.847	18.548	18.518	18.621	19.055	Continuing	TBD

(U) **D. Acquisition Strategy**

IBS used an evolutionary acquisition approach with a Program Definition/Risk Reduction phase (Spiral 1), followed by a full and open competition award to BTG/Titan/L-3Comm to complete the Engineering, Manufacturing and Development (EMD) phase (Spiral 2-5).

MATRIX used an initial requirements definition phase followed by evolutionary acquisition approach for the development contract by means of a Sole-Source contract award to L3-Comm IS.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>									
(U) <u>Product Development</u> Phase 2 Spiral II - V	C/CPAF	BTG, Inc./Titan/L-3 Comm (Reston, VA)		9.457	Jan-06	13.946	Jan-07	12.944	Jan-08	13.784	Jan-09	Continuing	TBD	TBD
CMF Systems Engineering and Format Development	C/FFP	SAIC (Columbia, MD)		0.901	Jan-06							0.000	0.901	TBD
SATCOM Broadcast Waveform Development	MIPR	SPAWAR Systems (San Diego, CA)		0.250	Jun-06							0.000	0.250	TBD
JTRS MATRIX Reformatter	C/FFP	L-3 Comm, IS (Greenville, TX)		0.535	Jun-06	1.900	Mar-07	2.100	Mar-08	1.220	Mar-09	Continuing	TBD	TBD
IBS CMF Data Base	MIPR	SPAWAR Systems (San Diego, CA)				0.100	Jan-07					0.000	0.100	TBD
Subtotal Product Development			0.000	11.143		15.946		15.044		15.004		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u> Interoperability and Developmental Testing	MIPR/Project Order	JITC (Ft Huachuca, AZ) & 46th OSS (Eglin AFB, FL)		0.565	Jan-06	0.988	Jan-07	1.248	Jan-08	1.298	Jan-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.565		0.988		1.248		1.298		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u> SPO/ITSP	Various	Local Area (Bedford, MA)/Washington DC Area		1.814	Mar-06	1.926	Mar-07	2.153	Mar-08	2.224	Mar-09	Continuing	TBD	TBD

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Project 4778

Exhibit R-3 (PE 0603850F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE					
04 Advanced Component Development and Prototypes (ACD&P)				0603850F Integrated Broadcast Service (DEM/VAL)				4778 Integrated Broadcast Service					
MITRE	SS/CPFF (FFRDC)	Bedford, MA	2.408	Oct-05	0.911	Mar-07	2.019	Oct-07	2.089	Oct-08	Continuing	TBD	TBD
Enterprise Engineering/CMF Integration/CIB Integration	SS/CPFF	L-3 Comm, IS (Greenville, TX)			0.700	Mar-07	0.728	Mar-08	0.757	Mar-09		2.185	
Subtotal Management			0.000	4.222		3.537		4.900		5.070	Continuing	TBD	TBD
Remarks:													
(U) Total Cost			0.000	15.930		20.471		21.192		21.372	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603850F Integrated Broadcast Service (DEM/VAL)

PROJECT NUMBER AND TITLE
4778 Integrated Broadcast Service

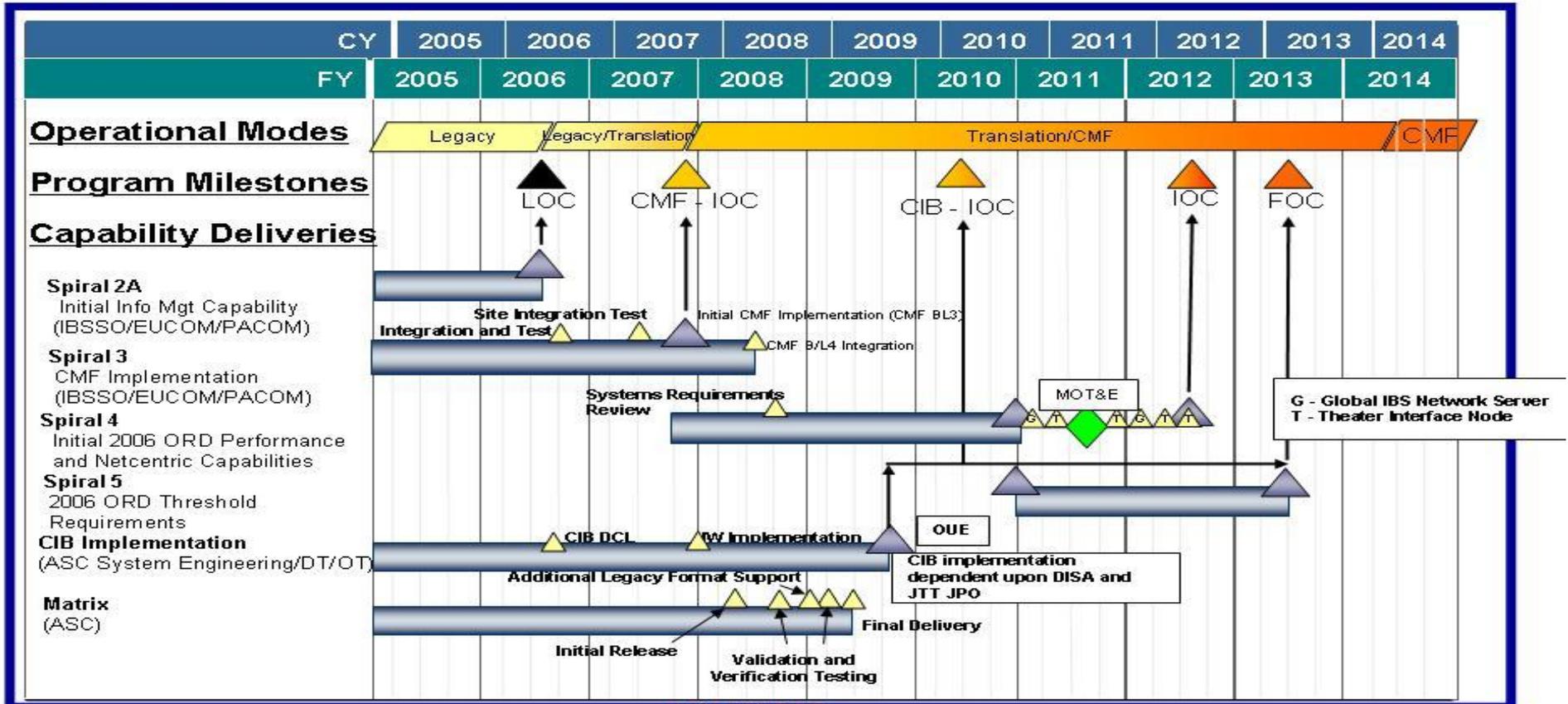


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Acquisition Schedule

U.S. AIR FORCE



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Phase 2 Spiral III Development	1-4Q	1-4Q	1-2Q	
(U) Phase 2 Spiral III Fielding			2Q	
(U) Phase 2 Spiral IV System Requirements Review			4Q	
(U) MATRIX Development	1-4Q	1-4Q	1-4Q	1-2Q

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PE NUMBER: 0603851F
 PE TITLE: ICBM - DEM/VAL

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.773	60.907	26.519	27.349	28.226	28.821	29.709	30.646	Continuing	TBD
1020 ICBM Guidance Applications	8.119	9.241	8.095	8.256	8.615	8.785	9.036	9.329	Continuing	TBD
1021 ICBM Propulsion Applications	22.766	24.301	12.087	12.654	13.040	13.347	13.705	14.123	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	5.446	5.733	5.361	5.492	5.639	5.782	6.043	6.250	Continuing	TBD
1023 Rocket System Launch Program	1.592	0.028	0.029	0.027	0.026	0.025	0.026	0.026	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	3.116	3.586	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.278
4209 Long Range Planning (LRP)	15.734	18.018	0.947	0.920	0.906	0.882	0.899	0.918	Continuing	TBD

In FY 2008 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.

(U) A. Mission Description and Budget Item Justification

This program ensures a responsive design and development engineering infrastructure to address emerging issues within the current Intercontinental Ballistic Missile (ICBM) fleet and develop enhanced capabilities for future technology insertion. Efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, and ensure continued ICBM viability. Program includes demonstration and validation projects for ICBM guidance applications, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhanced command and control capabilities. Long Range Planning efforts include concept refinement and pre-Milestone A activities for a post-Minuteman III ICBM capability.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component and subsystem maturity, and provide risk reduction.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	57.087	45.538	41.271	42.018
(U) Current PBR/President's Budget	56.773	60.907	26.519	27.349
(U) Total Adjustments	-0.314	15.369		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.002	-0.231		
Congressional Increases		15.600		
Reprogrammings	1.562			
SBIR/STTR Transfer	-1.874			

(U) Significant Program Changes:

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

FY 2006: Reflects Appropriations Act adds as follows: +\$5.0 M for "Conventional Ballistic Missile System Engineering Studies"; +\$3.25M for "Infralynx Technology to Support Secure Transportation of Strategic Assets"; +\$5.0M for "Adaptive Missile Engineering Modernization".

FY 2007: Reflects Appropriations Act adds as follows: +\$12.0 M for "Conventional Ballistic Missile System Engineering Studies"; +\$3.6M for "Infralynx Security Vehicle"

FY 2008/09: Reflects -\$15M/year for higher Air Force priorities

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1020 ICBM Guidance Applications		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1020 ICBM Guidance Applications	8.119	9.241	8.095	8.256	8.615	8.785	9.036	9.329	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The ICBM Guidance Applications Program ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the United States Strategic Command (USSTRATCOM) Strategic Advisory Group, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts are focused on current and future requirements, reduced life cycle costs, and increased nuclear surety and safety. Activities leverage the efforts of the Science and Technology community and are coordinated with the Navy strategic application program to enhance synergy and avoid duplication. Key elements include a responsive systems engineering capability to respond to unexpected problems in the current Minuteman guidance system, the assessment/mitigation of aging hardware, and the development & analysis of future strategic guidance capabilities.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue development and prototype of concepts for future common strategic guidance system technology	4.058	4.106	1.850	1.873
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	0.600	0.611	0.650	0.650
(U) Continue development and test of alternate instrument technologies (e.g., accelerometers and gyros)	3.461	4.024	4.282	5.733
(U) Conduct assessment, development and implementation of flight test experiment options to demonstrate future strategic guidance system concepts	0.000	0.500	1.313	0.000
(U) Total Cost	8.119	9.241	8.095	8.256

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None.										

(U) D. Acquisition Strategy

Accomplish studies, analyses, and limited engineering/pre-prototype hardware development; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1020 ICBM Guidance Applications
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT		3.161	Dec-05	3.499	Dec-06	4.042	Dec-07	5.733	Dec-08	Continuing	TBD	TBD
Component/Technology Development	Various	Boeing Co, Anaheim CA; BAE Systems, Heath OH; and others TBD		4.169	Jan-06	3.730	Jan-07	2.300	Jan-08	2.373	Jan-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	7.330		7.229		6.342		8.106		Continuing	TBD	TBD
(U) <u>Support</u> SPO/Other Program Support	Various	826 ICBMSG, Hill AFB UT		0.789	Jan-06	1.512	Jan-07	0.440	Jan-08	0.150	Jan-09	Continuing	TBD	TBD
Subtotal Support Remarks:			0.000	0.789		1.512		0.440		0.150		Continuing	TBD	TBD
(U) <u>Test & Evaluation</u> Flight Test	C/CPAF	Northrop Grumman, Clearfield UT		0.000	N/A	0.500	Dec-06	1.313	Dec-07	0.000	N/A	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.500		1.313		0.000		Continuing	TBD	TBD
(U) Total Cost			0.000	8.119		9.241		8.095		8.256		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

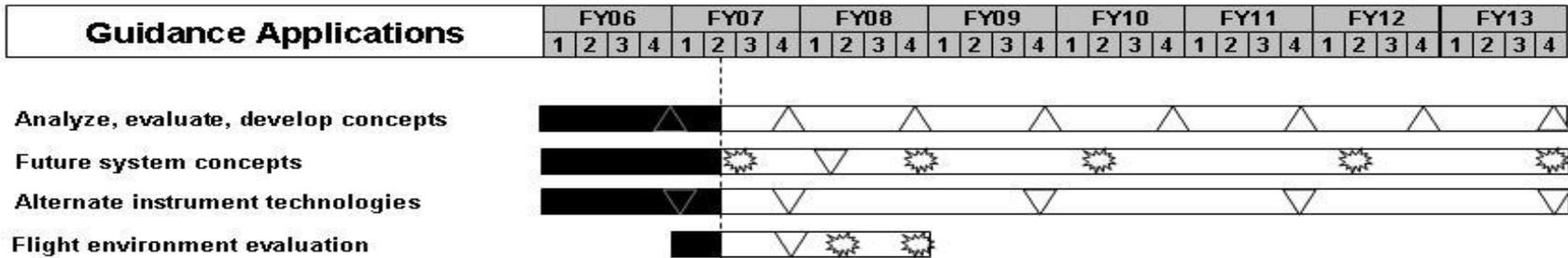
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications



△ Report/Review/Analysis ☀ Major Test Event ▽ Prototype Hardware Delivery

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1020 ICBM Guidance Applications
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Development/Demonstration of Future Common System Concepts (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Reports	4Q	4Q	4Q	4Q
(U) -- Prototype Hardware Delivery			1Q	
(U) Alternate Instrument Technology Development (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q	4Q
(U) -- Engineering Demo/Prototype Hardware		4Q		4Q
(U) Radiation Hardened Parts Analysis (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q	4Q
(U) Flight Test Options Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q	4Q
(U) -- Prototype Hardware Delivery		4Q		
(U) -- Flight Evaluations			2-4Q	

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1021 ICBM Propulsion Applications		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1021 ICBM Propulsion Applications	22.766	24.301	12.087	12.654	13.040	13.347	13.705	14.123	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) The ICBM Propulsion Application Program develops the ICBM strategic propulsion capability through projects exploring improvements and/or alternatives to current ICBM propulsion systems, conducting studies assessing application of new technologies to meet future ICBM propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM and submarine-launched ballistic missile (SLBM) propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue evaluation and test of solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing	12.409	14.303	8.787	12.154
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments	9.457	8.679	2.500	0.500
(U) Continue evaluation of test protocols in support of hazard classification methods for ICBM solid rocket motors	0.900	1.319	0.800	0.000
(U) Total Cost	22.766	24.301	12.087	12.654

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

Studies, analyses, and motor ground test firings will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1021 ICBM Propulsion Applications
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u> Component Refinement	C/CPAF	Northrop Grumman, Clearfield UT		0.000	N/A	1.000	Dec-06	0.000	N/A	1.900	Dec-08	Continuing	TBD	TBD
Component Development	Various	AFRL, Edwards AFB CA; Aerojet, Sacramento CA; ATK Thiokol, Corrinne UT; others TBD		21.883	Jan-06	22.917	Jan-07	11.857	Jan-08	10.485	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	21.883		23.917		11.857		12.385		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> SPO/Other Program Support	Various	826 ICBMSG, Hill AFB UT		0.427	Jan-06	0.384	Jan-07	0.230	Jan-08	0.269	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	0.427		0.384		0.230		0.269		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u> Static Fire	C/CPAF	Northrop Grumman, Clearfield UT		0.456	Jan-06	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.456		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	22.766		24.301		12.087		12.654		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications

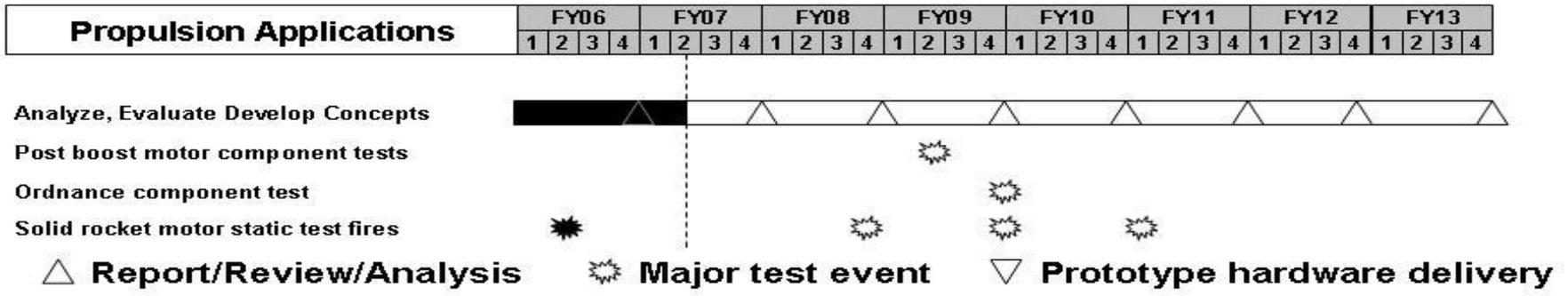


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1021 ICBM Propulsion Applications
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Evaluate and test solid propulsion technologies for ICBM application	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Periodic Status Reports/Review	4Q	4Q	4Q	4Q
(U) -- Solid rocket motor static test fire	2Q			2Q
(U) Assessment/demonstration of ordnance and post-boost components technology	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	4Q	4Q	4Q	4Q
(U) Evaluate test protocols in support of hazard classification methods	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	4Q	4Q	4Q	4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT NUMBER AND TITLE 1022 ICBM Reentry Vehicle Applications		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1022 ICBM Reentry Vehicle Applications	5.446	5.733	5.361	5.492	5.639	5.782	6.043	6.250	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The ICBM Reentry Vehicle (RV) Applications Program ensures the Minuteman force is equipped with the safest and most reliable RVs and explores options for future capabilities. A responsive engineering infrastructure supports RVs beyond their original design life by addressing operational system issues and ensuring the availability of long-lead components/materials while identifying life cycle cost reduction methods. The program also develops and tests advanced RV technologies to meet future requirements. The program leverages investments by the Science & Technology community and Navy reentry systems applications program. Products are tested on a space available basis on Minuteman and Trident Force Development Evaluation (FDE) flights.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue evaluation of RV material subsystems, aging, and replacements through ground and flight tests	2.039	1.656	0.771	0.943
(U) Continue identification and ground testing of potential replacement options for critical RV components	0.128	1.269	2.131	1.567
(U) Continue evaluation of improved accuracy measurements and methodologies	1.053	0.397	0.000	0.000
(U) Continue evaluation of alternate flight test experiment options	1.031	0.655	0.000	0.000
(U) Continue evaluation of advanced common RV designs, applications, and technologies	0.128	0.148	0.507	1.721
(U) Continue development and assessment of RV Test & Evaluation methodologies and subsystems	0.939	0.397	0.190	0.203
(U) Continue design, development, and prototype flight testing of selected fuze assessment/measurement	0.128	1.211	1.762	1.058
(U) Total Cost	5.446	5.733	5.361	5.492

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1022 ICBM Reentry Vehicle Applications
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT		4.432	Dec-05	4.478	Dec-06	3.434	Nov-07	1.799	Nov-08	Continuing	TBD	TBD
Component/materials development	Various	TBD	0.000	0.000	N/A	0.000	N/A	1.232	Nov-07	2.995	Nov-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	4.432		4.478		4.666		4.794		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> SPO/Other Program Support	Various	826 ICBMSG, Hill AFB UT		0.564	Dec-05	0.732	Jan-07	0.095	Jan-08	0.098	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	0.564		0.732		0.095		0.098		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u> Materials	MIPR	AFRL Materials Lab, Wright-Patterson AFB		0.450	Jan-06	0.450	Dec-06	0.450	Dec-07	0.450	Dec-08	Continuing	TBD	TBD
Ground Testing	PO	Arnold Engineering & Development Center		0.000	N/A	0.073	Jan-07	0.150	Jan-08	0.150	Jan-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.450		0.523		0.600		0.600		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	5.446		5.733		5.361		5.492		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

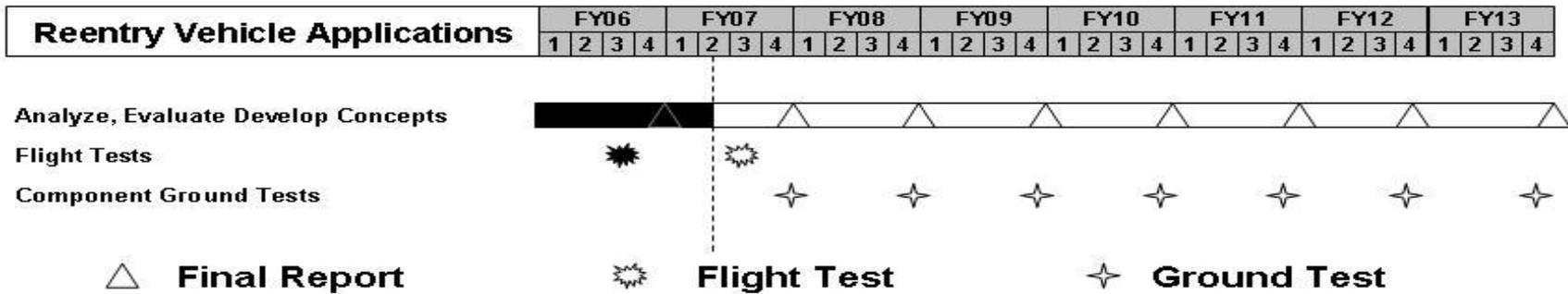
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1022 ICBM Reentry Vehicle Applications
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) RV Test & Evaluation Methodologies Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Accuracy Assessment Methodologies Development	1-4Q	1-4Q		
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q		
(U) Advanced Common RV Designs, Applications & Technologies Evaluations	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Alternate Flight Test Options Development	1-4Q	1-4Q		
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q		
(U) Flight Tests	3Q	3Q		
(U) Component Level Ground Tests		4Q	4Q	4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program	1.592	0.028	0.029	0.027	0.026	0.025	0.026	0.026	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This task supports hardware studies/analyses for the cost effective use of excess missile assets.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.033	0.028	0.029	0.027
(U) Launch vehicle avionics engineering and integration	1.559	0.000	0.000	0.000
(U) Total Cost	1.592	0.028	0.029	0.027

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None

(U) D. Acquisition Strategy

Studies and analyses will be performed primarily in-house augmented with contractor support as required. Any special projects funded under this project that will require development and/or evaluation of hardware along with the associated employment concepts, will be awarded to qualified industry sources following open competition. Type of contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government, generally using cost plus contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Launch Vehicle Avionics				1.559	May-06	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	1.559
Subtotal Product Development			0.000	1.559		0.000		0.000		0.000		Continuing	TBD	1.559
Remarks:														
<u>(U) Support</u>														
Engineering Support	Various	Space Development and Test Wing, Kirtland AFB NM		0.033	Jan-06	0.028	Jan-07	0.029	Jan-08	0.027	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	0.033		0.028		0.029		0.027		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	1.592		0.028		0.029		0.027		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

Rocket System Launch Program

- Analyze, evaluate concepts
- Launch vehicle avionics

FY06				FY07				FY08				FY09				FY10				FY11				FY12			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
[Solid Bar]				△				△				△				△				△							
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Major test event



Report/Review/
Analysis



Prototype hardware
delivery

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Start/Complete Annual Studies/Analysis

1-4Q

1-4Q

1-4Q

1-4Q

(U) Launch Vehicle Avionics

4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1024 ICBM Command & Control (C2) Applications			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1024 ICBM Command & Control (C2) Applications	3.116	3.586	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.278
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2008 and beyond, project is discontinued to support higher Air Force priorities.

(U) A. Mission Description and Budget Item Justification

To ensure ICBMs continue to serve as a credible strategic deterrent requires an extremely high confidence in the Command and Control (C2) systems providing connectivity to the President and Secretary of Defense. Assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs) and Launch Facilities (LFs) are essential for mission execution in hostile environments. Continuing analysis is needed to identify and exploit state-of-the-art communications and information transfer techniques that provide required C2 while making the systems more cost effective. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements for nuclear command and control.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Demonstrate Infralynx technology to support secure transportation of strategic assets	3.116	3.586	0.000	0.000
(U) Total Cost	3.116	3.586	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 1024 ICBM Command & Control (C2) Applications
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Infralynx technology demonstration	MIPR	Naval Research Lab		3.116	Mar-06	3.586	Mar-07	0.000	N/A	0.000	N/A	0.000	6.702	6.836
Subtotal Product Development			0.000	3.116		3.586		0.000		0.000		0.000	6.702	6.836
Remarks:														
<u>(U) Total Cost</u>			0.000	3.116		3.586		0.000		0.000		0.000	6.702	6.836

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2) Applications

Command & Control Applications	FY06				FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Concept and prototype development
 Demonstrate Infralynx technology



△ Report/Review/Analysis ⚙ Major Test Event ▽ Prototype Hardware Delivery

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)
Applications

(U) Schedule Profile

(U) Concept and prototype development

(U) Field demonstration and assessment

FY 2006

2-4Q

FY 2007

1-4Q

4Q

FY 2008

1Q

FY 2009

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4209 Long Range Planning (LRP)	15.734	18.018	0.947	0.920	0.906	0.882	0.899	0.918	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Long Range Planning (LRP) task analyzes ICBM systems to identify potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost. The LRP also lays the groundwork for analysis supporting future ICBM weapon systems development and deployment.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue support of the consolidated ICBM Master Plan	0.477	0.473	0.437	0.408
(U) Continue feasibility and life extension studies	0.507	0.520	0.510	0.512
(U) Completed Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD) capability	0.000	0.000	0.000	0.000
(U) Continue LBSD capability concept refinement and pre-Milestone A activities	4.750	5.025	0.000	0.000
(U) Conduct conventional ballistic missile systems engineering studies	5.000	12.000	0.000	0.000
(U) Conduct adaptive missile engineering modernization	5.000	0.000	0.000	0.000
(U) Total Cost	15.734	18.018	0.947	0.920

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) **D. Acquisition Strategy**

Studies and analyses will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT		0.162	Jan-06	0.167	Jan-07	0.167	Jan-08	0.172	Jan-09	Continuing	TBD	TBD
Conventional Ballistic Missile System Engineering Studies	C/CPAF	Northrop Grumman, San Bernardino CA		4.291	Aug-06	11.626	May-07	0.000	N/A	0.000	N/A	0.000	15.917	5.000
Adaptive Missile Engineering Modernization	C/CPAF	Northrop Grumman, San Bernardino CA		4.982	May-06	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.982	5.000
Studies	Various	Various		0.032	Jan-06	0.488	Jan-07	0.580	Jan-08	0.548	Jan-09	Continuing	TBD	TBD
LBSD Analysis of Alternatives & pre-acquisition planning	Various	Various		0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	10.237
LBSD concept refinement and pre-Milestone A activities	Various	Various		1.766	Oct-05	1.305	Oct-06	0.000	N/A	0.000	N/A	0.000	3.071	10.046
Subtotal Product Development			0.000	11.233		13.586		0.747		0.720		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
SPO/Other program support	Various	826 ICBMSG, Hill AFB UT		4.501	Jan-06	4.432	Jan-07	0.200	Jan-08	0.200	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	4.501		4.432		0.200		0.200		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	15.734		18.018		0.947		0.920		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE
4209 Long Range Planning (LRP)

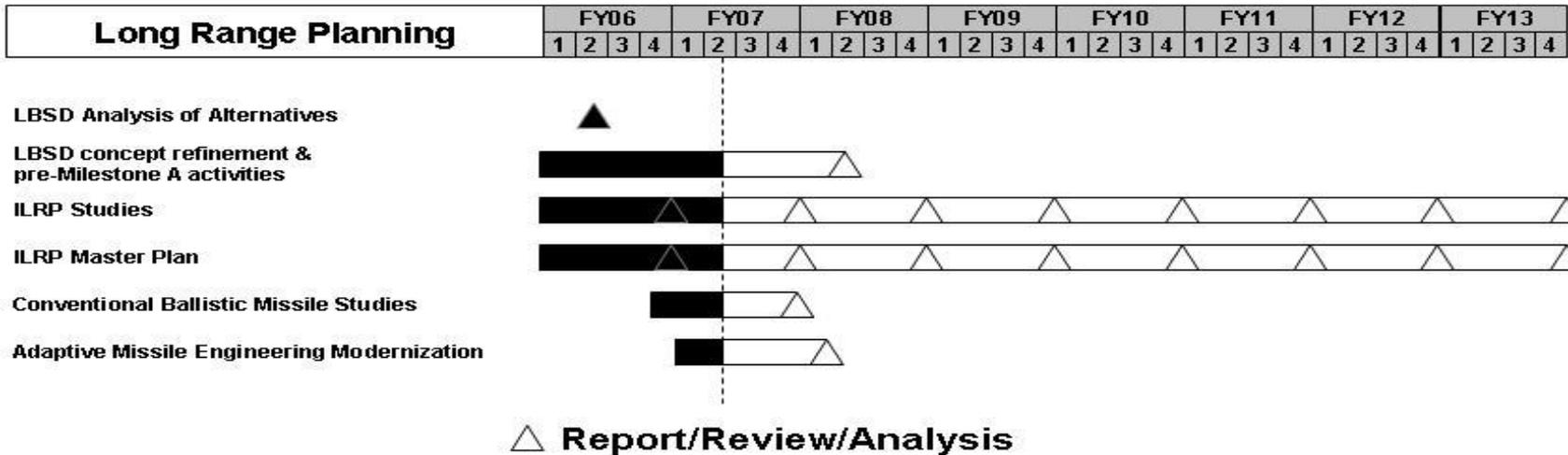


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)
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(U) Schedule Profile	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Contract Award for Annual Studies/Analyses	2Q	2Q	2Q	2Q
(U) --Program Reviews/ Reports Received	4Q	4Q	4Q	4Q
(U) LBSD Analysis of Alternatives & pre-acquisition planning	2Q			
(U) -- AoA Report	2Q			
(U) LBSD Concept Refinement and pre-Milestone A activities	1-4Q	1-4Q		
(U) Conventional ballistic missile system engineering study	4Q	1-4Q	1-3Q	
(U) Adaptive missile engineering modernization	4Q	1-3Q		

UNCLASSIFIED

PE NUMBER: 0603854F

PE TITLE: Wideband MILSATCOM (Space)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	97.718	37.530	19.213	12.606	13.402	10.024	9.168	6.629	Continuing	TBD
4811 Wideband Gapfiller	78.502	30.896	0.000	0.000	0.000	0.000	0.000	0.000	0.000	314.976
4870 Command & Control System Consolidated (CCSC)	19.216	6.634	19.213	12.606	13.402	10.024	9.168	6.629	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Wideband Global SATCOM (WGS) System, previously known as Wideband Gapfiller Satellites, will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (Aug 96), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (Oct 97), and the JROC-approved WGS Operational Requirements Document (May 00). This program was originally conceived to augment the near term 'bandwidth gap' in warfighter communications needs. These dual-frequency WGS satellites will augment the DoD's Defense Satellite Communications Systems (DSCS) X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

The first WGS launch is scheduled for Jun 07, the second satellite launch is scheduled for Dec 07, and the third satellite launch is scheduled for May 08.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY11 and FY12, respectively.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C-2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) for MILSATCOM satellites phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include Milstar, DSCS, WGS, and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes, because it supports component development and prototyping for Wideband MILSATCOM

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	92.287	37.672	5.186	5.728
(U) Current PBR/President's Budget	97.718	37.530	19.213	12.606
(U) Total Adjustments	5.431	-0.142		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.003	-0.142		
Congressional Increases				
Reprogrammings	5.434			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
FY06: Funds reprogrammed to CCS-C to provide critical capability to launch WGS 1-2				
FY08-09 funds CCS-C satellite launch support that provides critical capability to launch WGS 3-5 and AEHF satellites.				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT NUMBER AND TITLE 4811 Wideband Gapfiller		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4811 Wideband Gapfiller	78.502	30.896	0.000	0.000	0.000	0.000	0.000	0.000	0.000	314.976
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Wideband Global SATCOM (WGS) System, previously known as Wideband Gapfiller Satellites, will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (Aug 96), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (Oct 97), and the JROC-approved WGS Operational Requirements Document (May 00). This program was originally conceived to augment the near term 'bandwidth gap' in warfighter communications needs. These dual-frequency WGS satellites will augment the DoD's Defense Satellite Communications Systems X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

The first WGS launch is scheduled for Jun 07, the second satellite launch is scheduled for Dec 07, and the third satellite launch is scheduled for May 08.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY11 and FY12, respectively.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform efforts such as payload/production studies (e.g., related to parts obsolescence), integration, tests, and support development of WGS control system	11.300	2.442		
(U) Provide Program Office Support	0.860	0.629		
(U) Perform parts obsolescence redesign for satellites 4 and 5, non-recurring engineering and other related activities	66.342	27.825		
(U) Total Cost	78.502	30.896	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) MPAF, PE 0303600F, WGS, P-19,20	71.349	412.520	325.183	22.796	36.702	42.117	30.005	24.265	Continuing	TBD
(U) OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	0.000	1.724	1.724	0.000	0.000	0.000	30.212
(U) OPAF, PE 0303600F, CCS-C	0.285	0.000	0.535	0.000	0.000	0.000	0.000	0.000	0.000	17.671

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) **D. Acquisition Strategy**

The WGS program has made maximum use of commercial practices and technology in its FAR Part 12, Firm Fixed Price (FFP) acquisition for satellites 1-3. The WGS received MS II/III approval in Nov 00 and awarded a FFP contract in Jan 01 (three satellites and options for an additional three). Options for satellites 4-6 were not exercised prior to the 31 Dec 03 expiration date.

Since WGS-type capabilities are no longer being offered commercially, it is no longer appropriate to use a Firm Fixed Price contract. A Fixed Price Incentive Fee contract, which balances uncertainty of parts obsolescence/production gap with experience gained from WGS 1-3 production, has been approved. Not to exceed letter contract was awarded for satellites 4 and 5 (with unfunded priced option for 6th satellite) in 2nd Qtr FY06. The contract definitized on 17 Oct 2006.

All five satellites are purchased with procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0603854F Wideband MILSATCOM (Space)	4811 Wideband Gapfiller

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Parts Obsolescence Redesign	FPIF			66.342	Feb-06	27.825	Dec-06						94.167	
WGS Satellite EMD (satellites 1-3)	FFP		143.013										143.013	
UAV Bypass NRE	FFP		14.000										14.000	
Payload/Production Studies	Various		17.195	11.300	Dec-05	2.442	Dec-06						30.937	
Subtotal Product Development			174.208	77.642		30.267		0.000		0.000		0.000	282.117	0.000
Remarks:														
<u>(U) Support</u>														
Joint Terminals Engineering Office	PR		6.618										6.618	
Pre-EMD	Form 277		5.579										5.579	
Program Support	Various		8.903	0.860	Jan-06	0.629	Jan-07						10.392	
Subtotal Support			21.100	0.860		0.629		0.000		0.000		0.000	22.589	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			195.308	78.502		30.896		0.000		0.000		0.000	304.706	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE
4811 Wideband Gapfiller

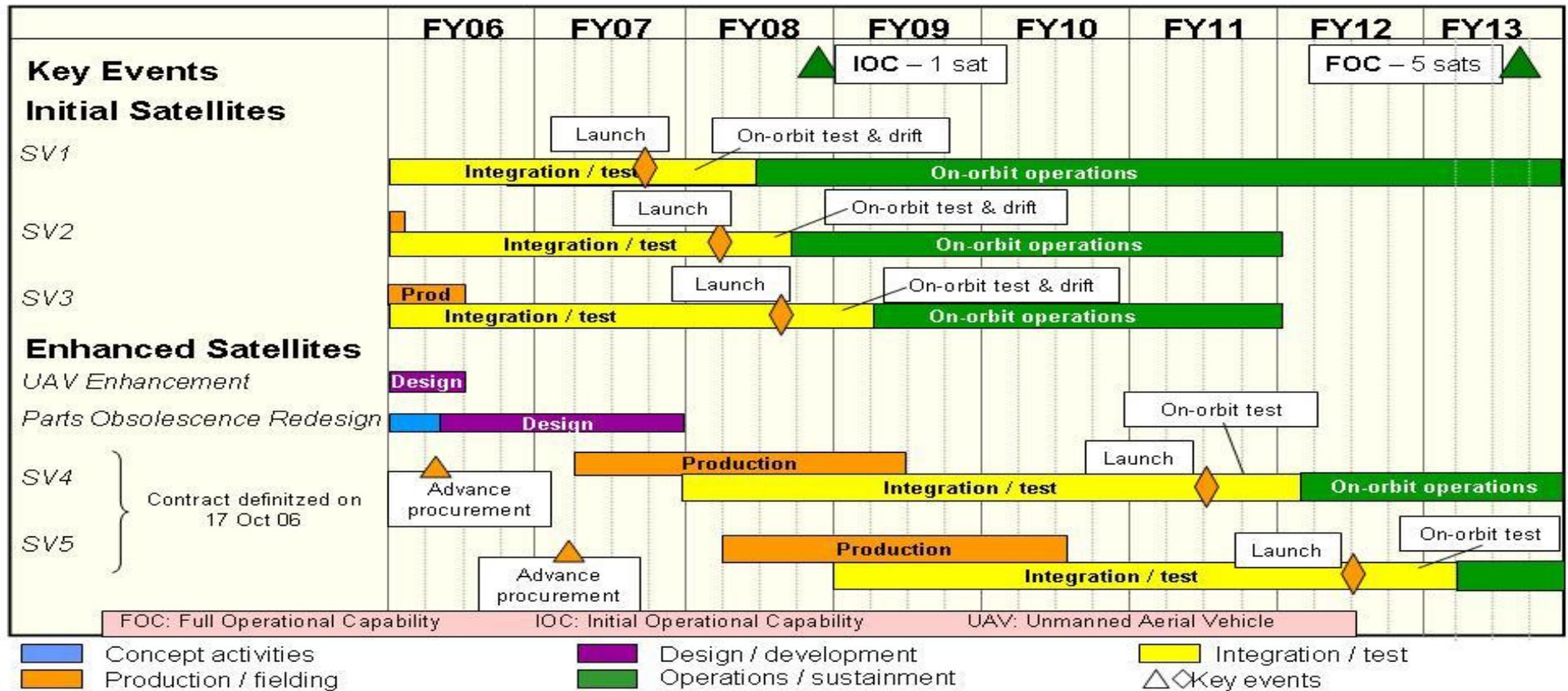


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)	PROJECT NUMBER AND TITLE 4811 Wideband Gapfiller
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Initiate parts obsolescence redesign	2Q			
(U) Complete parts obsolescence redesign		4Q		

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT NUMBER AND TITLE 4870 Command & Control System Consolidated (CCSC)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4870 Command & Control System Consolidated (CCSC)	19.216	6.634	19.213	12.606	13.402	10.024	9.168	6.629	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality, and backup operations at Vandenberg AFB, for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Global SATCOM (WGS), and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

Funding is in Budget Activity 4, ACD&P, to support software development and activation of the CCS-C installation and test facility.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue development of command and control functionality for WGS and AEHF satellites. Completed command and control functionality Milstar (1QFY06)	18.137	4.415	16.902	10.135
(U) Continue Program Office and other related support activities, to include Systems Engineering and Integration	1.079	2.219	2.311	2.471
(U) Total Cost	19.216	6.634	19.213	12.606

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN										
(U) OPAF, PE 0303600F, CCS-C	0.285	0.000	0.535	0.000	0.000	0.000	0.000	0.000	0.000	17.671

(U) D. Acquisition Strategy

Competitive contracts with cost plus award fee options, were awarded in Feb 01 to two teams to demonstrate capabilities for the concept demonstration phase. A downselect to a single team was awarded in Mar 02 to develop the system for the development phase.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)			0603854F Wideband MILSATCOM (Space)								4870 Command & Control System Consolidated (CCSC)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Demonstration Contractors	FFP		6.800									0.000	6.800	
Development Contractor: Integral Systems, Inc.	CPAF	Lanham, MD	69.282	18.137	Oct-05	4.415	Oct-06	16.902	Oct-07	10.135	Oct-08	Continuing	TBD	
Subtotal Product Development			76.082	18.137		4.415		16.902		10.135		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
CCSC Program Support Cost			16.980	1.079	Oct-05	2.219	Oct-06	2.311	Oct-07	2.471	Oct-08	Continuing	TBD	
Subtotal Support			16.980	1.079		2.219		2.311		2.471		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
None													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			93.062	19.216		6.634		19.213		12.606		Continuing	TBD	0.000

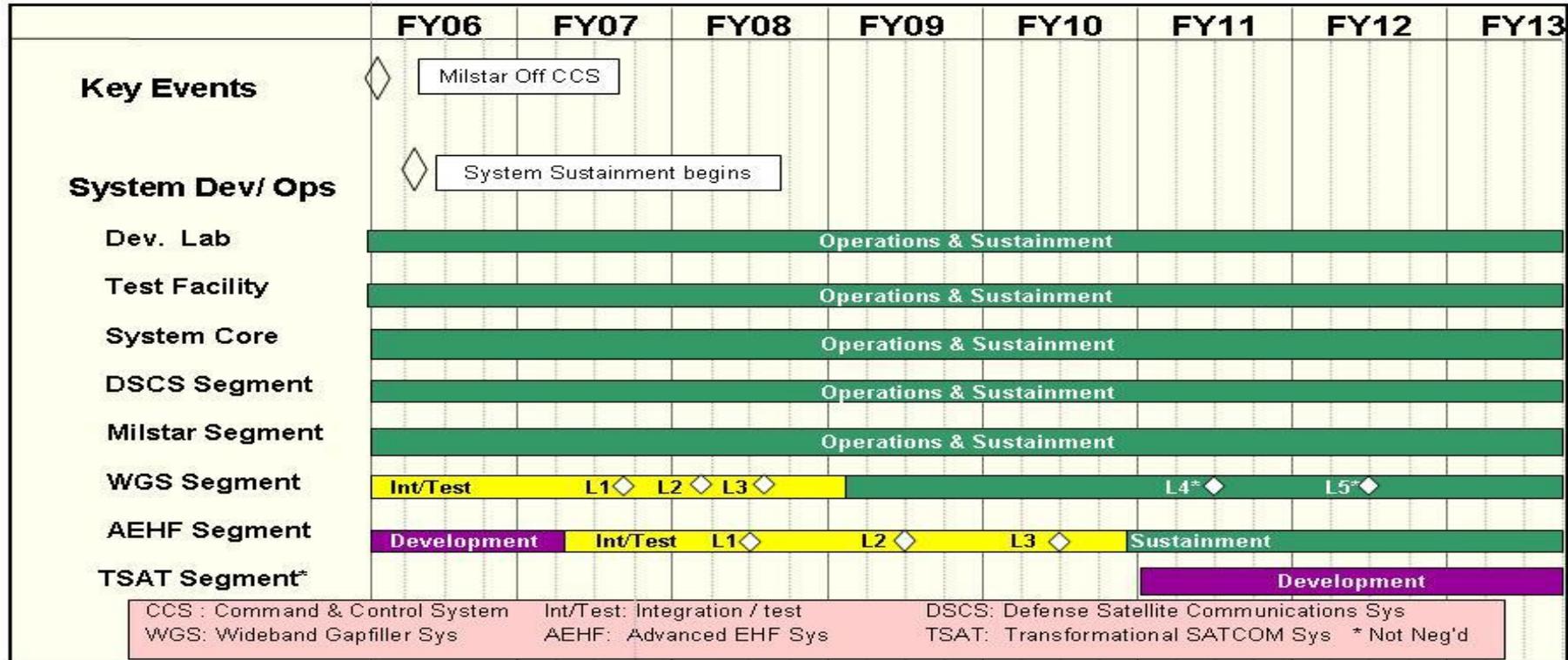
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE
4870 Command & Control System
Consolidated (CCSC)



- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System
Consolidated (CCSC)

(U) Schedule Profile

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Completed Milstar command and control functionality	1Q			
(U) Transitioned MILSATCOM legacy systems (DSCS and Milstar) to CCS-C	1Q			
(U) Began System Sustainment	1Q			
(U) Continue WGS Integration & Test		1-4Q		
(U) Begin AEHF Integration & Test		2Q		
(U) Continue WGS Integration & Test			1-4Q	
(U) Continue AEHF Integration & Test			1-4Q	
(U) Transition WGS into Sustainment				1Q
(U) Continue AEHF Integration & Test				1Q

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PE NUMBER: 0603858F
 PE TITLE: Space Radar

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603858F Space Radar
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	98.062	185.399	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A004 SBR Concept and Technology Development	98.062	185.399	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY 2008 Project 64A004 SBR Concept & Tech Development efforts were transferred from PE 0603858F to PE 0305159F (Defense Reconnaissance Support Activities) to realign space radar funding. This document is jointly developed and integrated with NRO and NGA SR budget documents

(U) A. Mission Description and Budget Item Justification

DoD and National users have committed to pursue a common, flexible, agile, and responsive space radar system which will address future intelligence, surveillance, and reconnaissance (ISR) needs of DoD, national intelligence and civil users. Key to this commitment is the continued development of a flexible and agile multi-mode radar providing Synthetic Aperture Radar (SAR), Surface Moving Target Indications (SMTI), High Resolution Terrain Information (HRTI), Advanced Geospatial Intelligence (AGI) and Open Ocean Surveillance (OOS) capabilities. Space Radar will be supported by a ground infrastructure and a space and terrestrial communications network that permits Space Radar data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. Space Radar is jointly managed and will be operated directly under the authorities of the DNI and the SECDEF. Space Radar will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. Space Radar's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict. The Initial Launch Capability is scheduled for FY 2016.

The Phase A program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation in addition to a comprehensive systems engineering process. The program integrates National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA) activities, with support from Defense Advanced Research Projects Agency (DARPA) and Air Force Research Laboratory (AFRL), to ensure both DoD and Intelligence Community requirements are addressed and the best available technologies explored for application. The program is implementing a risk reduction framework approach, to include a mix of ground, air, and existing space components, with a focus on risk reduction, technology maturation, CONOPS experimentation, and early system engineering analyses consistent with successful acquisition best practices.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), since it involves evaluating integrated technologies in an operating environment as realistic as possible to assess the performance and cost implications of implementing advanced technologies.

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Exhibit R-2, RDT&E Budget Item Justification

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February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603858F Space Radar

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	98.253	266.401	565.470	1,068.093
(U) Current PBR/President's Budget	98.062	185.399	0.000	0.000
(U) Total Adjustments	-0.191	-81.002		
(U) Congressional Program Reductions		-80.298		
Congressional Rescissions	-0.003	-0.704		
Congressional Increases				
Reprogrammings	-0.188			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

The DoD has funded the program in accordance with the cost-sharing budget developed with ODNI. Accordingly, beginning in FY08 the funding for the program has been transferred to the Defense Reconnaissance Support Activities Program Element (PE 0305159F) to increase integration and transparency between DoD and Intelligence Community efforts. The Space Radar program developed a detailed Risk Reduction Framework with the express purpose of performing systems engineering trades and defining the technology maturity needed to allow a well informed Phase B milestone decision in FY 2009. The concept definition efforts have been adjusted to maximize the use of ground, airborne, and existing space elements to reduce risk, mature radar technologies, implement concepts for horizontal integration, experimentation, and seek new technology breakthroughs resulting in increased confidence in technology maturation, program cost estimating, and payload development. The initial launch capability is now scheduled for FY2016 (vs 2015) as a result of congressional program reductions in FY07. The SecDef and DNI have committed to Space Radar as the single acquisition program to satisfy the needs of DoD and the National Intelligence Community, thereby avoiding multiple systems and duplication of effort and cost.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603858F Space Radar				PROJECT NUMBER AND TITLE A004 SBR Concept and Technology Development		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A004 SBR Concept and Technology Development	98.062	185.399	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2008 Project 64A004 SBR Concept & Tech Development efforts were transferred from PE 0603858F to PE 0305159F (Defense Reconnaissance Support Activities) to realign space radar funding

(U) A. Mission Description and Budget Item Justification

DoD and National users have committed to pursue a common, flexible, agile, and responsive space radar system which will address future intelligence, surveillance, and reconnaissance (ISR) needs of DoD, national intelligence and civil users. Key to this commitment is the continued development of a flexible and agile multi-mode radar providing Synthetic Aperture Radar (SAR), Surface Moving Target Indications (SMTI), High Resolution Terrain Information (HRTI), Advanced Geospatial Intelligence (AGI) and Open Ocean Surveillance (OOS) capabilities. Space Radar will be supported by a ground infrastructure and a space and terrestrial communications network that permits Space Radar data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. Space Radar is jointly managed and will be operated directly under the authorities of the DNI and the SECDEF. Space Radar will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. Space Radar's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict. The Initial Launch Capability is scheduled for FY 2016.

The Phase A program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation in addition to a comprehensive systems engineering process. The program integrates National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA) activities, with support from Defense Advanced Research Projects Agency (DARPA) and Air Force Research Laboratory (AFRL), to ensure both DoD and Intelligence Community requirements are addressed and the best available technologies explored for application. The program is implementing a risk reduction framework approach, to include a mix of ground, air, and existing space components, with a focus on risk reduction, technology maturation, CONOPS experimentation, and early system engineering analyses consistent with successful acquisition best practices.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), since it involves evaluating integrated technologies in an operating environment as realistic as possible to assess the performance and cost implications of implementing advanced technologies.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue to reduce technology risk and perform systems engineering trades to make progress toward a successful System Requirements Review (SRR) in FY08. Continue to implement a comprehensive risk reduction framework that targets advancement in processing and exploitation algorithms; architecture and horizontal integration; system of systems engineering effort; payload and spacecraft technologies; and cost maturity.	86.740	169.069	0.000	0.000

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603858F Space Radar	PROJECT NUMBER AND TITLE A004 SBR Concept and Technology Development
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue wargaming and experimentation, and modeling and simulation (M&S) activities to enhance system engineering capabilities. Improve Electronically Steered Array performance, mature end-to-end payload testbeds, refine signal processing algorithms, and prepare for a successful KDP-B in FY2009. The initial activities in the Phase B program will build upon the comprehensive risk reduction framework by expanding the use of integrated Tasking, Processing, Exploitation, and Dissemination (TPED) demonstrations and end-to-end experimentation activities through a mix of modeling and simulation and hardware prototype demonstrations.				
(U) Continue program support activities to include, but not limited to acquisition planning, schedule management, requirements/CONOPS development, source selection, and financial management.	11.322	16.330	0.000	0.000
(U) Total Cost	98.062	185.399	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Office of Director of National Intelligence (ODNI) funding *										
(U) Related DoD funding**										
* ODNI - National Intelligence Program (NIP) funding share is detailed in separate classified ODNI submission										
** DoD - Military Intelligence Program (MIP) funding share is detailed in separate classified DoD submission										

(U) D. Acquisition Strategy
 The Space Radar Integrated Program Office (IPO) will lead the effort with the National Reconnaissance Office (NRO), National Geospatial Intelligence Agency (NGA) and the Office of the Director of National Intelligence (ODNI) as the principal mission partners, with other Service, DoD, and Intelligence Community participation. The SR IPO has awarded two contracts for Concept Definition and plans to select a single contractor after KDP-B. The program continues to emphasize up front, robust system engineering activities and a block acquisition approach to reduce overall program risk and enhance affordability.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
04 Advanced Component Development and Prototypes (ACD&P)			0603858F Space Radar						A004 SBR Concept and Technology Development					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Phase A Concept Development/Technology Risk Reduction Activities/Phase B RR & Design Development	Various Contracts	Various	248.554	86.928	Oct-05	169.069	Oct-06						504.551	
Subtotal Product Development			248.554	86.928		169.069		0.000		0.000		0.000	504.551	0.000
Remarks:														
(U) <u>Support</u>														
SMC, ESC, AFSPC, NRO & NGA	Various Contracts	Various	29.793	11.134	Oct-05	16.330	Oct-06						57.257	
Subtotal Support			29.793	11.134		16.330		0.000		0.000		0.000	57.257	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
N/A													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
N/A													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			278.347	98.062		185.399		0.000		0.000		0.000	561.808	0.000

Exhibit R-4, RDT&E Schedule Profile

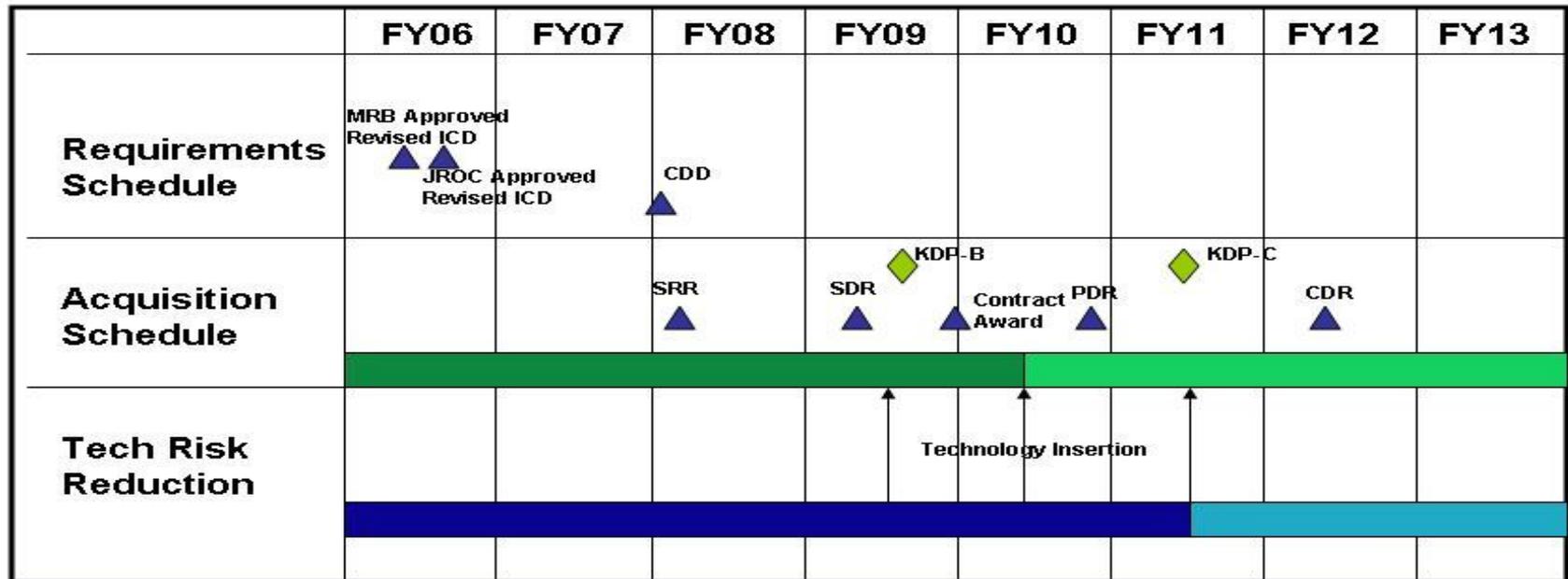
DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603858F Space Radar

PROJECT NUMBER AND TITLE
A004 SBR Concept and Technology Development

Space Radar Schedule



AoA: Analysis of Alternatives CDR: Critical Design Review ICD: Initial Capabilities Document CDD-Capabilities Development Document
PDR: Preliminary Design Review SDR: System Design Review SRR: System Requirements Review

■ Concept Definition ■ Design Development ■ Tech Risk Reduction ■ Future Increments ▲ ◆ Key Events

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603858F Space Radar	PROJECT NUMBER AND TITLE A004 SBR Concept and Technology Development
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JROC/ MRB Approved Revised ICD	2Q			
(U) Mission Utility Assessment		2Q		
(U) System Requirements Review (SRR)			1Q	
(U) Key Decision Point B (KDP-B)				3Q

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PE NUMBER: 0603859F
 PE TITLE: Pollution Prevention

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603859F Pollution Prevention
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.188	7.026	2.838	2.901	2.973	3.020	3.079	3.142	Continuing	TBD
4852 Pollution Prevention	10.188	7.026	2.838	2.901	2.973	3.020	3.079	3.142	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2.735	2.821	2.766	2.818
(U) Current PBR/President's Budget	10.188	7.026	2.838	2.901
(U) Total Adjustments	7.453	4.205		
(U) Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	-0.152	-0.027		
Congressional Increases	7.900	4.429		
Reprogrammings	0.000	0.000		
SBIR/STTR Transfer	-0.295	-0.197		

(U) Significant Program Changes:

Program increased in FY06 and FY07 due to three Congressional Inserts each year.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603859F Pollution Prevention			PROJECT NUMBER AND TITLE 4852 Pollution Prevention		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4852 Pollution Prevention	10.188	7.026	2.838	2.901	2.973	3.020	3.079	3.142	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	0.973	1.119	1.073	1.097
(U) Clean Air Act Compliance Burden Reduction	1.030	1.151	1.104	1.128
(U) O2 Diesel Air Quality Improvement (Congressional Insert)	1.054	0.968	0.000	0.000
(U) Clean Water Act Compliance Burden Reduction	0.188	0.209	0.200	0.205
(U) Hazardous Material Use Reduction	0.331	0.371	0.356	0.364
(U) Other	0.098	0.110	0.105	0.107
(U) Advanced Power Technologies (Congressional Insert)	3.640	0.000	0.000	0.000
(U) Laser Applications to Improve AF Operations and Readiness (Congressional Insert)	2.874	0.000	0.000	0.000
(U) Automating DoD Processes for Depot Transformation (Congressional Insert)	0.000	2.130	0.000	0.000
(U) Assessment of Alternate Energy for Aircraft Ground Equipment (Congressional Insert)	0.000	0.968	0.000	0.000
(U) Total Cost	10.188	7.026	2.838	2.901

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Complete							
(U) Not Applicable										

(U) D. Acquisition Strategy

Pollution Prevention activities are level of effort and use time and materials support contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
04 Advanced Component Development and Prototypes (ACD&P)				0603859F Pollution Prevention						4852 Pollution Prevention					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Air Force Research Lab	Various	Various		2.861	Apr-06	1.972	Apr-07	0.788	Apr-08	0.805	Apr-09	Continuing	TBD	TBD	
Subtotal Product Development			0.000	2.861		1.972		0.788		0.805		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Air Force Research Lab	Various	Various		2.402	Apr-06	1.657	Apr-07	0.660	Apr-08	0.676	Apr-09	Continuing	TBD	TBD	
Subtotal Support			0.000	2.402		1.657		0.660		0.676		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>															
Air Force Research Lab	Various	Various		0.559	Sep-06	0.386	Sep-07	0.152	Sep-08	0.154	Sep-09	Continuing	TBD	TBD	
Subtotal Management			0.000	0.559		0.386		0.152		0.154		Continuing	TBD	TBD	
Remarks:															
(U) <u>Prototype</u>															
Air Force Research Lab	Various	Various		4.366	Apr-06	3.011	Apr-07	1.238	Apr-08	1.266	Apr-09	Continuing	TBD	TBD	
Subtotal Prototype			0.000	4.366		3.011		1.238		1.266		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	10.188		7.026		2.838		2.901		Continuing	TBD	TBD	

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

Pollution Prevention Demonstration Schedules

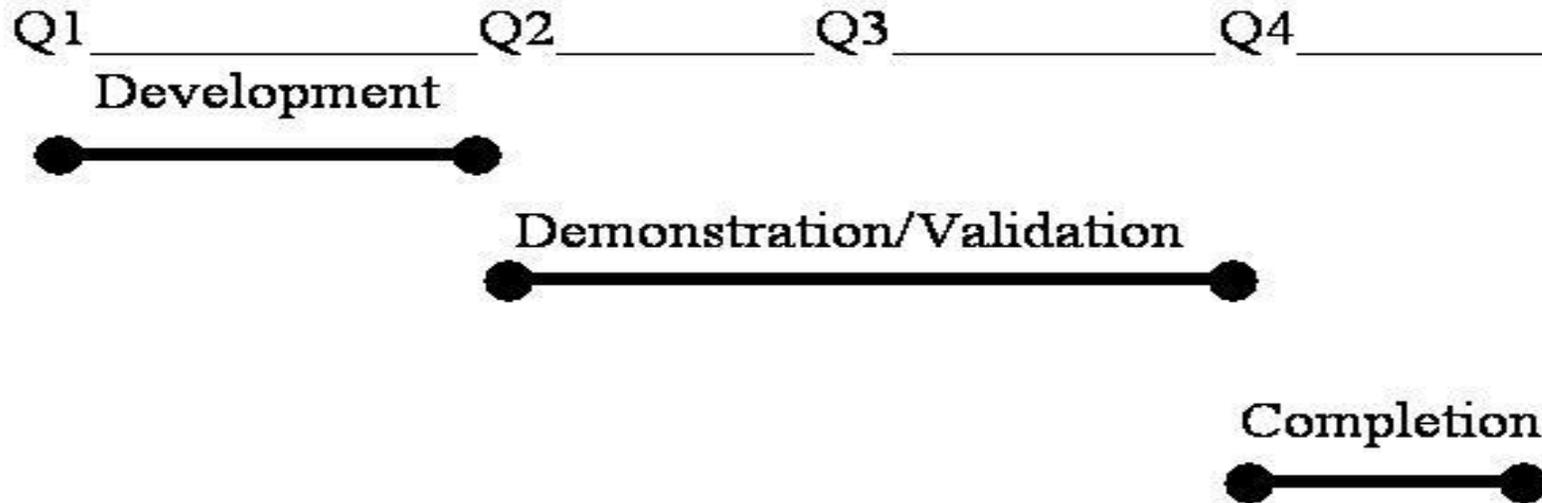


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Development

1Q

1Q

1Q

1Q

(U) Prototype

2-3Q

2-3Q

2-3Q

2-3Q

(U) Contract Completion

4Q

4Q

4Q

4Q

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PE NUMBER: 0603860F

PE TITLE: Joint Precision Approach and Landing Systems - Dem/Val

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.068	9.908	7.544	8.656	7.947	2.443	2.318	2.172	Continuing	TBD
4652 Precision Landing Systems	6.068	9.908	7.544	8.656	7.947	2.443	2.318	2.172	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The USAF is designated as the lead service to develop the common system architecture. Following the Joint Requirements Oversight Council (JROC) approval of the Capability Development Document (CDD) in February 2007, the lead service responsibilities will transfer to the Navy. JPALS will define the future precision approach and landing system for the Department of Defense (DOD) to provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Also, JPALS will enhance DOD's ability to obtain civil interoperability with the Federal Aviation Administration's (FAA) projected Local Area Augmentation System (LAAS). This program will participate in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. Furthermore, JPALS will provide a precision landing capability where none currently exists: interoperability for naval aircraft landing at shore-based airfields operated by other services; interoperability for Navy/USMC and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS Analysis of Alternatives (AoA) Update identified a family of systems (FoS) based on GPS technology solutions for fixed base, tactical and sea-based environments and Enhanced Vision Systems (EVS) for the special operations environment as the best choice for mitigating the capability gaps and meeting user needs. Development activities are initially focused on reducing technical risks. First, JPALS will provide needed guidance quality in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, because a cornerstone of the JPALS implementation strategy is world wide military and civil interoperability, JPALS will harmonize with US and international civil satellite navigation and ground navigation systems development to support development of an international implementation timeline and strategy. JPALS will result in avionics modifications to over 13,000 DOD aircraft. EVS technologies will also be monitored and evaluated, because they are a planned future JPALS increment and have the potential to provide an autonomous near zero visibility landing capability for special operations and Air Mobility Command first-in aircraft.

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

Exhibit R-2, RDT&E Budget Item Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val
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(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	10.951	10.011	10.169	19.130
(U) Current PBR/President's Budget	6.068	9.908	7.544	8.656
(U) Total Adjustments	-4.883	-0.103		
(U) Congressional Program Reductions		-0.065		
Congressional Rescissions		-0.038		
Congressional Increases				
Reprogrammings	-4.712			
SBIR/STTR Transfer	-0.171			
(U) <u>Significant Program Changes:</u>				
FY06, FY08, FY09: Reductions to fund higher AF and DoD priorities				

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0603860F Joint Precision Approach and Landing Systems - Dem/Val						4652 Precision Landing Systems		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4652 Precision Landing Systems	6.068	9.908	7.544	8.656	7.947	2.443	2.318	2.172	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The USAF is designated as the lead service to develop the common system architecture. Following the Joint Requirements Oversight Council (JROC) approval of the Capability Development Document (CDD) in February 2007, the lead service responsibilities will transfer to the Navy. JPALS will define the future precision approach and landing system for the Department of Defense (DOD) to provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Also, JPALS will enhance DOD's ability to obtain civil interoperability with the Federal Aviation Administration's (FAA) projected Local Area Augmentation System (LAAS). This program will participate in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. Furthermore, JPALS will provide a precision landing capability where none currently exists: interoperability for naval aircraft landing at shore-based airfields operated by other services; interoperability for Navy/USMC and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS Analysis of Alternatives (AoA) Update identified a family of systems (FoS) based on GPS technology solutions for fixed base, tactical and sea-based environments and Enhanced Vision Systems (EVS) for the special operations environment as the best choice for mitigating the capability gaps and meeting user needs. Development activities are initially focused on reducing technical risks. First, JPALS will provide needed guidance quality in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, because a cornerstone of the JPALS implementation strategy is world wide military and civil interoperability, JPALS will harmonize with US and international civil satellite navigation and ground navigation systems development to support development of an international implementation timeline and strategy. JPALS will result in avionics modifications to over 13,000 DOD aircraft. EVS technologies will also be monitored and evaluated, because they are a planned future JPALS increment and have the potential to provide an autonomous near zero visibility landing capability for special operations and Air Mobility Command first-in aircraft.

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val	PROJECT NUMBER AND TITLE 4652 Precision Landing Systems
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform anti-jam and threat analysis	0.993	2.250	1.750	0.500
(U) Perform architecture trade studies and analyses	1.693	3.497	2.581	1.615
(U) MS B preparation	2.628	0.311	0.413	3.250
(U) Prepare for system demonstration	0.226	0.250	0.250	0.250
(U) Perform aircraft requirements and integration studies	0.303	0.500	0.200	0.200
(U) Develop test program	0.225	0.100	0.100	0.200
(U) Develop requirements and system design		2.750	2.000	2.141
(U) Development of future JPALS spirals/increments		0.250	0.250	0.500
(U) Total Cost	6.068	9.908	7.544	8.656

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										

(U) **D. Acquisition Strategy**

All contracts will be competitively awarded. For Technology Demonstration (TD) efforts leading to Milestone B, we awarded multiple Time and Materials (T&M) contracts.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2007			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val					PROJECT NUMBER AND TITLE 4652 Precision Landing Systems				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<u>(U) Product Development</u>															
Aircraft Requirements & Integration Studies	C/T&M	AES, California, MD	1.515	0.280	Feb-06	0.250	Feb-07	0.080	Jan-08	0.170	Jan-09	Continuing	TBD	TBD	
Aircraft Anti-jam & Threat Analyses	C/T&M	AES, California, MD		0.882	Feb-06	1.220	Feb-07	0.700	Jan-08	0.420	Jan-09	0.000	3.222	TBD	
Architecture Trade Studies & Analyses	C/T&M	AES, California, MD	15.169	0.600	Feb-06	1.847	Feb-07	1.104	Jan-08	1.362	Jan-09	Continuing	TBD	TBD	
Requirements Development/System Design	C/T&M	AES, California, MD				1.448	Feb-07	0.800	Jan-08	1.790	Jan-09	Continuing	TBD	TBD	
Program Planning For Future JPALS Spirals	TBD	TBD								0.250	Jan-09	Continuing	TBD	TBD	
Subtotal Product Development			16.684	1.762		4.765		2.684		3.992		Continuing	TBD	TBD	
Remarks:															
<u>(U) Test & Evaluation</u>															
Flight Test Support	MIPR	46TG/XPRF, Holloman, NM	1.123	0.094	Mar-06	0.417	Mar-07	0.200	Mar-08			0.000	1.834	4.087	
Subtotal Test & Evaluation			1.123	0.094		0.417		0.200		0.000		0.000	1.834	4.087	
Remarks:															
<u>(U) Management</u>															
Program Management Support	C/T&M	ESC/ITSP II (Various), Bedford, MA	14.369	1.620	May-06	1.638	Jan-07	1.661	Jan-08	1.656	Jan-09	Continuing	TBD	TBD	
Specialized Cost Services	C/IDIQ	MCR, Lexington, MA	1.520	0.691	May-06	0.553	Jan-07	0.570	Jan-08	0.587	Jan-09	Continuing	TBD	TBD	
GA SPO Operations	Various	Various	3.919	0.161	May-06	0.300	Mar-07	0.300	May-08	0.300	May-09	Continuing	TBD	TBD	
Subtotal Management			19.808	2.472		2.491		2.531		2.543		Continuing	TBD	TBD	
Remarks:															
<u>(U) Support</u>															
NAVY PM and Engineering	MIPR	Navy OMA21381, NAS Pax River, MD	16.582	0.105	Jan-06							0.000	16.687	16.687	
ESC FFRDC Engineering	Various	MITRE	7.575	1.635	Jan-06	2.235	Jan-07	2.129	Jan-08	2.121	Jan-09	Continuing	TBD	TBD	

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val	PROJECT NUMBER AND TITLE 4652 Precision Landing Systems
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	Corporation, Bedford, MA								
Subtotal Support Remarks:		24.157	1.740	2.235	2.129	2.121	Continuing	TBD	TBD
(U) <u>Reprogramming</u>								0.000	
Subtotal Reprogramming Remarks:		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Total Cost		61.772	6.068	9.908	7.544	8.656	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

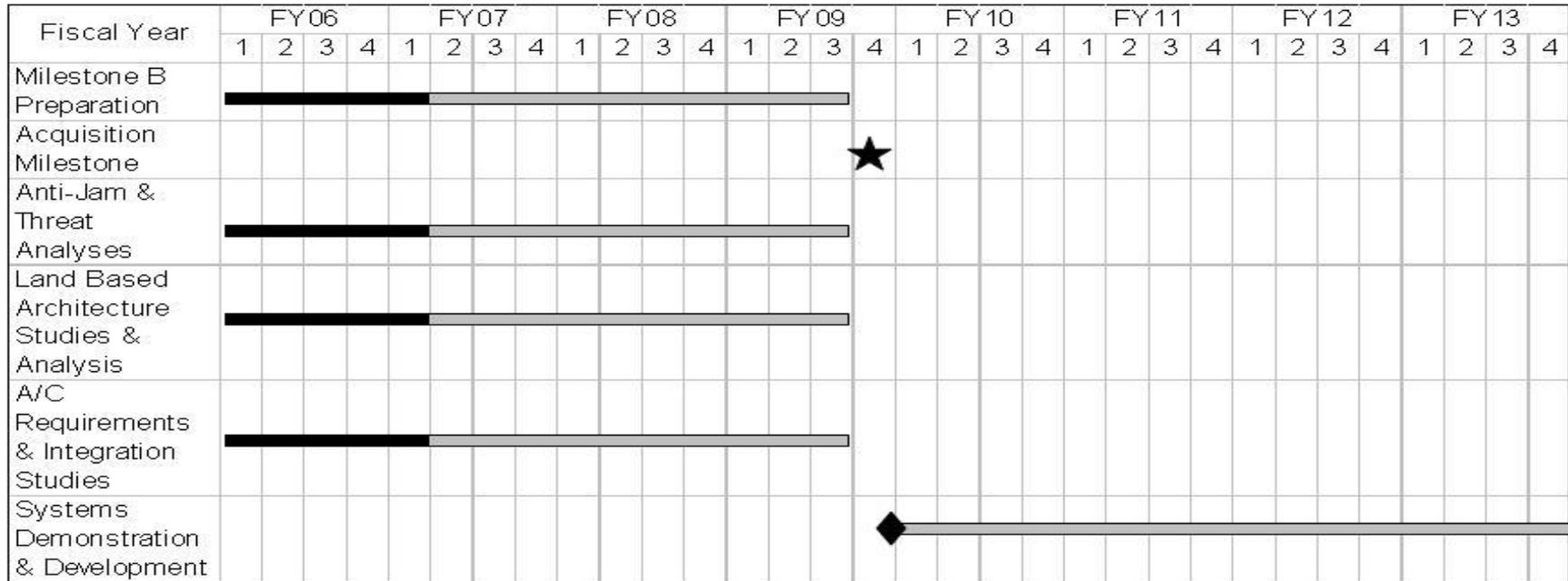
DATE

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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603860F Joint Precision Approach
and Landing Systems - Dem/Val

PROJECT NUMBER AND TITLE
4652 Precision Landing Systems



As of December 2006

- ★ Milestone B
- ◆ Begin SDD
- ☆ Milestone C
- █ Planned Ongoing Activity
- █ Ongoing Activity that is Complete

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603860F Joint Precision Approach and Landing Systems - Dem/Val

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Complete anti-jam and threat analyses

3Q

(U) Complete requirements & integrations studies

3Q

(U) Complete Land Based architecture studies and analyses

3Q

(U) Complete Milestone B prep work

3Q

(U) Milestone B

4Q

(U) Begin Systems Development and Design (SDD)

4Q

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PE NUMBER: 0604015F

PE TITLE: Next Generation Long Range Strike (NGLRS)

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	24.108	25.491	0.000	0.000	0.000	81.092	101.113	151.441	Continuing	TBD
3308 Next Generation Bomber	24.108	25.491	0.000	0.000	0.000	81.092	101.113	151.441	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program develops and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force three-phase long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architecture development, maturation and risk reduction of advanced Long Range Strike related technologies, and integrated system concept development and demonstration. Note: In FY 2005, Congress added \$30M for Bomber Development. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	24.777	26.314	64.514	103.878
(U) Current PBR/President's Budget	24.108	25.491	0.000	0.000
(U) Total Adjustments	-0.669	-0.107		
(U) Congressional Program Reductions		-0.010		
Congressional Rescissions		-0.097		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.668			

(U) Significant Program Changes:

FY08 and FY09 program reduced in this PE to fund technology maturation efforts.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)				PROJECT NUMBER AND TITLE 3308 Next Generation Bomber		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3308 Next Generation Bomber	24.108	25.491	0.000	0.000	0.000	81.092	101.113	151.441	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program develops and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force three-phase long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architecture development, maturation and risk reduction of advanced Long Range Strike related technologies, and integrated system concept development and demonstration. Note: In FY 2005, Congress added \$30M for Bomber Development. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Develop and refine Long Range Strike requirements based on the Air Force Global Strike and Global Persistent Attack Concept of Operations.	24.108	25.491		
(U) In FY 2006: Refine system concepts and operational/system architectures, and prepare Technology Development Strategy. Conduct Analysis of Alternatives to identify preferred Long Range Strike option. Develop radio frequency/electro-optical/infrared sensor technology for rapid and accurate target detection and identification capability. Develop data fusion algorithms and crew interface techniques for multi-platform sensor cueing/management and net-centric operations. Develop blended wing aero-control and structural load databases to characterize aero-propulsive efficiency. Determine large-scale composite airframe manufacturing approaches. Demonstrate acoustic suppression and enhanced weapon separation technology. Develop lightweight thermal structures components for air platform concepts. Conduct small-scale wind tunnel experiments of tailless aero-configurations. Validate performance of engine inlet and nozzle flow path components for variable cycle propulsion. Demonstrate high temperature engine core components.				
(U) In FY 2007: Continue refinement of system concepts and designs and operational/system architectures. Continue Analysis of Alternative to identify preferred Long Range Strike option. Continue preparation of the Technology Development Strategy. Continue projects to mature key technologies including mitigating risk of key concept attributes of the possible options. Develop a Modeling and Simulation Support Plan to ensure robust analytic support across the concept life cycle. Continue development of radio frequency/electro-optical/infrared sensor technology for radio and accurate target detection and				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)	PROJECT NUMBER AND TITLE 3308 Next Generation Bomber
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(U) **B. Accomplishments/Planned Program (\$ in Millions)** FY 2006 FY 2007 FY 2008 FY 2009
 identification capability. Continue development of high temperature and variable cycle engine core components, sensor/aperture integration technology, and advanced weapon integration technology.

(U) In FY 2008: N/A

(U) Total Cost 24.108 25.491 0.000 0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**
 To be determined.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)	PROJECT NUMBER AND TITLE 3308 Next Generation Bomber
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Long Range Strike</u>														
Concept Exploration and Refinement	TBD	TBD		24.108		25.491						Continuing	TBD	
Subtotal Long Range Strike			0.000	24.108		25.491		0.000		0.000		Continuing	TBD	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	24.108		25.491		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

NGLRS Phase II Schedule	FY05				FY06				FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Fiscal Year																																				
NGLRS Phase II Concept Decision -- AoA Kickoff				▲																																
NGLRS Phase II Concept Refinement																																				

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)	PROJECT NUMBER AND TITLE 3308 Next Generation Bomber
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Enter Concept Refinement Phase -- AoA Start	1Q			
(U) AoA Completion		2Q		

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PE NUMBER: 0604327F
 PE TITLE: Hardened Target Munitions

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.854	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	3.854	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425

(U) **A. Mission Description and Budget Item Justification**
 FY06 funding is provided in language from the Congressional Authorization Report that addresses a Penetrator Study. Hard and Deeply Buried Targets (HDBTs) pose a threat to the national security and currently the Air Force does not have the capability to hold many of these targets at risk. This study will evaluate the feasibility of various options for penetrator weapons or other concepts that could be used to hold HDBTs at risk. The study will include a sled test, an analysis of the physics of penetrating geologic media, and an analysis of critical weapon technologies and weapon components.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.943			
(U) Current PBR/President's Budget	3.854			
(U) Total Adjustments	-0.089			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.089			

(U) **Significant Program Changes:**

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604327F Hardened Target Munitions			PROJECT NUMBER AND TITLE 4641 Hard and Deeply Buried Target Defeat System (HDBTDS)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	3.854	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

FY06 funding is provided in language from the Congressional Authorization Report that addresses a Penetrator Study. Hard and Deeply Buried Targets (HDBTs) pose a threat to the national security and currently the Air Force does not have the capability to hold many of these targets at risk. This study will evaluate the feasibility of various options for penetrator weapons or other concepts that could be used to hold HDBTs at risk. The study will include a sled test, an analysis of the physics of penetrating geologic media, and an analysis of critical weapon technologies and weapon components.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Physics of Penetrating Geologic Media Study	3.854			
(U) Total Cost	3.854	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) N/A										

(U) **D. Acquisition Strategy**

FY06 Congressional plus up will accomplish additional study efforts, to include hardware testing, to account for changes to assumptions, intelligence and technology since completion of the HDBT AoA in order to increase the target set held at risk. Also included will be the effort to accomplish a new capabilities development document (CDD) and integration office costs to coordinate and publish the CDD.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0604327F Hardened Target Munitions	4641 Hard and Deeply Buried Target Defeat System (HDBTDS)

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Capability Integration</u>														
Penetrator Study				3.854								0.000	3.854	0.000
Subtotal Capability Integration			0.000	3.854		0.000		0.000		0.000		0.000	3.854	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	3.854		0.000		0.000		0.000		0.000	3.854	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0604327F Hardened Target
Munitions**

PROJECT NUMBER AND TITLE

**4641 Hard and Deeply Buried Target
Defeat System (HDBTDS)**

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions	PROJECT NUMBER AND TITLE 4641 Hard and Deeply Buried Target Defeat System (HDBTDS)
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Penetrator Study	2-4Q			

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PE NUMBER: 0604400F

PE TITLE: Joint Unmanned Combat Air System (J-UCAS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	222.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5058 Unmanned Combat Air Vehicle (UCAV)	222.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: In FY06, the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint Air Force/Navy program. The J-UCAS program is being terminated and \$1,830.5M is being realigned to PE0604402N in FY07-11.

(U) A. Mission Description and Budget Item Justification

The Joint Unmanned Combat Air Systems (J-UCAS) is a joint Air Force/Navy Capabilities Demonstration Program (CDP) to mature technologies to investigate the technical feasibility and operational value of unmanned combat air vehicles to provide the capability for high-threat Suppression of Enemy Air Defenses (SEAD), Electronic Attack, Strike/Persistent Ground Attack and carrier based Persistent Intelligence, Surveillance and Reconnaissance (ISR) missions. The program will demonstrate capabilities that support both Services and enable an operational system development decision in the 2012 timeframe.

The 2005 Quadrennial Defense Review (QDR) of the future force requirements for the United States military recommended termination of the J-UCAS CDP. DoD, IAW this recommendation, is terminating the J-UCAS program in FY07.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	227.857	0.000		
(U) Current PBR/President's Budget	224.360	0.000		
(U) Total Adjustments	-3.497			
(U) Congressional Program Reductions	1.133			
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.748			
SBIR/STTR Transfer	-3.882			

(U) Significant Program Changes:

As a result of the 2005 QDR, DoD is terminating the J-UCAS program in FY07 and realigning \$1,830.5M in outyear funding to PE0604402N.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS)				PROJECT NUMBER AND TITLE 5058 Unmanned Combat Air Vehicle (UCAV)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5058 Unmanned Combat Air Vehicle (UCAV)	222.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Note: In FY06, the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint Air Force/Navy program. The J-UCAS program is being terminated and \$1,830.5M in funding is being realigned to PE0604402N in FY07-11.

(U) A. Mission Description and Budget Item Justification

The Joint Unmanned Combat Air Systems (J-UCAS) is a joint Air Force/Navy Capabilities Demonstration Program (CDP) to mature technologies to investigate the technical feasibility and operational value of unmanned combat air vehicles to provide the capability for high-threat Suppression of Enemy Air Defenses (SEAD), Electronic Attack, Strike/Persistent Ground Attack and carrier based Persistent Intelligence, Surveillance and Reconnaissance (ISR) missions. The program will demonstrate capabilities that support both Services and enable an operational system development decision in the 2012 timeframe.

The 2005 Quadrennial Defense Review (QDR) of the future force requirements for the United States military recommended termination of the J-UCAS CDP. DoD, IAW this recommendation, is terminating the J-UCAS program in FY07.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue development of J-UCAS systems, specifically the Boeing and Northrop Grumman demonstrator programs	224.360	0.000		
(U) Total Cost	224.360	0.000	0.000	0.000

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Defense-Wide RDT&E (PE0603400D8Z)	0.000	0.000	0.000	0.000	0.000	0.000				
(U) Defense-Wide RDT&E (PE0604400D8Z)	0.000	0.000	0.000	0.000	0.000	0.000				
(U) AF RDT&E (PE0603400F)	80.364	0.000	0.000	0.000	0.000	0.000				
(U) NAVY RDT&E	0.000	239.000	310.000	369.400	491.100	421.000			Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat
Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle
(UCAV)(U) C. Other Program Funding Summary (\$ in Millions)

(PE0604402N)

(U) D. Acquisition Strategy

Not applicable. The J-UCAS program is being terminated in FY07.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS)	PROJECT NUMBER AND TITLE 5058 Unmanned Combat Air Vehicle (UCAV)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>									
(U) <u>Product Development</u>														
X-45	Section 845, OTA Agreement	Boeing Co, St. Louis, MO		131.704									131.704	
X-47	Section 845, OTA Agreement	Northrop Grumman, Rancho Bernardo, CA		56.556									56.556	
Common Systems & Technologies	Multiple	Various											0.000	0.000
Subtotal Product Development			0.000	188.260		0.000		0.000		0.000		0.000	188.260	0.000
Remarks:														
(U) <u>Support</u>														
Other Gov't Costs				26.720									26.720	
Subtotal Support			0.000	26.720		0.000		0.000		0.000		0.000	26.720	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Gov't Test		AFFTC, Edwards AFB		5.020									5.020	
Gov't Test		Patuxent River, Lakehurst		4.360									4.360	
Subtotal Test & Evaluation			0.000	9.380		0.000		0.000		0.000		0.000	9.380	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	224.360		0.000		0.000		0.000		0.000	224.360	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat
Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle
(UCAV)

N/A -- These funds cover the development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. In addition, these funds cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS)	PROJECT NUMBER AND TITLE 5058 Unmanned Combat Air Vehicle (UCAV)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) X-45 System Requirements Review	4Q			
(U) X-47 Critical Design Review	4Q			

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	45.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.686
A013 Small Launch Vehicle	45.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.686

In FY 2007 this PE was closed and the effort transferred to PE 0604857F, Operationally Responsive Space. The new PE recognizes the broader scope of not just responsive launchers, but also satellites and ranges, necessary for a responsive space system.

(U) A. Mission Description and Budget Item Justification

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force (AF) and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the ORS Analysis of Alternatives (AoA), and approved the following recommendations: (1.) Leverage lessons learned from AF-DARPA Falcon demo (2.) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs (3.) Pursue a Hybrid (part reusable, part expendable) launch vehicle: spiral development approach, Step one: Small scale hybrid integration demonstrator, Step two: Full scale operational hybrid demonstrator, Step three: Vehicle production /operations. The AoA evolutionary approach begins with a starting point Hybrid Demonstrator to reduce risk and uncertainties.

In FY 2006 Congress added funds to conduct operational, technical, and economic analysis of Near Space vehicle design, development, and operational architectures. Near Space provides a persistent, responsive and dedicated capability to perform reconnaissance, communications, electronic warfare, and other missions.

This program is Budget Activity 4, Advanced Component Development and Prototypes, because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	38.519	0.000	0.000	0.000
(U) Current PBR/President's Budget	45.155	0.000	0.000	0.000
(U) Total Adjustments	6.636			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	6.636			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
FY06: Increased for Tactical Satellite (TacSat) launch.				
FY07: This PE is being closed and funding transferred to PE 0604857F, Operationally Responsive Space.				

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0604855F Operationally Responsive Launch						A013 Small Launch Vehicle		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A013 Small Launch Vehicle	45.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.686
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force (AF) and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the ORS Analysis of Alternatives (AoA), and approved the following recommendations: (1.) Leverage lessons learned from AF-DARPA Falcon demo (2.) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs (3.) Pursue a Hybrid (part reusable, part expendable) launch vehicle: spiral development approach, Step one: Small scale hybrid integration demonstrator, Step two: Full scale operational hybrid demonstrator, Step three: Vehicle production /operations. The AoA evolutionary approach begins with a starting point Hybrid Demonstrator to reduce risk and uncertainties.

In FY 2006 Congress added funds to conduct operational, technical, and economic analysis of Near Space vehicle design, development, and operational architectures. Near Space provides a persistent, responsive and dedicated capability to perform reconnaissance, communications, electronic warfare, and other missions.

This program is Budget Activity 4, Advanced Component Development and Prototypes, because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued SLV system design and development, systems engineering and flight test planning for Phase II	17.300			
(U) Supported early demonstration flights and launch/test facilities evaluation and improvement	3.139			
(U) Performed analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support	2.480			
(U) Blue MAJIC				

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Project A013

Exhibit R-2a (PE 0604855F)

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch	PROJECT NUMBER AND TITLE A013 Small Launch Vehicle
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Advanced Rocket Components				
(U) TacSat Launch	14.436			
(U) Tactical Satellite Demonstrations	5.700			
(U) Near Space analysis and program development	2.100			
(U) Total Cost	45.155	0.000	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E, PE 0604857F, ORS (R-xx)		35.411	87.032	111.657	52.791	52.710	52.579	52.499	Continuing	TBD

(U) **D. Acquisition Strategy**
 Small Launch Vehicle (SLV) efforts executed by the joint AF/DARPA Falcon Program Office. An open competition was held for Phase II contracts in August 2004, resulting in Other Transactional Agreement contract vehicles. TacSat launches will be provided with existing contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch	PROJECT NUMBER AND TITLE A013 Small Launch Vehicle
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Nine Phase I contractors	FFP	various											0.000	3.490
Phase II contractors:												Continuing	TBD	TBD
Air Launch	OTA	Reno, NV		17.300	Oct-05							Continuing	TBD	TBD
Lockheed Martin	OTA	New Orleans, LA										Continuing	TBD	TBD
Microcosm	OTA	El Segundo										Continuing	TBD	TBD
Space-X	OTA	El Segundo										Continuing	TBD	TBD
TBD Phase III contractors	TBD	TBD										Continuing	TBD	TBD
Hybrid Design and Development	TBD	TBD											0.000	
Near Space analysis and program development	TBD	TBD		2.100	May-06								2.100	
Subtotal Product Development			0.000	19.400		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Test Stand 2A Modification	MIPR	Edwards AFB, CA											0.000	3.804
Range Services	MIPR	Army-Huntsville, AL										Continuing	TBD	TBD
Flight Demo Support	MIPR	various		3.139	Oct-05							Continuing	TBD	TBD
SLC-3W Modification	MIPR	Naval Research Lab/Wash DC											0.000	1.700
Blue MAJIC	CPFF	Sparta, Lake Forest CA											0.000	2.000
Advanced Rocket Components	SBIR	Rocket Prop. Eng., Mojave CA											0.000	1.000
TacSat Launch	FFP	SMC Det 12/RP/Kirtland AFB NM		14.436	May-06								14.436	
TacSat Demonstrations	FFP	SMC Det 12/RP/Kirtland AFB NM		5.700	May-06								5.700	
Subtotal Test & Evaluation			0.000	23.275		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Development Support and Management</u>														

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604855F Operationally Responsive Launch			A013 Small Launch Vehicle			
Perform analysis and assess alternative concepts/requirements & program support	various	various	2.480	Oct-05			Continuing	TBD	TBD	
Subtotal Development Support and Management			0.000	2.480	0.000	0.000	0.000	Continuing	TBD	TBD
Remarks:										
(U) Total Cost			0.000	45.155	0.000	0.000	0.000	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

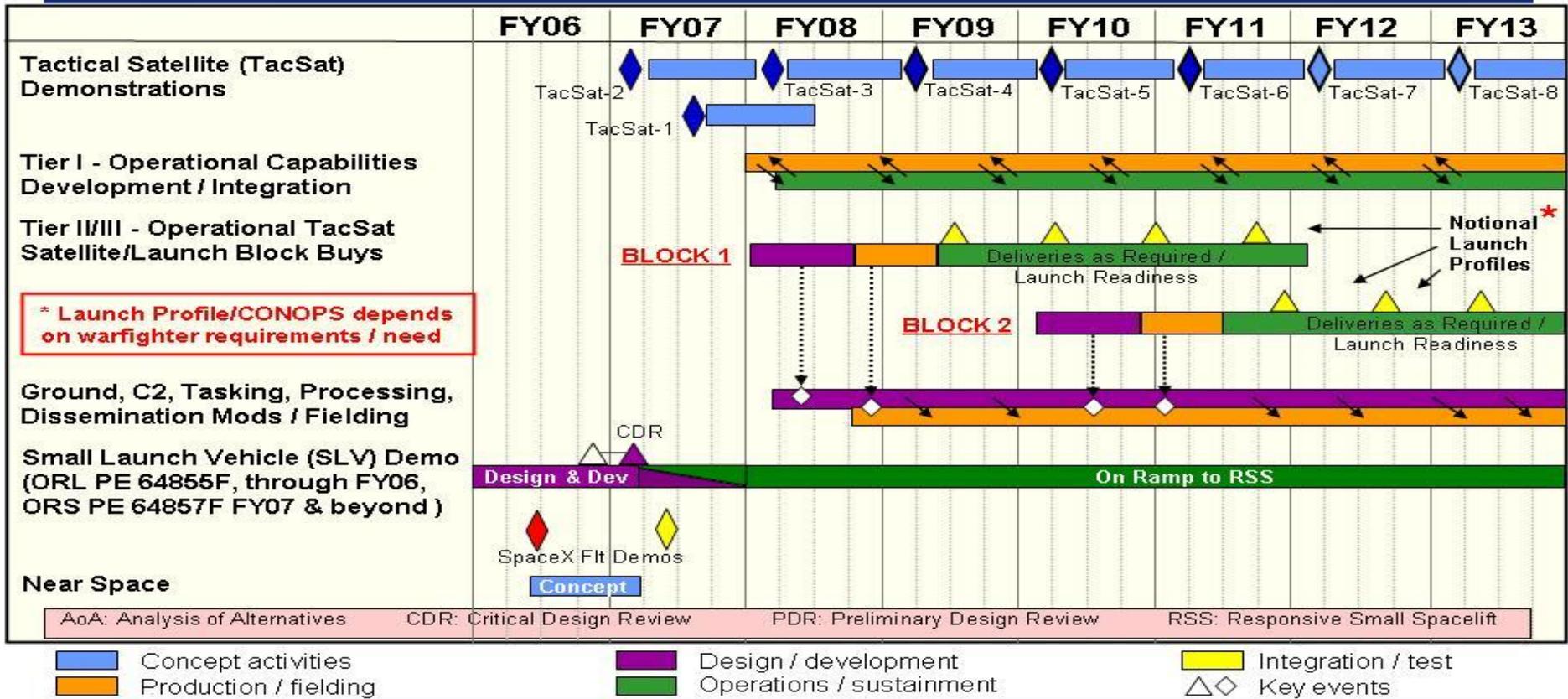
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0604855F Operationally Responsive Launch

PROJECT NUMBER AND TITLE
A013 Small Launch Vehicle



Unclassified
ORS
Schedule



AoA: Analysis of Alternatives CDR: Critical Design Review PDR: Preliminary Design Review RSS: Responsive Small Spacelift

■ Concept activities ■ Design / development ■ Integration / test
■ Production / fielding ■ Operations / sustainment △◇ Key events

Unclassified

◆ SLV Funded

Exhibit R-4a, RDT&E Schedule Detail

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February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) TacSat-2 Launch

1Q

(U) Space-X Demo Launch

2Q

(U) TacSat-1 Launch

3Q

UNCLASSIFIED

PE NUMBER: 0604856F
 PE TITLE: Common Aero Vehicle

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604856F Common Aero Vehicle
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.548	33.185	32.806	41.672	45.175	84.061	85.009	86.740	Continuing	TBD
A012 Common Aerospace Vehicle	26.548	33.185	32.806	41.672	45.175	84.061	85.009	86.740	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) and follow-on PGS Initial Capabilities Document (ICD) identify the warfighter's need for a capability to strike globally, precisely, and rapidly, with kinetic effects, against high-payoff, time-sensitive targets in a single or multi-theater environment, when US and Allied forces have no permanent military presence or only limited infrastructure in a region, regardless of anti-access threats.

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle (CAV) effort to meet this requirement. This joint program, named Falcon, focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide through space. As a result of FY05 Congressional language, the Falcon portion of the CAV program was restructured by DARPA and the Air Force to ensure it met the intent of Congress. Within the Falcon program, CAV has been redesignated the Hypersonic Technology Vehicle (HTV); all weaponization activities have been excluded from Falcon. Technologies evolving out of the Falcon program are further matured through a series of follow-on demonstrations in support of the MNS and ICD.

The program will also explore the initiation of an operational system. This will include completing the operational requirements documentation, studying least provocative basing alternatives, enhancing international transparency, and conducting effectiveness demonstrations and payload survivability assessments.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.993	33.386	32.387	40.840
(U) Current PBR/President's Budget	26.548	33.185	32.806	41.672
(U) Total Adjustments	-0.445	-0.201		
(U) Congressional Program Reductions		-0.075		
Congressional Rescissions		-0.126		
Congressional Increases				
Reprogrammings	-0.445			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604856F Common Aero Vehicle				PROJECT NUMBER AND TITLE A012 Common Aerospace Vehicle		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A012 Common Aerospace Vehicle	26.548	33.185	32.806	41.672	45.175	84.061	85.009	86.740	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) and follow-on PGS Initial Capabilities Document (ICD) identify the warfighter's need for a capability to strike globally, precisely, and rapidly, with kinetic effects, against high-payoff, time-sensitive targets in a single or multi-theater environment, when US and Allied forces have no permanent military presence or only limited infrastructure in a region, regardless of anti-access threats.

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle (CAV) effort to meet this requirement. This joint program, named Falcon, focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide through space. As a result of FY05 Congressional language, the Falcon portion of the CAV program was restructured by DARPA and the Air Force to ensure it met the intent of Congress. Within the Falcon program, CAV has been redesignated the Hypersonic Technology Vehicle (HTV); all weaponization activities have been excluded from Falcon. Technologies evolving out of the Falcon program are further matured through a series of follow-on demonstrations in support of the MNS and ICD.

The program will also explore the initiation of an operational system. This will include completing the operational requirements documentation, studying least provocative basing alternatives, enhancing international transparency, and conducting effectiveness demonstrations and payload survivability assessments.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Continue HTV system design and development, systems engineering and flight test planning/support for Phase II	20.470	23.585	20.903	9.826
(U) Perform analysis and assess alternative HTV concepts/requirements and program management support	2.672	3.874	2.552	1.174
(U) Perform Prompt Global Strike Analysis of Alternatives and requirements development	3.406	5.726	1.000	
(U) Study potentially least provocative PGS basing alternatives and measures to avoid misinterpretation			1.100	0.400
(U) Conduct PGS technology demonstrations of thermal protection technologies, use of multi-mission launch vehicle components, and other technologies to assess maturity and reduce risk			5.951	23.172
(U) Assess the military utility of PGS common munitions, including BLU-108, by conducting effectiveness demonstrations and payload survivability assessments in simulated hypersonic flight environments			1.300	7.100
(U) Total Cost	26.548	33.185	32.806	41.672

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604856F Common Aero Vehicle	PROJECT NUMBER AND TITLE A012 Common Aerospace Vehicle
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										
(U) Defensewide RDT&E, DARPA, PE 0603285E, Falcon	40.000	50.000	50.000	50.000					Continuing	TBD

(U) D. Acquisition Strategy

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Four Phase I contracts were awarded in November 2003, Other Transaction Agreements, with a duration of 6 months. A downselect between the four Phase I contractors occurred in August 2004 for Phase II with a single award using an Other Transaction Agreements contract vehicle planned through 2009. The follow-on PGS effort will begin with competitions in 2008.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)										0604856F Common Aero Vehicle		A012 Common Aerospace Vehicle			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<u>(U) Product Development</u>															
Four Phase I contracts	OTA	various	4.293	0.000		0.000		0.000		0.000		0.000	4.293	4.293	
Phase II contract	OTA	Lockheed-Martin, Palmdale, CA	14.464	20.470	Dec-05	23.585	Oct-06	20.903	Oct-07	9.826	Oct-08	Continuing	TBD	TBD	
Subtotal Product Development			18.757	20.470		23.585		20.903		9.826		Continuing	TBD	TBD	
Remarks:															
<u>(U) Test & Evaluation</u>															
Conduct PGS tech demos	TBD	SMC/XD, Los Angeles AFB, CA	0.000	0.000		0.000		5.051	Nov-07	23.172	Oct-08	Continuing	TBD	TBD	
Conduct PGS conventional munitions demos	TBD	SMC/XD, Los Angeles AFB, CA	0.000	0.000		0.000		1.300	Nov-07	7.100	Oct-08	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		6.351		30.272		Continuing	TBD	TBD	
Remarks:															
<u>(U) Development Support and Management</u>															
Perform analysis and assess alternative HTV concepts/requirements & program support	various	various	8.821	2.672	Oct-05	3.874	Oct-06	2.552	Oct-07	1.174	Oct-08	Continuing	TBD	TBD	
Perform PGS AoA	various	AFSPC, Peterson AFB, CO	0.000	3.406	Feb-06	5.726	Oct-06	0.000		0.000		0.000	9.132	9.132	
Develop critical CAV technology	MIPR	AFRL, Kirtland AFB, NM	2.000	0.000		0.000		0.000		0.000		0.000	2.000	2.000	
Analyze PGS requirements, basing alternatives, and launch vehicles	various	SMC/XD, Los Angeles AFB, CA	0.000	0.000		0.000		3.000	Oct-07	0.400	Oct-08	Continuing	TBD	TBD	
Subtotal Development Support and Management			10.821	6.078		9.600		5.552		1.574		Continuing	TBD	TBD	
Remarks:															
<u>(U) Total Cost</u>			29.578	26.548		33.185		32.806		41.672		Continuing	TBD	TBD	

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604856F Common Aero Vehicle	PROJECT NUMBER AND TITLE A012 Common Aerospace Vehicle
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) HTV-1 Critical Design Review (CDR)	1Q			
(U) HTV-2 Preliminary Design Review (PDR)	2Q			
(U) HTV-2 CDR		4Q		
(U) HTV-3 PDR		2Q		
(U) HTV-3 CDR			2Q	
(U) PGS AoA	2-4Q	1-4Q		
(U) First HTV-2 Flight Demo Launch				1Q
(U) Second HTV-2 Flight Demo Launch				3Q
(U) Initiate PGS concept development			1Q	
(U) BLU-108 Demos			3Q	2Q
(U) PGS PDR				3Q

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PE NUMBER: 0604857F

PE TITLE: Operationally Responsive Space

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	35.411	87.032	111.657	52.791	52.710	52.579	52.499	Continuing	TBD
A015 Tactical Satellites	0.000	0.101	85.215	111.252	52.791	52.710	52.579	52.499	Continuing	TBD
A016 Operationally Responsive Lift	0.000	35.310	1.817	0.405	0.000	0.000	0.000	0.000	Continuing	TBD

In FY 2007, this was a new PE. The funding was transferred from PE 0604855F, Operationally Responsive Launch. This new PE recognizes the broader scope of not just responsive launchers, but also satellites, and command and control necessary for a responsive space system.

In FY 2007, the Tactical Satellite (TacSat) effort in Project 64A015 was a new start to meet some of the requirements of the Operationally Responsive Space Analysis of Alternatives.

(U) A. Mission Description and Budget Item Justification

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in an increased reliance on and demand for those capabilities. As a result, U.S. Strategic Command identified three needs: to rapidly augment existing space capabilities when needed to expand operational capability; to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

The ORS goals are 1) Connect space to the user--make space capabilities more relevant to Joint Force Commanders and more adaptable to future joint force needs. 2) Respond to urgent needs--deliver effects to joint warfare in response to an urgent or previously unanticipated need. 3) Reduce development/deployment time and cost--complement existing space capabilities with an element focused on increased value and timely delivery. 4) Capitalize on emerging/innovative capabilities--adopt new capabilities from advanced technologies and innovative operational concepts.

The Tactical Satellite (TacSat) Demonstration Program will consist of a series of small satellite demonstrations, whose goal is to demonstrate affordable and responsive launch, checkout, and theater integration of systems to support the tactical needs of the Combatant Commanders. TacSat demonstrations will validate common interfaces, subsystems, new payloads, and new concepts of operations. Follow-on development of operational satellites will leverage lessons learned, processes and mature technology demonstrated in the TacSat program. Funding will support developmental launch costs to include booster, ground support, and other related activities in support of TacSat demonstrations.

This program is Budget Activity 4, Advanced Component Development and Prototypes, because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Exhibit R-2, RDT&E Budget Item Justification

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February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	35.625	41.663	75.720
(U) Current PBR/President's Budget	0.000	35.411	87.032	111.657
(U) Total Adjustments	0.000	-0.214		
(U) Congressional Program Reductions		-0.080		
Congressional Rescissions		-0.134		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY08: Deleted Affordable Reusable Spacelift (ARES) and Falcon Program Small Launch Vehicle development funding; added funding for TacSat demos
 FY09: Deleted ARES and Falcon Program Small Launch Vehicle development funding, added funding for TacSat demos

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604857F Operationally Responsive Space				PROJECT NUMBER AND TITLE A015 Tactical Satellites		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A015 Tactical Satellites	0.000	0.101	85.215	111.252	52.791	52.710	52.579	52.499	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in an increased reliance on and demand for those capabilities. As a result, U.S. Strategic Command identified three needs: to rapidly augment existing space capabilities when needed to expand operational capability; to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

ORS will provide a broad range of capabilities directly supporting warfighter needs. Potential missions include communications, data exfiltration, blue-force situational awareness, positioning, navigation and timing, weather, and battlefield intelligence, surveillance and reconnaissance.

A July 2004 Air Force Requirements for Operational Capabilities Council (AFROCC) memorandum directed 1) Leverage lessons learned from AF-DARPA Falcon demo, and 2) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs.

Tactical satellites (TacSats) will be optimized for prioritized theater use and/or surge, augmentation and replenishment of more traditional space capabilities. Current Concepts of Operation (CONOPS) call for the production of satellites featuring high degrees of modularity and the use of plug and play payloads and buses. Responsive satellites will be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.

The TacSat Demonstration Program with participation from the Air Force Research Lab (AFRL), Naval Research Lab, the Army's Space and Missile Development Center, and Air Force Space Command is the principal testbed for proving out the technologies required to develop and field future Operationally Responsive Space/Spacecraft capabilities. This effort will perform analysis, costing, and utility assessment of TacSat concepts and requirements.

The TacSat Demonstration Program will consist of a series of small satellite demonstrations, whose goal is to demonstrate affordable and responsive launch, checkout, and theater integration of systems to support the tactical needs of the Combatant Commanders. The first of these, AFRL's TacSat-2, was successfully launched on December 16, 2006. TacSat demonstrations will validate common interfaces, subsystems, new payloads, and new CONOPS. Follow-on development of operational satellites will leverage lessons learned, processes and mature technology demonstrated in the TacSat program. Funding will support developmental launch costs to include booster, ground support, and other related activities in support of TacSat demonstrations.

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A015 Tactical Satellites
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform analysis, costing and assess utility for operationally responsive satellite concepts/requirements & program support		0.101	4.300	4.400
(U) TacSat-4 launch vehicle, range operations, and related launch support			18.215	5.500
(U) TacSat-5&6 launch vehicle, range operations, and related launch support				24.200
(U) Operational TacSat Block I			21.600	19.000
(U) Operational launch vehicle multi-vehicle buy			34.000	51.000
(U) Operational capability development and integration			3.500	3.500
(U) Develop processing, dissemination and command and control capabilities to include software development, demonstrations, and modeling and simulation test beds			3.600	3.652
(U) Total Cost	0.000	0.101	85.215	111.252

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E, PE 0604855F, ORL (R-59)	20.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.137
(U) Defensewide RDT&E, PE 0605799D8Z, Force Transformation (R-140)	39.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **D. Acquisition Strategy**
Use existing government contracts such as the Rocket Systems Launch Program's Orbital/Suborbital Program contract or AFRL Indefinite Delivery/Indefinite Quantity contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A015 Tactical Satellites
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Operational TacSat Block I	TBD	TBD						21.600	Dec-07	19.000	Oct-08	Continuing	TBD	TBD
Operational launch vehicle multi-vehicle buy	TBD	Space Dev & Test Wing, Albq, NM						34.000	Dec-07	51.000	Oct-08	Continuing	TBD	TBD
Operational capability development and integration	TBD	TBD						3.500	Dec-07	3.500	Oct-08	Continuing	TBD	TBD
Ground processing, dissemination and command and control	TBD	TBD						3.600	Dec-07	3.652	Oct-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		62.700		77.152		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
TacSat-4 Launch Vehicle and Operations	C-FPI	Orbital, Chandler AZ						18.215	Oct-07	5.500	Oct-08	0.000	23.715	26.100
TacSat-5&6 Launch Vehicles and Operations	TBD	Space Dev & Test Wing, Albq, NM								24.200	Dec-08	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		18.215		29.700		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
Perform analysis and assess alternative concepts/requirements & program support	various	various				0.101	Dec-06	4.300	Oct-07	4.400	Oct-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.101		4.300		4.400		Continuing	TBD	TBD
Remarks:														
<u>(U)</u>														
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	0.000		0.101		85.215		111.252		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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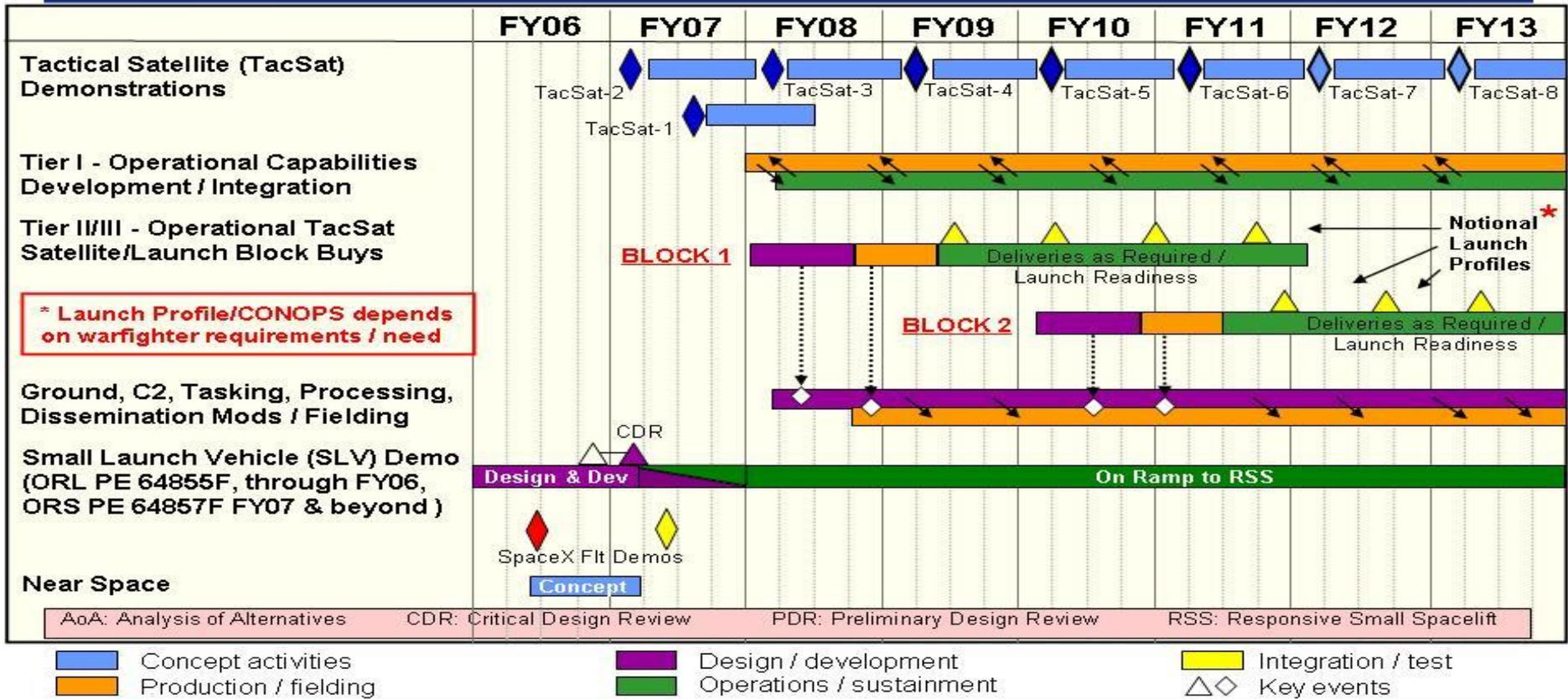
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE
A015 Tactical Satellites



Unclassified
ORS
Schedule



* Launch Profile/CONOPS depends on warfighter requirements / need

Unclassified

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A015 Tactical Satellites

(U) Schedule Profile

(U) Tactical Satellite (TacSat)-2 Launch

(U) Space-X Falcon-1 Demo Flight #2

(U) TacSat-1 Launch

(U) TacSat-3 Launch

(U) Operational TacSat Development begins

(U) ORS Ground, Command and Control development begins

(U) TacSat-4 Launch

(U) Operational TacSat Block I Delivery #1

FY 2006

FY 2007

FY 2008

FY 2009

1Q

2Q

3Q

1Q

1Q

1Q

1Q

3Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604857F Operationally Responsive Space			PROJECT NUMBER AND TITLE A016 Operationally Responsive Lift		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A016 Operationally Responsive Lift	0.000	35.310	1.817	0.405	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Operationally Responsive Space (ORS) program is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and exploitation of new technologies. This encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the ORS effort to meet portions of this requirement. This joint technology development program is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying payloads worldwide from and through space such as tactical satellites (TacSats). Concept development, risk reduction and technology maturation are key elements of the Small Launch Vehicle (SLV) portion of this effort. The ongoing SLV Phase II will include the initial launches of one or more technology demonstrations.

A July 2004 Air Force Requirements for Operational Capabilities Council (AFROCC) memorandum directed 1) Leverage lessons learned from AF-DARPA Falcon demo, and 2) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs.

The successful SLVs from the Falcon program will be "graduated" to the Responsive Small Spacelift program conducted by the Rocket Systems Launch Program.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue SLV system design and development, systems engineering and flight test planning for Phase II		11.000		
(U) Perform Range readiness and mission assurance for launch		3.046		
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support		1.760		
(U) TacSat-3&4 launch		12.004	1.817	0.405
(U) Classified effort (per FY 2007 Congressional direction)		7.500		
(U) Total Cost	0.000	35.310	1.817	0.405

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E, PE 0604855F, ORL (R-59)	45.156	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
(U) Defensewide RDT&E,	5.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive
Space

PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

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

DARPA, PE 0603285E,
Falcon (R-140)

(U) **D. Acquisition Strategy**

SLV efforts will be executed by the joint AF/DARPA Falcon Program Office. An open competition was held for Phase II contracts in August 2004, resulting in Other Transactional Agreement contract vehicles.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A016 Operationally Responsive Lift
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Falcon Phase II contractors:	OTA	Air Launch, Kirkland, WA	0.000	0.000		11.000	Apr-07					Continuing	TBD	TBD
Classified effort (per FY 2007 congressional direction)	TBD	TBD				7.500	Feb-07						7.500	
Subtotal Product Development			0.000	0.000		18.500		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u> Perform Range readiness and mission assurance for launch	TBD	various	0.000	0.000		3.046	Dec-06					Continuing	TBD	TBD
TacSat-3&4 launch	C-FPI	Orbital, Chandler, AZ				12.004	May-06	1.817	Oct-07	0.405	Oct-08	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		15.050		1.817		0.405		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u> Perform analysis and assess alternative concepts/requirements & program support	various	various	0.000	0.000		1.760	Dec-06					Continuing	TBD	TBD
Subtotal Management			0.000	0.000		1.760		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	0.000		35.310		1.817		0.405		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0604857F Operationally Responsive Space

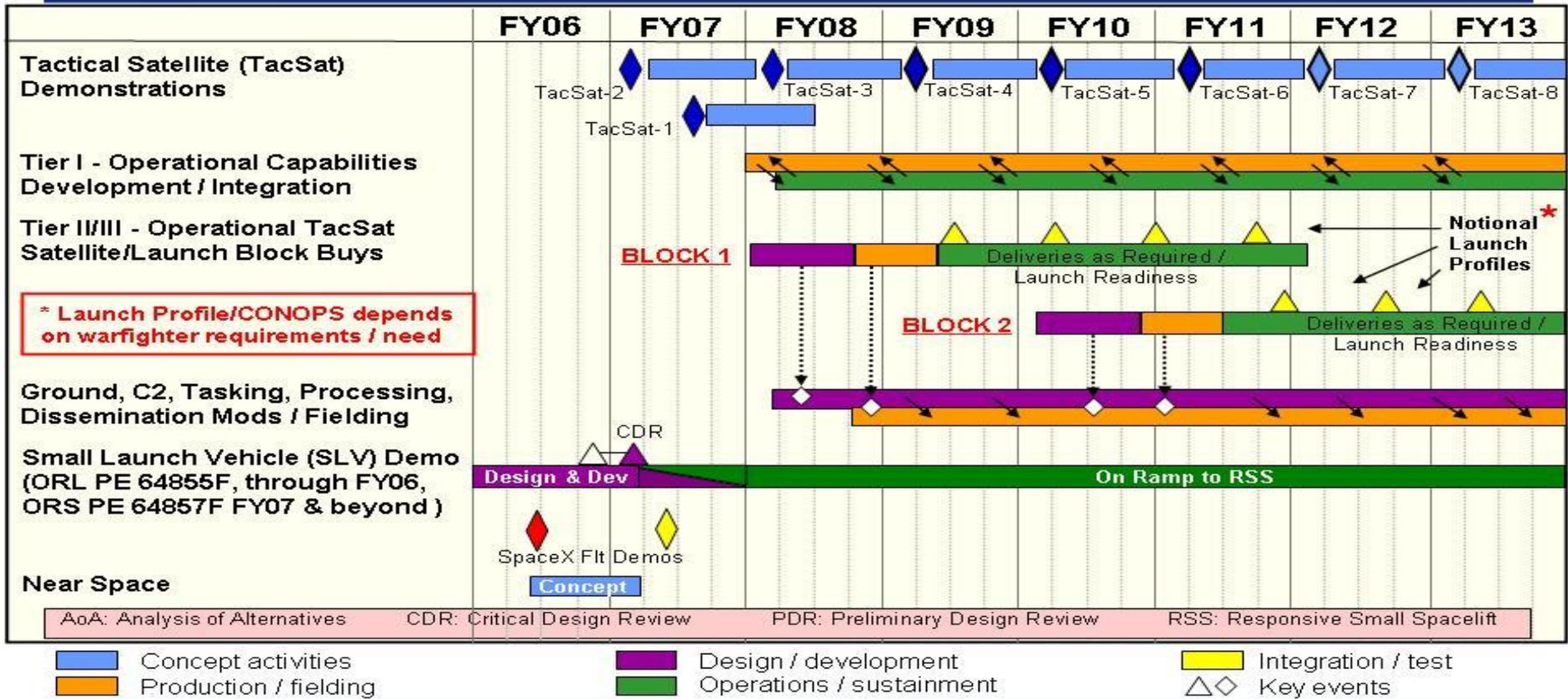
PROJECT NUMBER AND TITLE
A016 Operationally Responsive Lift



U.S. AIR FORCE

Unclassified

ORS Schedule



* Launch Profile/CONOPS depends on warfighter requirements / need

SLV Funded

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

(U) Schedule Profile

- (U) Space-X Falcon-1 Demo Flight #2
- (U) Tactical Satellite (TacSat)-1 Launch
- (U) TacSat-3 Launch
- (U) TacSat-4 Launch

FY 2006

FY 2007

FY 2008

FY 2009

2Q

3Q

1Q

1Q

UNCLASSIFIED

PE NUMBER: 0207423F
 PE TITLE: Advanced Communications Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0207423F Advanced Communications Systems
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.464	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5084 AJCN	2.464	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Adaptive Joint Command, Control, Communications and Computing, Intelligence, Surveillance and Reconnaissance [C4ISR] Node (AJCN), Advanced Concept Technology Demonstration (ACTD) is developing software programmable Radio Frequency (RF) payloads designed to support Information Superiority. AJCN is an open, Commercial-Off-The-Shelf (COTS) based system that can be remotely programmed on the fly to perform a variety of functions simultaneously: air-to-air communications interoperability, Electronic Warfare (EW), Signals Intelligence (SIGINT), and Information Operations (IO). AJCN addresses numerous Mission Needs Statements (MNS), Operational Requirements Documents (ORD), and the Combatant Commanders Integrated Priority Lists (IPL) related to communications, intelligence and information operations.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, because it involves demonstrating and evaluating integrated technologies in a realistic operating environment to assess the performance and/or cost reduction potential of advanced technology.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2.464	0.981		
(U) Current PBR/President's Budget	2.464	0.977		
(U) Total Adjustments	0.000	-0.004		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.004		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY06 Adaptive Joint C4ISR Node (AJCN) was increased \$2.5M by Congress for Security Certification

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0207423F Advanced Communications Systems				PROJECT NUMBER AND TITLE 5084 AJCN		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5084 AJCN	2.464	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Adaptive Joint Command, Control, Communications and Computing, Intelligence, Surveillance and Reconnaissance [C4ISR] Node (AJCN), Advanced Concept Technology Demonstration (ACTD) is developing software programmable Radio Frequency (RF) payloads designed to support Information Superiority. AJCN is an open, Commercial-Off-The-Shelf (COTS) based system that can be remotely programmed on the fly to perform a variety of functions simultaneously: air-to-air communications interoperability, Electronic Warfare (EW), Signals Intelligence (SIGINT), and Information Operations (IO). AJCN addresses numerous Mission Needs Statements (MNS), Operational Requirements Documents (ORD), and the Combatant Commanders Integrated Priority Lists (IPL) related to communications, intelligence and information operations.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, because it involves demonstrating and evaluating integrated technologies in a realistic operating environment to assess the performance and/or cost reduction potential of advanced technology.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Field Evaluation	0.969	0.800		
(U) Security Accreditation	1.200	0.135		
(U) Aircraft Integration	0.295	0.042		
(U) Total Cost	2.464	0.977	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

(U) D. Acquisition Strategy

All major contracts within this Program Element and programs were awarded after full and open competition

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 5084 AJCN
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Joint Military Utility Assessments	MIPR	Army Tactical Command & Control Sys, Ft Monmouth, NJ		2.464	Feb-06	0.977	Nov-06						3.441	
Subtotal Test & Evaluation			0.000	2.464		0.977		0.000		0.000		0.000	3.441	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	2.464		0.977		0.000		0.000		0.000	3.441	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

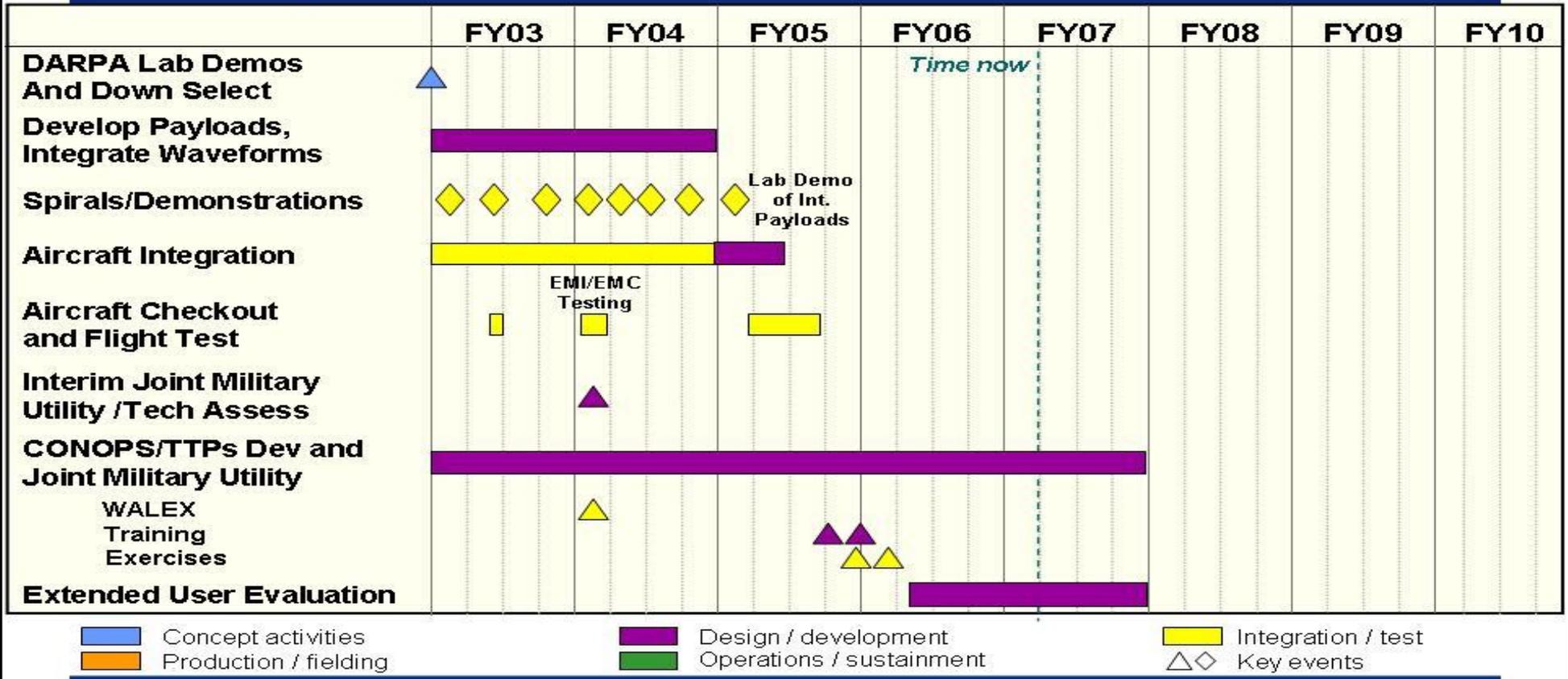
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0207423F Advanced
Communications Systems

PROJECT NUMBER AND TITLE
5084 AJCN



AJCN Schedule



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 5084 AJCN
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) CONOPS/TTPs Development and Joint Military Utility Assessments	1-4Q	1-4Q		
(U) Extended User Evaluation	1-2Q	1-4Q		
(U) Follow-on Development, Production, & Fielding	2-4Q	1-4Q		

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PE NUMBER: 0305178F

PE TITLE: National Polar-Orbiting Op Env Satellite

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
4056 National Polar-orbiting Operational Env. Sat. Syst.	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178 NPOESS, BA 04 Advanced Component Development and Prototypes.

(U) A. Mission Description and Budget Item Justification

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion.

The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

On November 30, 2005, the NPOESS Program Director notified the Tri-agency Executive Committee (EXCOM) that there was reason to believe, based upon the results of independent reviews, that the program would breach the Program Acquisition Unit Cost (PAUC) and the Average Procurement Unit Cost (APUC) threshold by more than 25 percent.

On January 11, 2006, Congress was notified of the Nunn-McCurdy certification level breach in both PAUC and APUC as a result of sensors and spacecraft development problems.

On June 5, 2006, OUSD (AT&L) certified the NPOESS program to Congress. Program changes include reduction from 6 satellites to 4; first launch in FY2013 (vs FY2010); Initial Operational Capability (IOC) in FY2016 (vs 2011); and significant changes in sensor payloads and funding. The Conical scanning Microwave Imager/Sounder (CMIS) and seven other sensors were eliminated. However, the NPOESS program will develop a new, less-capable/more affordable Microwave Imager/Sounder (MIS) to be delivered with the second satellite (C-2). Additionally, NPOESS will retain the ability to integrate the seven other sensors if external agencies wish to provide those sensors as furnished equipment to the program.

This PE has been consolidated with PE 0603434F, beginning in FY05. The program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development with the PE 0603434F portion of the contract.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	319.053	349.311	220.695	165.935
(U) Current PBR/President's Budget	318.575	347.434	334.871	291.877
(U) Total Adjustments	-0.478	-1.877		
(U) Congressional Program Reductions	-0.013	-0.558		
Congressional Rescissions		-1.319		
Congressional Increases				
Reprogrammings	-0.465			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
FY06 changes: Reprogrammed for higher AF priorities				
FY08-09 changes: Changes required to fund to the Nunn-McCurdy certification level				

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0305178F National Polar-Orbiting Op Env Satellite						4056 National Polar-orbiting Operational Env. Sat. Syst.		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04 Advanced Component Development and Prototypes.

(U) **A. Mission Description and Budget Item Justification**

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion.

The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

On November 30, 2005, the NPOESS Program Director notified the Tri-agency Executive Committee (EXCOM) that there was reason to believe, based upon the results of independent reviews, that the program would breach the Program Acquisition Unit Cost (PAUC) and the Average Procurement Unit Cost (APUC) threshold by more than 25 percent.

On January 11, 2006, Congress was notified of the Nunn-McCurdy certification level breach in both PAUC and APUC as a result of sensors and spacecraft development problems.

On June 5, 2006, OUSD (AT&L) certified the NPOESS program to Congress. Program changes include reduction from 6 satellites to 4; first launch in FY2013 (vs FY2010); Initial Operational Capability (IOC) in FY2016 (vs 2011); and significant changes in sensor payloads and funding. The Conical scanning Microwave Imager/Sounder (CMIS) and seven other sensors were eliminated. However, the NPOESS program will develop a new, less-capable/more affordable Microwave Imager/Sounder (MIS) to be delivered with the second satellite (C-2). Additionally, NPOESS will retain the ability to integrate the seven other sensors if external agencies wish to provide those sensors as furnished equipment to the program.

This PE has been consolidated with PE 0603434F, beginning in FY05. The program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development with the PE 0603434F portion of the contract.

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Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite	PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System development effort including ground and space system development, design and fabrication for risk reduction missions (includes GFE Microwave Imager and Space Environmental Monitoring development).	303.515	335.489	331.446	288.427
(U) Continue DoD funded program office support for system development efforts.	1.316	1.700	1.725	1.750
(U) Continue Launch and Mission Integration Phase II Studies	2.264	1.000	1.700	1.700
(U) Complete Windsat data analysis, refinement, calibration, modeling and retrieval algorithms	3.464			
(U) SBIR Transfer	8.016	9.245		
(U) Total Cost	318.575	347.434	334.871	291.877

(U) C. Other Program Funding Summary (\$ in Millions)										
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related NOAA PAC funding: Polar Convergence*	316.581	337.870	331.285	287.985	381.794	420.332	415.829	436.270	2,096.128	6,250.970
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	0.000	24.207	66.783	151.152	212.767	1,116.120	1,571.029
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	74.579	0.000	0.000	254.082	328.661
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	525.623	525.623
(U) Total NPOESS Air Force	318.575	347.434	334.871	291.877	387.235	424.139	420.925	439.691	2,096.131	6,289.219

* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$306.1M in PE 0305178F and \$922.2M in PE 0603434F. Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.

** NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F and represents a portion of the DoD's 50% funding contribution.

*** Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite	PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.

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

and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.

(U) **D. Acquisition Strategy**

Accomplish substantial risk reduction with a focus on payload development, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding. In addition, the Nunn-McCurdy certification production units (C-3 and C-4) were directed to be incrementally funded by the certifying official (OUSD (AT&L)).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
04 Advanced Component Development and Prototypes (ACD&P)													0305178F National Polar-Orbiting Op Env Satellite		4056 National Polar-orbiting Operational Env. Sat. Syst.	
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>		
<u>(U) Product Development</u>																
Northrop Grumman (system development)- Includes Microwave Imager and Environmental Monitoring development Government Led Studies	C/CPAF	Primary, Redondo Beach, CA	295.200	303.515	Oct-05	335.489	Oct-06	331.446	Oct-07	288.427	Oct-08	1,287.923	TBD			
Launch Mission Integration Studies	Gov. Orgs.	Various	1.854	3.464	Jun-06								5.318			
Small Business Innovative Reseach	Gov. Orgs.	Various	0.500	2.264	Mar-06	1.000	Mar-07	1.700	Mar-08	1.700	Mar-09	46.100	53.264			
Subtotal Product Development			7.591	8.016	Jul-06	9.245	Jun-07						24.852			
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.															
<u>(U) Support</u>																
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	0.975	1.316	Oct-05	1.700	Oct-06	1.725	Oct-07	1.750	Oct-08	8.785	16.251			
Subtotal Support			0.975	1.316		1.700		1.725		1.750		8.785	16.251	0.000		
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.															
<u>(U) Test & Evaluation</u>																
Included in IPO Support														0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000		
Remarks:																
<u>(U) Management</u>																
Included in IPO Support														0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000		
Remarks:																
<u>(U) Total Cost</u>			306.120	318.575		347.434		334.871		291.877		Continuing	TBD	0.000		

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

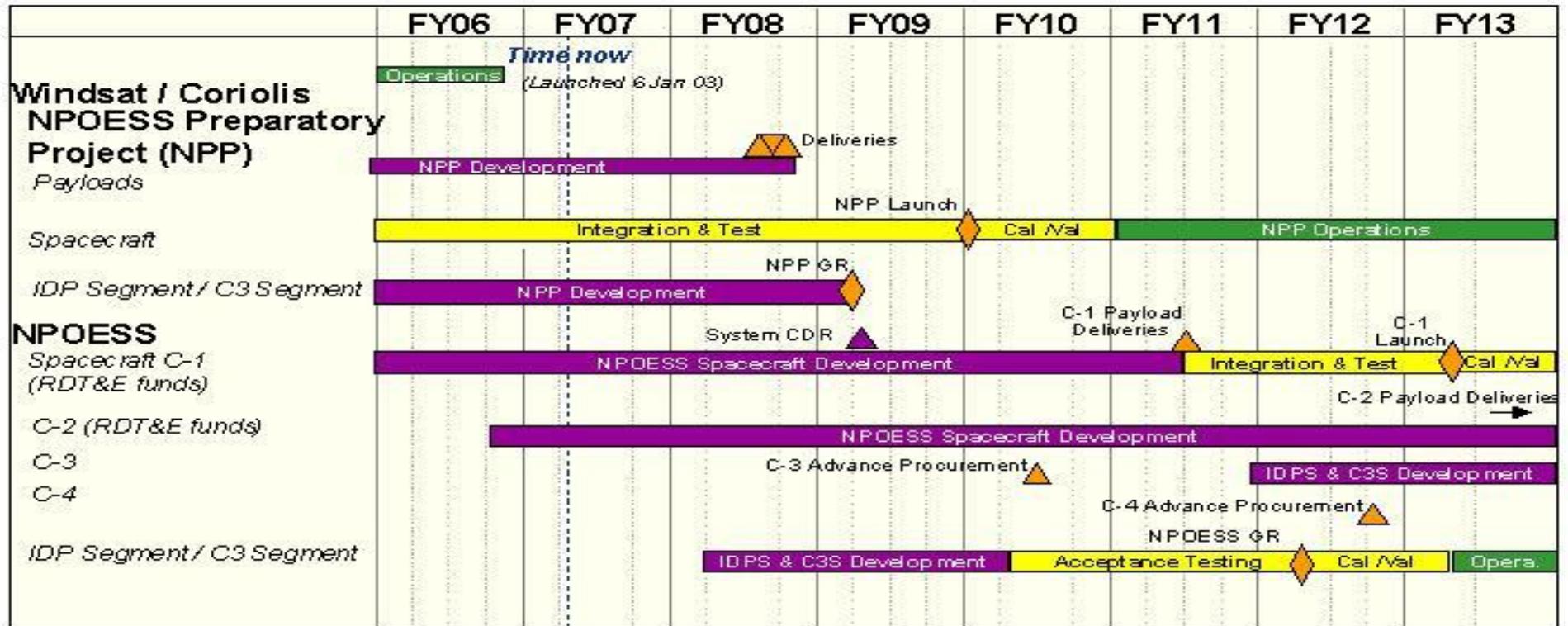
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0305178F National Polar-Orbiting Op
Env Satellite

PROJECT NUMBER AND TITLE
4056 National Polar-orbiting
Operational Env. Sat. Syst.

NPOESS Schedule*

* Notional Schedule until program restructure and contract negotiations are completed



■ Concept activities ■ Design / development ■ Integration / test
■ Production / fielding ■ Operations / sustainment ◇ Key events

C3: Command, Control, Communications Cal/Val: Calibration/Validation CDR: Critical Design Review GR: Ground Readiness
 I&T: Integration & Test IDP: Interface Data Processing IOC: Initial Operational Capability PDR: Preliminary Design Review
 NPOESS C-3 and C-4: Production units to be incrementally funded

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op
Env Satellite

PROJECT NUMBER AND TITLE

4056 National Polar-orbiting
Operational Env. Sat. Syst.

(U) Schedule Profile

(U) Cross-track Infrared Sounder (CrIS) for NPP

(U) Ozone Mapping and Profiler Suite (OMPS) for NPP

(U) Visible Infrared Imager Radiometer Suite (VIIRS) for NPP

(U) NPP Ground Ready

(U) NPOESS System Critical Design Review

FY 2006

FY 2007

FY 2008

FY 2009

2Q

3Q

3Q

1Q

2Q

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0303158F Joint Control and Command
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.982	5.768	5.841	5.352	5.360	5.353	5.457	5.569	Continuing	TBD
5216 JC2 Technology and System Development	4.982	5.768	5.841	5.352	5.360	5.353	5.457	5.569	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Net Enabled Command Capability (NECC) -- formerly called the Joint Command and Control (JC2) Program -- is the next generation of command and control (C2) capabilities for the Department of Defense. NECC will eventually replace the Global Command and Control System (GCCS) Family of Systems (FoS). The GCCS program includes each of the component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J and GCCS-A), which are the current programs of record within each component. These GCCS programs will eventually transition into a single NECC development effort.

The Air Force's initial contribution to NECC will be drawn from elements of the GCCS-Air Force Family of Systems (GCCS-AF FoS). GCCS-AF FoS consists of the following programs (each with their own program elements): TBMCS Force Level (TBMCS-FL), Joint Defensive Planner (JDP), Joint Targeting Toolkit (JTT), GCCS-AF Infrastructure (GCCS-AF I), Deliberate Crisis Action Planning and Execution Segment (DCAPES) and the C2 portion of the Joint Environmental Toolkit (JET). Leveraging the capabilities provided by Net-Centric Enterprise Services (NCES) program, NECC will accelerate the evolution towards a net-centric, web-based, open-system standards approach to providing C2 capabilities and services that will establish NECC as the core of the DoD C2 enterprise architecture.

Portions of the current GCCS-AF FoS will transition to NECC in the future. NECC will deliver capabilities as stated in the validated Joint C2 Operational Requirements Document (ORD) and complementing NECC Capability Development Document (CDD). NECC enhances the capabilities of the GCCS FoS and includes the migration of capabilities to a more modern, interoperable architecture. The Technology Development Phase underway encompasses risk reduction activities and engineering analyses with selected system and architectural analyses. The requested RDT&E funding is critical to support Air Force net-centric transformation efforts in the areas of strategic and operational command and control.

Funding for FY08 and beyond supports the Air Force contribution to NECC by maintaining the Air Force Component Program Management Office (CPMO) responsible for all AF acquisition activities related to NECC. The AF CPMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the DISA PEO for Command and Control Capabilities (PEO-C2C).

This effort is Budget Activity 4 and will perform efforts necessary to evaluate integrated technologies, representative modes or prototype joint C2 capabilities in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0303158F Joint Control and Command

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	5.125	5.818	5.778	5.281
(U) Current PBR/President's Budget	4.982	5.768	5.841	5.352
(U) Total Adjustments	-0.143	-0.050		
(U) Congressional Program Reductions		0.028		
Congressional Rescissions		0.022		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.143			
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0303158F Joint Control and Command						5216 JC2 Technology and System Development		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5216 JC2 Technology and System Development	4.982	5.768	5.841	5.352	5.360	5.353	5.457	5.569	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Net Enabled Command Capability (NECC) -- formerly called the Joint Command and Control (JC2) Program -- is the next generation of command and control (C2) capabilities for the Department of Defense. NECC will eventually replace the Global Command and Control System (GCCS) Family of Systems (FoS). The GCCS program includes each of the component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J and GCCS-A), which are the current programs of record within each component. These GCCS programs will eventually transition into a single NECC development effort.

The Air Force's initial contribution to NECC will be drawn from elements of the GCCS-Air Force Family of Systems (GCCS-AF FoS). GCCS-AF FoS consists of the following programs (each with their own program elements): TBMCS Force Level (TBMCS-FL), Joint Defensive Planner (JDP), Joint Targeting Toolkit (JTT), GCCS-AF Infrastructure (GCCS-AF I), Deliberate Crisis Action Planning and Execution Segment (DCAPES) and the C2 portion of the Joint Environmental Toolkit (JET). Leveraging the capabilities provided by Net-Centric Enterprise Services (NCES) program, NECC will accelerate the evolution towards a net-centric, web-based, open-system standards approach to providing C2 capabilities and services that will establish NECC as the core of the DoD C2 enterprise architecture.

Portions of the current GCCS-AF FoS will transition to NECC in the future. NECC will deliver capabilities as stated in the validated Joint C2 Operational Requirements Document (ORD) and complementing NECC Capability Development Document (CDD). NECC enhances the capabilities of the GCCS FoS and includes the migration of capabilities to a more modern, interoperable architecture. The Technology Development Phase underway encompasses risk reduction activities and engineering analyses with selected system and architectural analyses. The requested RDT&E funding is critical to support Air Force net-centric transformation efforts in the areas of strategic and operational command and control.

Funding for FY08 and beyond supports the Air Force contribution to NECC by maintaining the Air Force Component Program Management Office (CPMO) responsible for all AF acquisition activities related to NECC. The AF CPMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the DISA PEO for Command and Control Capabilities (PEO-C2C).

This effort is Budget Activity 4 and will perform efforts necessary to evaluate integrated technologies, representative modes or prototype joint C2 capabilities in a high fidelity and realistic operating environment.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Technical Engineering Services	1.100	2.100	2.100	2.100
(U) Program Management Support Activities	3.375	1.646	1.646	1.646
(U) Air Force Support to NECC Development and Piloting	0.507	2.022	2.095	1.606
(U) Total Cost	4.982	5.768	5.841	5.352

R-1 Line Item No. 177

Page-3 of 7

Project 5216

Exhibit R-2a (PE 0303158F)

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0303158F Joint Control and Command	PROJECT NUMBER AND TITLE 5216 JC2 Technology and System Development
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>						

(U) N/A

(U) **D. Acquisition Strategy**

Subsequent to a favorable Milestone A decision in March 2006, the NECC acquisition strategy is being jointly developed by the Defense Information Systems Agency (DISA), the Component Program Management Offices (CPMOs), the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII)) and Joint Forces Command (JFCOM). As Lead Component for NECC, DISA has overall responsibility for development and coordination of an acquisition strategy to support Milestone B, which is planned for 1QFY08.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0303158F Joint Control and Command	PROJECT NUMBER AND TITLE 5216 JC2 Technology and System Development
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Support</u>														
Technical Engineering Services	FP	MITRE, Bedford, MA		1.100	May-06	2.100	Nov-06	2.100	Nov-07	2.100	Nov-08	Continuing	TBD	TBD
Subtotal Support			0.000	1.100		2.100		2.100		2.100		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
NECC Evaluation Capability Module (ECM) Piloting	MIPR, CPFF	46 TS Det 1, Eglin AFB 350 ELSG, Hanscom		0.507	Jun-06	2.022	Jan-07	2.095	Nov-07	1.606	Nov-08	Continuing	TBD	TBD
Program Management Support	CPFF	350 ELSG, Hanscom AFB, MA		3.375	May-06	1.646	Nov-06	1.646	Nov-07	1.646	Nov-08	Continuing	TBD	TBD
Subtotal Management			0.000	3.882		3.668		3.741		3.252		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	4.982		5.768		5.841		5.352		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0303158F Joint Control and Command

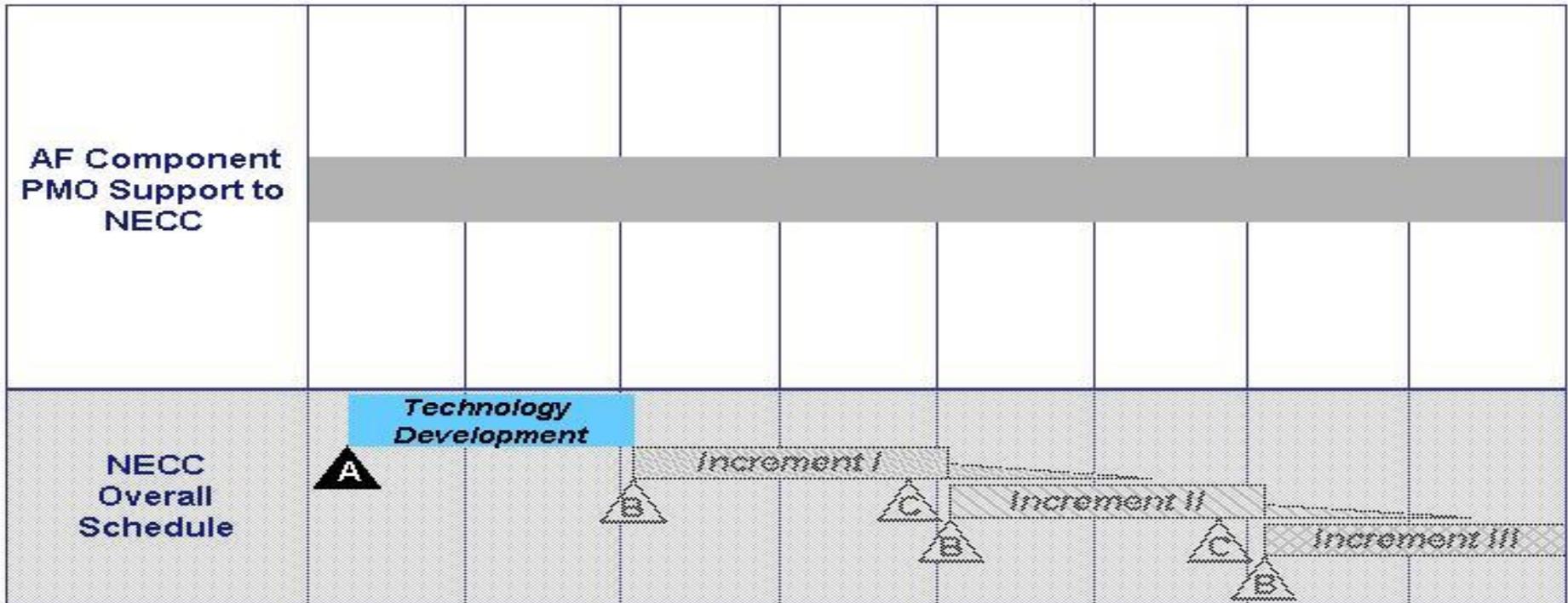
PROJECT NUMBER AND TITLE
5216 JC2 Technology and System Development

Unclassified



NECC Program Schedule

FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13



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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0303158F Joint Control and Command

PROJECT NUMBER AND TITLE

5216 JC2 Technology and System Development

(U) Schedule Profile

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Increment I Milestone A	2Q			
(U) Air Force Support for NECC Increment I Tech Demo Phase	2-4Q	1-4Q	1Q	
(U) Increment I Milestone B			1Q	
(U) Air Force Support for NECC Increment I System Design and Development (SDD) Phase			1-4Q	1-4Q

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PE NUMBER: 0603840F
 PE TITLE: Global Broadcast Service (GBS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	18.648	24.749	29.407	19.067	9.559	2.456	2.503	2.554	Continuing	TBD
4887 Global Broadcast Service (GBS)	18.648	24.749	29.407	19.067	9.559	2.456	2.503	2.554	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD), validated by the Joint Requirements Oversight Council in Apr 1997 and updated (with limits) in May 01 and Jan 05 (ORD III). GBS broadcast data includes video (especially from UAV), imagery, logistics and weather data, maps, and operational orders. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future Wideband Global SATCOM (WGS) System. GBS Satellite Broadcast Management (SBM) and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suites (RS) and integration into service networks are funded in other PEs.

The program was rebaselined in FY04 to incorporate a commercial-off-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC 2 and 3 requirements. The IP architecture will provide enhanced throughput (capacity), and greatly reduce operational and maintainability liabilities of the previous architecture that required significant use of obsolete and proprietary software and computer hardware.

The FY08 PB funds the development of a robust architecture and implementation of system transmission security, as well as previously budgeted items such as implementation of IPv6 migration, to include Information Assurance, and continued analysis of alternatives for ORD III requirements.

Funding is in Budget Activity 5, System Development and Demonstration, since program is fielding pre-production equipment.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	19.383	23.599	17.716	2.916
(U) Current PBR/President's Budget	18.648	24.749	29.407	19.067
(U) Total Adjustments	-0.735	1.150		
(U) Congressional Program Reductions		-0.056		
Congressional Rescissions	-0.001	-0.094		
Congressional Increases		1.300		
Reprogrammings				
SBIR/STTR Transfer	-0.734			

(U) Significant Program Changes:

FY08-09: Funds added to: 1) develop hardware/software architecture to transfer the Satellite Broadcast Manager functions to the Defense Enterprise Computing Centers

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

and 2) implement system transmission security

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)			PROJECT NUMBER AND TITLE 4887 Global Broadcast Service (GBS)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4887 Global Broadcast Service (GBS)	18.648	24.749	29.407	19.067	9.559	2.456	2.503	2.554	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD), validated by the Joint Requirements Oversight Council in Apr 1997 and updated (with limits) in May 01 and Jan 05 (ORD III). GBS broadcast data includes video (especially from UAV), imagery, logistics and weather data, maps, and operational orders. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future Wideband Global SATCOM (WGS) System. GBS Satellite Broadcast Management (SBM) and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suites (RS) and integration into service networks are funded in other PEs.

The program was rebaselined in FY04 to incorporate a commercial-off-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC 2 and 3 requirements. The IP architecture will provide enhanced throughput (capacity), and greatly reduce operational and maintainability liabilities of the previous architecture that required significant use of obsolete and proprietary software and computer hardware.

The FY08 PB funds the development of a robust architecture and implementation of system transmission security, as well as previously budgeted items such as implementation of IPv6 migration, to include Information Assurance, and continued analysis of alternatives for ORD III requirements.

Funding is in Budget Activity 5, System Development and Demonstration, since program is fielding pre-production equipment.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Development and Test	10.918	17.767	20.504	12.129
(U) Continue Phase 2 Government System Integration	2.950	3.817	4.960	3.617
(U) Continue System Test & Evaluation Support	0.919	0.870	1.002	1.053
(U) Continue Program Office and other related support activities, including Systems Engineering and Integration	3.861	2.295	2.941	2.268
(U) Total Cost	18.648	24.749	29.407	19.067

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	0.000	1.724	1.724	0.000	0.000	0.000	55.464

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)	PROJECT NUMBER AND TITLE 4887 Global Broadcast Service (GBS)
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) OPAF, PE 0303601F, Receive Suites/TIPs	14.353	0.526	3.854	12.139	2.332	0.000	0.000	0.000	0.000	79.784
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Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN); DISA Content Staging; DISA Tactical Service Provider (TSP); Advanced Concept Technology Demonstrations (ACTD); DISA-CENTCOM Digital Video Broadcast Return Channel over Satellite (DVB-RCS) Demonstration; Navy UFO Program; Air Force WGS Program; Army Ground Terminal Programs; Navy SATCOM Ship Terminal Program; and Air Force MILSATCOM Terminals (PE 0303601F): AF GBS Receive Terminals (WSC 836780, line P-66, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Family of Advanced Beyond Line-of-Sight Terminals (FAB-T).

(U) D. Acquisition Strategy

The acquisition strategy is a spiral development/incremental build, within discreet blocks, using an Integrated Product Development (IPD)/Integrated Product Team (IPT) approach.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)			0603840F Global Broadcast Service (GBS)								4887 Global Broadcast Service (GBS)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Raytheon System Corp	CPAF		73.452	5.614	Oct-05	15.054	Dec-06						94.120	
- (FY07: IPv6 Migration/Information Assurance)													0.000	
IPv6 Migration/Information Assurance	Various			5.304	Oct-05	2.713	Nov-06	1.064	Dec-07	1.086	Dec-08	Continuing	TBD	
Robust Architecture Development	Various							19.440	Dec-07	11.043	Dec-08	Continuing	TBD	
Phase 2 Government System Integration	Various		21.537	2.950	Oct-05	3.817	Oct-06	4.960	Dec-07	3.617	Dec-08	Continuing	TBD	
Subtotal Product Development			94.989	13.868		21.584		25.464		15.746		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Program Support - Various			10.682	3.861	Nov-05	2.295	Nov-06	2.941	Dec-07	2.268	Dec-08	Continuing	TBD	
Fielding - Various			1.200										1.200	
Sustainment (Vendor TBD)													0.000	
Subtotal Support			11.882	3.861		2.295		2.941		2.268		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Various			5.694	0.919	Oct-05	0.870	Nov-06	1.002	Dec-07	1.053	Dec-08	Continuing	TBD	
Subtotal Test & Evaluation			5.694	0.919		0.870		1.002		1.053		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			112.565	18.648		24.749		29.407		19.067		Continuing	TBD	0.000

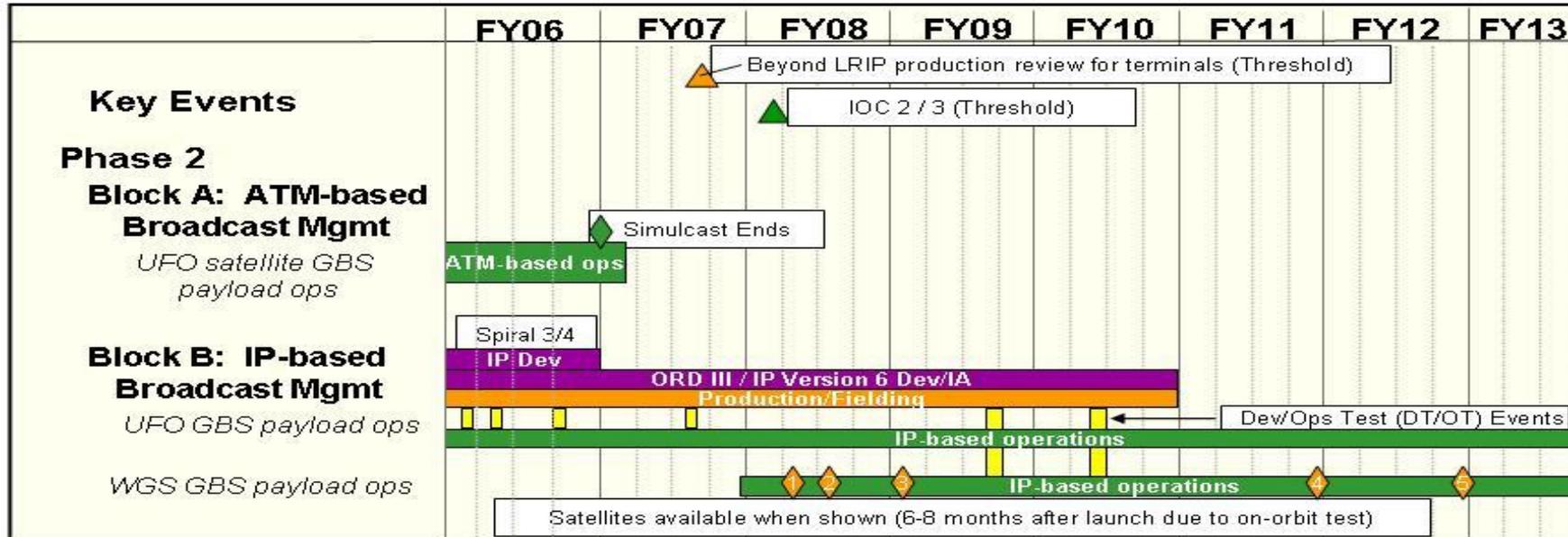
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE
4887 Global Broadcast Service (GBS)



- **IOC 1 (Dec 03):** PIPs operational on UFO 8, 9, 10; field 20% of program office receive suites (19 units); full personnel ops/maintenance training; logistics support; full satellite broadcast mgmt capability; independently assess capabilities; satisfy interoperability Key Performance Parameter
- **IOC 2/3:** Demonstrate classified video dissemination; remote receive suite enable/disable; Tactical Transportable Ground Receive Suite (2-person lift)

ATM: Asynchronous Transfer Mode
LRIP: Low Rate Initial Production
WGS: Wideband Gapfiller System

IOC: Initial Operational Capability
PIP: Primary Injection Point

IP: Internet Protocol
UFO: Ultra High Frequency (UHF) Follow-on

Concept activities
 Production / fielding
 Operations / sustainment
 Design / development
 Integration / test
 Key events

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)	PROJECT NUMBER AND TITLE 4887 Global Broadcast Service (GBS)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Begin development of Internet Protocol Version 6 (IPv6)/ORD III Analysis of Alternatives	1Q			
(U) Beyond Low Rate Initial Production (LRIP) Review (threshold)		3Q		
(U) Conduct combined Dev/Ops test event		3Q		
(U) IOC 2 and 3 (threshold)			1Q	
(U) GBS operates on WGS SV1			2Q	
(U) GBS operates on WGS SV2			3Q	
(U) GBS operates on WGS SV3				1Q

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PE NUMBER: 0604012F

PE TITLE: Joint Helmet Mounted Cueing System (JHMCS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.590	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4789 Joint Helmet Mounted Cueing System (JHMCS)	3.590	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

During the transfer from PE 0604012F to PE 0207170F an error was made in the electronic submittal (R-1) to Congress.

(U) A. Mission Description and Budget Item Justification

This joint Air Force/Navy program (Air Force is the lead service) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X.

Milestone III was successfully approved in Jan 04, and correspondingly, the first Full Rate Production (FRP) contract was awarded May 04, followed by FRP-2 in Jun 05. Continued activities include Electronic Unit obsolescence redesign; a systems engineering approach for implementing alternate displays, such as night vision; software updates; integration; improvements to Reliability and Maintainability (R&M); system upgrade studies/analysis; other obsolescence upgrades; improved magnetic mapping processes to reduce maintenance manhours and life cycle costs; and efforts to support the transition to Performance Based Logistics Partnership (PBL/P) and depot activation.

RDT&E funding for JHMCS now resides in PE27170F starting in FY07.

This program is in budget activity 5 - System Design and Development (SDD).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.590	0.000	0.000	0.000
(U) Current PBR/President's Budget	3.590	0.000	0.000	0.000
(U) Total Adjustments	0.000			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
N/A				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)				PROJECT NUMBER AND TITLE 4789 Joint Helmet Mounted Cueing System (JHMCS)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4789 Joint Helmet Mounted Cueing System (JHMCS)	3.590	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

JHMCS PE change request approved for FY07 BES: Funding from FY07 and beyond moved to PE 0207170F.

(U) A. Mission Description and Budget Item Justification

This joint Air Force/Navy program (Air Force is the lead service) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X.

Milestone III was successfully approved in Jan 04, and correspondingly, the first Full Rate Production (FRP) contract was awarded May 04, followed by FRP-2 in Jun 05. Continued activities include Electronic Unit obsolescence redesign; a systems engineering approach for implementing alternate displays, such as night vision; software updates; integration; improvements to Reliability and Maintainability (R&M); system upgrade studies/analysis; other obsolescence upgrades; improved magnetic mapping processes to reduce maintenance manhours and life cycle costs; and efforts to support the transition to Performance Based Logistics Partnership (PBL/P) and depot activation.

RDT&E funding for JHMCS now resides in PE27170F starting in FY07.

This program is in budget activity 5 - System Design and Development (SDD).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue deficiencies resolution, reliability improvements, P3I activities, obsolescence upgrades, analysis/studies, and night vision integration	3.301	0.000	0.000	0.000
(U) Continue program management support	0.289	0.000	0.000	0.000
(U) Total Cost	3.590	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development										45.151
Note: Prior to FY01 JHMCS was funded as part of PE 0604201F.										

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604012F Joint Helmet Mounted Cueing System (JHMCS)

PROJECT NUMBER AND TITLE

4789 Joint Helmet Mounted Cueing System (JHMCS)

(U) D. Acquisition Strategy

JHMCS is an ACAT III joint USAF/USN program (USAF - executive service). The development contract structure is a Cost Plus Award Fee (CPAF). The CPAF contract is through Boeing - St. Louis for development and integration into the F-15 and F/A-18 aircraft. All other aircraft integration will be handled by the respective platform prime contractors. All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)			0604012F Joint Helmet Mounted Cueing System (JHMCS)								4789 Joint Helmet Mounted Cueing System (JHMCS)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Development and Integration, Reliability Improvements, P3I, Obsolescence Upgrades, Analysis/Studies, and Night Vision Integration	SS, CPFF	Boeing Co, St Louis, MO		3.301		0.000							3.301	
Subtotal Product Development			0.000	3.301		0.000		0.000		0.000		0.000	3.301	0.000
Remarks:														
(U) <u>Support</u>														
Cost Reduction Analysis	C, T&M	Various		0.000		0.000							0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Various	Various	Various		0.000		0.000							0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Program Management and Administration	C, T&M	Various		0.289		0.000							0.289	
Subtotal Management			0.000	0.289		0.000		0.000		0.000		0.000	0.289	0.000
Remarks:														
(U) Total Cost			0.000	3.590		0.000		0.000		0.000		0.000	3.590	0.000

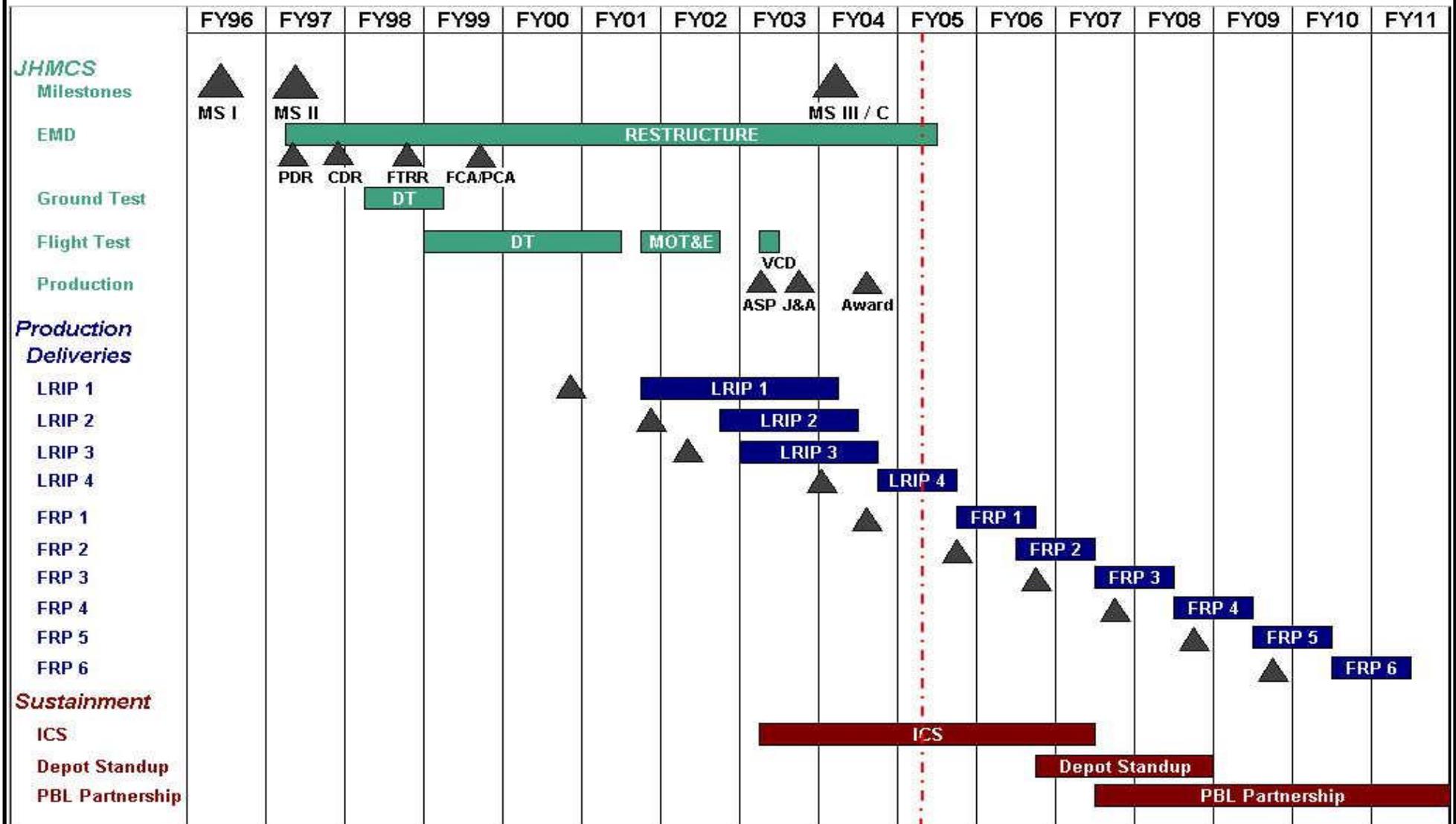
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604012F Joint Helmet Mounted
Cueing System (JHMCS)

PROJECT NUMBER AND TITLE
4789 Joint Helmet Mounted Cueing
System (JHMCS)



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Project 4789

Exhibit R-4 (PE 0604012F)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604012F Joint Helmet Mounted Cueing System (JHMCS)

PROJECT NUMBER AND TITLE

4789 Joint Helmet Mounted Cueing System (JHMCS)

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Continue R&M Fixes/Software Updates/P3I

2Q

(U) Class I ECP's

2Q

(U) FRP-3 Contract Award

2Q

(U) Alternate Displays Contract Award

1Q

Note: Schedule profile milestones for FY07 are located in PE 0207170F.

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PE NUMBER: 0604222F
 PE TITLE: Nuclear Weapons Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.952	14.839	20.319	20.295	20.464	20.485	20.900	21.337	Continuing	TBD
4236 Engineering Analysis	4.094	4.511	6.707	6.567	6.545	6.451	6.581	6.719	Continuing	TBD
4807 Nuclear Weapons & CP Technologies	5.092	5.393	6.346	6.481	6.644	6.776	6.908	7.049	Continuing	TBD
5708 Nuclear Weapons Support	4.766	4.935	7.266	7.247	7.275	7.258	7.411	7.569	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Air Force Nuclear Weapons & Counterproliferation Agency (AFNWCA) and the Air Force Materiel Command Nuclear Weapons Center (AFMC NWC) are tasked with maintaining and providing technical expertise on all Air Force (AF) nuclear weapons and nuclear weapon systems. AFNWCA also provides technical expertise on combating weapons of mass destruction (WMD). These organizations provide technical and programmatic guidance as well as performing independent analyses on all AF nuclear weapons; nuclear weapon systems activities including weapons development/sustainment, interoperability, compatibility, safety/security/reliability, stockpile management/retirement; combating WMD offensive capability assessments; and nuclear certification and nuclear certification management.

Specific mission tasking includes:

- Support AF, Department of Defense (DoD) and Joint DoD-Department of Energy (DOE) weapons acquisition activities for the sustainment and/or development of nuclear weapons, delivery systems, logistics/handling support systems, weapon storage facilities, maintenance/trainer/test equipment, and technical orders to include nuclear certification as required.
- Analyze and document nuclear weapons issues related to risk assessment, data collection, model development, and weapon effectiveness in support of the DoD-DOE Annual Surety Report, DOE Stockpile Stewardship Plan, the DoD-DOE Weapon Annual Assessment, and DoD-DOE nuclear stockpile planning/requirements assessment.
- Identify, evaluate, and assess current and projected combating WMD capabilities to include participating in the pre-acquisition process as appropriate for those projects being evaluated for possible development and/or supporting current elimination and offensive operations related to chemical, biological, radiological, and nuclear (CBRN) weapons and manufacturing/bulk storage storage facilities.

This program is essential to maintaining the current and future safety, security, and reliability of weapons in the AF nuclear stockpile as well as their delivery and support systems. This program also addresses current and future AF nuclear deterrence and combating WMD needs.

These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs leading to approved life extension programs for and/or modifications to AF nuclear weapons, weapon systems, and support systems as well as developing new weapons or modifications to existing weapons and/or weapon systems to meet evolving combating WMD mission requirements.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	13.951	14.895	20.121	20.046
(U) Current PBR/President's Budget	13.952	14.839	20.319	20.295
(U) Total Adjustments	0.001	-0.056		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.055		
Congressional Increases				
Reprogrammings	0.001	-0.001		
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None.				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT NUMBER AND TITLE 4236 Engineering Analysis		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4236 Engineering Analysis	4.094	4.511	6.707	6.567	6.545	6.451	6.581	6.719	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Perform engineering analysis for all Air Force (AF) nuclear weapons, delivery systems, support systems, and elimination and offensive operations to combat weapons of mass destruction (WMD). Provide the engineering and technical management expertise required in critical areas of nuclear weapons safety, security, and reliability; operations; modernization; testing; certification; and counterproliferation.

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, nuclear weapon systems, and the supporting infrastructure.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Nuclear Weapons Program Support. Provide leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF active and inactive stockpile. This includes technical analysis to support life extension programs for nuclear weapons in the AF stockpile, inactive stockpile, use control, long term storage, and retirement/dismantlement issues.	2.672	2.968	4.448	4.390
(U) Combating WMD Support. Provide pre-acquisition technical, engineering, and management support/expertise for candidate weapons to counter future threats from WMD to include conducting assessments of elimination and offensive operational concepts as well as developing new analytical methodologies needed to conduct these assessments and/or support Unified/Specified Combatant Command operations.	1.422	1.543	2.259	2.177
(U) Total Cost	4.094	4.511	6.707	6.567

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not Applicable										

(U) D. Acquisition Strategy

Multiple Cost Plus Award Fee (CPAF) and/or Time and Materials (T&M) contracts, and Military Interdepartmental Purchase Requests (MIPRs) are/will be used for technical analyses and technical support in safety, operations and counterproliferation assessments.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)													0604222F Nuclear Weapons Support		4236 Engineering Analysis	
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>		
<u>(U) Product Development</u>																
In-House Studies/Analysis and Engineering Activities	Government Civilian Payroll	AFNWCA (Kirtland AFB, NM)	11.454	1.284	Oct-05	1.296	Oct-06	1.210	Oct-07	1.205	Oct-08	Continuing	TBD	TBD		
Studies, Analysis, & Evaluations	CPAF/T&M	Multiple*	3.882	0.584	Feb-06	0.761	Jan-07	1.692	Jan-08	1.645	Jan-09	Continuing	TBD	TBD		
Engineering & Technical Services	CPAF	RhinoCorp (Albuquerque, NM)	3.491	1.357	Jan-06	1.756	Feb-07	2.761	Oct-07	2.638	Oct-08	Continuing	TBD	TBD		
Subtotal Product Development			18.827	3.225		3.813		5.663		5.488		Continuing	TBD	TBD		
Remarks:	* - ITT Systems (Albuquerque, NM, & Colorado Springs, CO), Applied Sciences Labs (Albuquerque, NM); SAIC (Arlington, VA)															
<u>(U) Support</u>																
Management & Professional Support Services	T&M	ANSER (Arlington, VA); SAIC (Arlington, VA)	1.755	0.475	Jan-06	0.475	Jan-07	0.584	Jan-08	0.590	Jan-09	Continuing	TBD	TBD		
Subtotal Support			1.755	0.475		0.475		0.584		0.590		Continuing	TBD	TBD		
Remarks:																
<u>(U) Test & Evaluation</u>																
Various Test Centers	MIPR	Multiple	1.910	0.250	Mar-06	0.078	Mar-07	0.245	Mar-08	0.274	Mar-09	Continuing	TBD	TBD		
Subtotal Test & Evaluation			1.910	0.250		0.078		0.245		0.274		Continuing	TBD	TBD		
Remarks:																
<u>(U) Management</u>																
In-House Programmatic/Financial Management	Government Civilian Payroll	AFNWCA (Kirtland AFB, NM)	1.286	0.144	Oct-05	0.145	Oct-06	0.215	Oct-07	0.215	Oct-08	Continuing	TBD	TBD		
Subtotal Management			1.286	0.144		0.145		0.215		0.215		Continuing	TBD	TBD		
Remarks:																
<u>(U) Total Cost</u>			23.778	4.094		4.511		6.707		6.567		Continuing	TBD	TBD		

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

FY07	FY08	FY09	FY10	FY11	FY12	FY13
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Lead Project Officer/Project Officers Group Management (Joint DoD/DOE)



Weapons Surveillance, Sustainment, Modernization, & Life Extension Activities

Gravity Bombs (B61/B83) Life Extension Programs

Modemization/Life Extension Programs



Nuclear Surety Enhancements



ICBM Warhead (W62/W78/W87) Life Extension Program

Modemization/Life Extension Programs



Nuclear Surety Enhancements



Land-Based Strategic Nuclear Determent



Cruise Missile Warheads (W80/W84)

Modemization/Life Extension Programs



W84 Advanced Study



W80 Advanced Study



W80 Integration Analysis



ACM Hi Fi Guidance System Analysis



Annual Nuclear Weapon Assessments (All Weapons) (Joint DoD/DOE)



Nuclear Weapons Council Directed Special Studies & Analyses (as Required)



Nuclear Weapons & Counterproliferation Technologies

Pre-Acquisition Activities



Advanced Technology Analyses/Evaluations



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 4236 Engineering Analysis
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Project Officers Group (POG) Management/Engineering & Technical Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapon Life Extension Programs (LEP)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Annual Weapon Assessments [B61/83, W80/84, and W62/W78/W87]	3-4Q	3-4Q	3-4Q	3-4Q
(U) Reliable Replacement Warhead (RRW) Studies and Analysis Support	2-4Q	1-4Q	1-2Q	
(U) Minuteman III Safety Enhanced Reentry Vehicle Support	1-4Q	1-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Refurbishment Program Support	1-4Q	1-4Q	1-4Q	1-4Q
(U) Start/Complete W84 Study	2Q	3Q		
(U) W80 Advanced Feature Proof of Concept Flight		3Q		
(U) W80 Warhead Integration Analysis	1-4Q	1-4Q		
(U) ICBM Flight Test Study	3-4Q	1-4Q	1-2Q	
(U) W78/W87 Nuclear Surety Program	1-4Q	1-4Q	1-4Q	1-4Q
(U) B61 Flight Test Program	1-4Q	1-4Q	1-4Q	1-4Q
(U) B83 Special Developmental Flight Tests		1-4Q		
(U) Gravity Weapon Software/Hardware Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) Counterproliferation Support	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Roadmap	4Q	1-4Q	1-4Q	1-4Q
(U) Enhanced Surveillance	4Q	1-4Q	1-4Q	1-4Q
(U) Future Stockpile Study	4Q	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT NUMBER AND TITLE 4807 Nuclear Weapons & CP Technologies		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4807 Nuclear Weapons & CP Technologies	5.092	5.393	6.346	6.481	6.644	6.776	6.908	7.049	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Perform engineering analyses of offensive operations and systems for countering weapons of mass destruction (WMD) with emphasis on asymmetric threats (specifically chemical, biological, radiological, and nuclear (CBRN)) and other difficult to attack targets). Develop proposed solutions for consideration for entry into acquisition. Plan for and transition selected offensive operations concepts into either an acquisition or advanced concept technology demonstration (ACTD) program to include identifying funding, technical, schedule, and programmatic content. Prepare the necessary acquisition-related documentation to support program and/or decision reviews.

Develop, evaluate, and utilize tools required for the employment of current inventory and new concepts for combating WMD weapons to include intelligence, surveillance, and reconnaissance; battle damage assessment; and target defeat/collateral effects predictions for current and future operations.

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs that result in identifying, and developing or modifying weapons to meet new and evolving elimination and offensive capabilities for combating WMD. Efforts also include developing and/or validating target planning software for existing/new concepts and weapons for combating WMD.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Develop pre-acquisition strategies/studies of conventional and other advanced alternative technologies and capabilities for eliminating or conducting offensive operations to combat WMD with emphasis on technologies & capabilities for attacking chemical, biological, radiological, and nuclear (CBRN) targets and threats.	1.866	1.912	2.254	2.296
(U) Perform advanced concept research and development (R&D) studies of potential offensive capabilities for combating WMD.	2.235	2.637	3.101	3.167
(U) Research, develop and/or improve (to include verification, validation, and assessment (VV&A)) the fidelity and utility of target planning tools associated with eliminating or conducting offensive operations for combating WMD.	0.847	0.714	0.839	0.860
(U) Provide Operational Support to the Joint Chiefs of Staff, Major Commands and Combatant Commanders for evaluating elimination of and offensive operations against CBRN facilities (e.g., intelligence analysis and support, weapon effectiveness, collateral damage, etc.)	0.144	0.130	0.152	0.158
(U) Total Cost	5.092	5.393	6.346	6.481

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons & CP Technologies

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) Not Applicable

(U) **D. Acquisition Strategy**

Cost Plus Award Fee (CPAF) and/or Time and Materials (T&M) contracts, and/or MIPRs will be used for advanced analyses and development of selected alternatives leading to, or associated with, acquisition pre-Milestone activities.

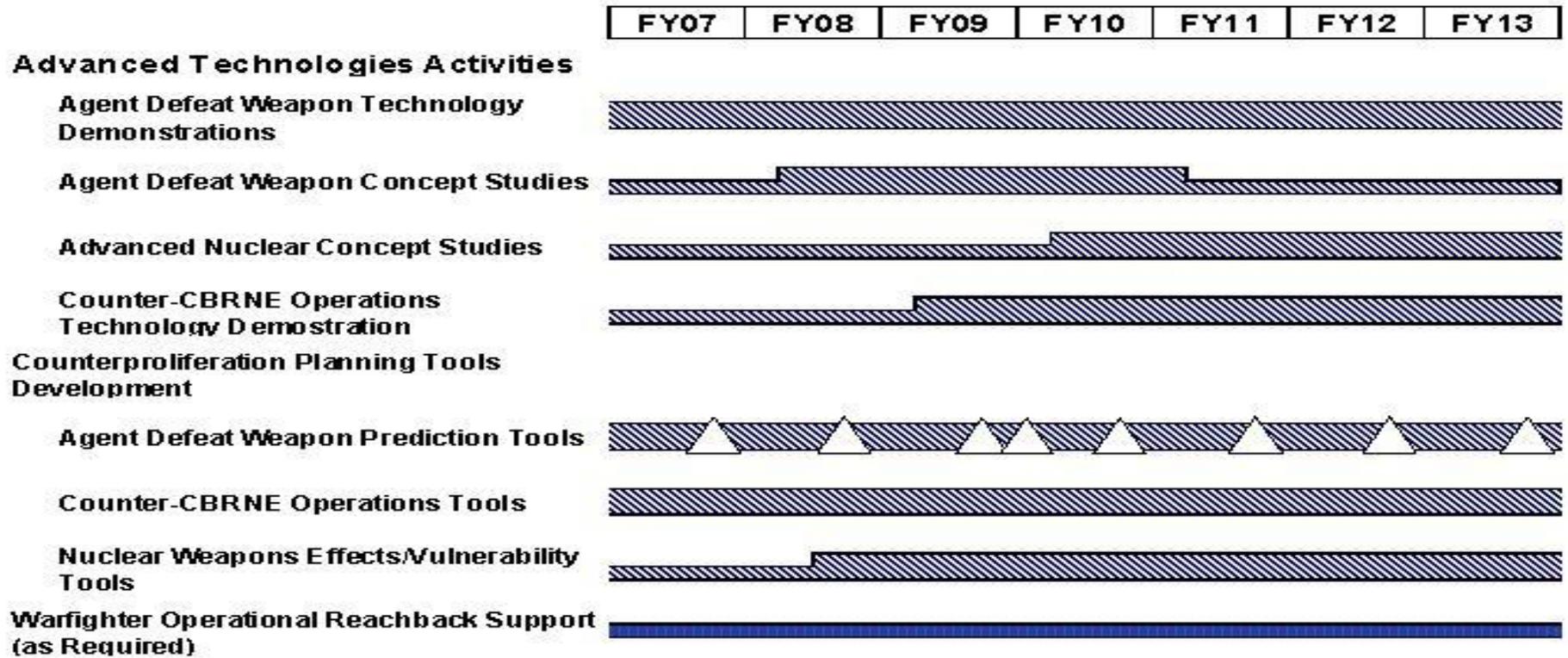
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE
4807 Nuclear Weapons & CP Technologies



△ = Release of next version of software tool

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 4807 Nuclear Weapons & CP Technologies
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Effects Modeling Tools				
(U) ---Complete Initial Validation	3Q			
(U) ---Complete Initial Releasable Version	3Q			
(U) ---Issue Updates		1-4Q	1-4Q	1-4Q
(U) Chemical Biological (CB) Agent Neutralization Calculator - Issue Updates	3Q	2-3Q	2-3Q	2-3Q
(U) Nuclear Weapons Effects/Vulnerability Prediction Tools - Continue Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) Enhanced Cruise Missile (ECM)				
(U) ---Complete Phase 6.1 Study	1Q			
(U) ---Nuclear Weapons Requirements Documents Development		2-4Q	2-4Q	1-2Q
(U) ---Phase 6.2 Study			4Q	1-4Q
(U) Anti-Biological/Chemical Weapon				
(U) ---Complete Phase 1 Study	3Q			
(U) ---Phase 2 Study		1-4Q	1-4Q	
(U) Agent Defeat Weapon (ADW)				
(U) ---Develop Requirements and Acquisition Documentation		2-4Q	1Q	
(U) ---Shredder Concept Assessment	4Q	1-4Q		
(U) ---Bulk Neutralization Proof-of-Concept Demonstration	1-4Q	1-3Q		
(U) ---Develop Baseline Legacy Weapon Test Database	1-4Q	1-4Q	1-4Q	1-4Q
(U) Land Based Strategic Deterrent				
(U) ---Follow On Development Efforts	4Q	1-4Q	1-4Q	1-4Q
(U) ---ICBM Future Warhead Concepts Study			1-4Q	1-4Q
(U) Nuclear Weapons Effects/Special Nuclear Study and Analyses	1-4Q	1-4Q	1-4Q	1-4Q
(U) Counter-CBRN Prompt Global Strike Analysis of Alternatives Study	3-4Q	1-4Q		

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT NUMBER AND TITLE 5708 Nuclear Weapons Support		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5708 Nuclear Weapons Support	4.766	4.935	7.266	7.247	7.275	7.258	7.411	7.569	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force Materiel Command Nuclear Weapons Center (AFMC NWC) provides direct technical and engineering support for all Air Force (AF) nuclear weapon systems, support systems, facilities, and special procedures. Performs studies and analysis for nuclear capable aircraft and missile systems to include ground and maintenance support equipment required to meet certification, safety, security, reliability, operational, and other requirements; oversees and manages the AF nuclear certification process; interfaces with the Department of Defense (DoD), Department of Energy (DOE) to include their national laboratories, the Air Staff, operational commands, and AF nuclear weapon system related System Program Offices (SPOs) to accomplish weapon sustainment/life extension programs

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, weapon systems and the supporting infrastructure.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Nuclear Delivery System Support. Prepare nuclear surety design criteria, standards, specifications, and related requirements documents for all AF ground-launched missile systems; provide nuclear surety design guidance to program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification and nuclear compatibility certification of weapon system modifications; administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance; and perform nuclear certification oversight functions. Provide leadership to and management of the AF-led Project Officers Groups for the delivery systems in AF inventory, to include technical analysis and compatibility testing to support life extension programs and delivery system modifications.	3.937	4.308	6.177	6.161
(U) Nuclear Weapons/Systems Assessments. Develop and/or update joint Department of Defense (DoD)-Department of Energy (DOE) nuclear surety assessment methodologies; conduct safety assessment of warhead maintenance operation in AF facilities; conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications of Air Force storage and maintenance facilities; provide nuclear surety support for all support equipment, facilities and special procedures; and develop and manage nuclear facility design criteria.	0.432	0.545	0.726	0.724
(U) Nuclear Weapons Program Support. Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support AF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies. Perform advanced weapons and weapon systems	0.397	0.082	0.363	0.362

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 5708 Nuclear Weapons Support
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
studies.				
(U) Total Cost	4.766	4.935	7.266	7.247

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) Not Applicable

(U) **D. Acquisition Strategy**
 RDT&E projects performed by AF organizations are direct funded. Contractor efforts are accomplished via cost plus award fee (CPAF) contacts awarded as a result of open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)										0604222F Nuclear Weapons Support		5708 Nuclear Weapons Support		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
In-house Studies/Analysis & Other Government Activities	Government Civilian Payroll	AFMC NWC (Kirtland AFB, NM)	19.150	2.453	Oct-05	2.773	Oct-06	2.863	Oct-07	2.863	Oct-08	Continuing	TBD	TBD
Studies, Analyses, & Evaluations	CPAF	Sverdrup (Albuquerque, NM)	1.239	0.420	Mar-06	0.415	Jan-07	2.403	Jan-08	1.996	Jan-09	Continuing	TBD	TBD
Engineering & Technical Services	CPAF	Sverdrup (Albuquerque, NM)	3.204	1.107	Mar-06	0.950	Dec-06	1.179	Dec-07	1.217	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			23.593	3.980		4.138		6.445		6.076		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Management & Professional Support Services	CPAF	MacAulay Brown (Albuquerque, NM)	1.790	0.306	Jan-06	0.320	Dec-06	0.469	Jan-08	0.819	Jan-09	Continuing	TBD	TBD
Subtotal Support			1.790	0.306		0.320		0.469		0.819		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
In-House Programmatic/Financial Management	Government Civilian Payroll	AFMC NWC (Kirtland AFB, NM)	3.379	0.480	Oct-05	0.477	Oct-06	0.352	Oct-07	0.352	Oct-08	Continuing	TBD	TBD
Subtotal Management			3.379	0.480		0.477		0.352		0.352		Continuing	TBD	TBD
Remarks:														
<u>(U) TAMS</u>														
Total Cost			28.762	4.766		4.935		7.266		7.247		Continuing	TBD	TBD
Remarks:														

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

FY07	FY08	FY09	FY10	FY11	FY12	FY13
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Nuclear Weapons System Project Officers Group Activities (Joint DoD/DOE)



Nuclear Weapons System Certification

Studies & Analyses



Testing Support



Tech Order Development & Management



Data Base Development & Management



Facility & Weapon System Design/Evaluation

Criteria Development



Implementation Guidance



Nuclear Weapons Program Acquisition Support (Joint DoD/DOE)

Pre-Acquisition Concept Studies



Weapon Sustainment Activities



Weapon Retirement Activities



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)	0604222F Nuclear Weapons Support		5708 Nuclear Weapons Support	
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Weapon System Project Officers Group (POG) Activities	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Certification				
(U) ---Nuclear Certification Management Meetings	2-4Q	2-4Q	2-4Q	2-4Q
(U) ---Independent Surety Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Compatibility Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Surveillance Tests	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Aircraft Monitor & Control (AMAC) Tests	1Q	2Q	2Q	2Q
(U) ---Land Based Strategic Nuclear Deterrence Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Intercontinental Ballistic Missile (ICBM) Security Mod Program	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---ICBM Crypto Upgrade Program	1-4Q	1-4Q	1-4Q	
(U) ---Joint Strike Fighter (JSF) Integration Certification		3-4Q	1-4Q	1-4Q
(U) ---JSF Weapons Support Equipment Certification		3-4Q	1-4Q	1-4Q
(U) Data Base Development & Management	1-4Q	1-4Q	1-4Q	1-4Q
(U) Tech Order (TO) Development & Management	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---JSF TO Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) Studies, Analyses, & Assessments				
(U) ---Complete Strike Aircraft Operational Safety Review	1Q			
(U) ---Complete Primary Nuclear Airlift Force (PNAF) Safety Study	1Q			
(U) ---ICBM Operational Safety Review	3-4Q	1-4Q	1-3Q	
(U) ---Long Term Storage Operational Safety Review		2-4Q	1-4Q	1-2Q
(U) ---Complete Technical Nuclear Safety Analysis (TNSA)	1Q			
(U) ---Weapons Maintenance Program Safety	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Facilities Utilization/Design Studies	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Program Support				
(U) ---Pre Acquisition Concept Studies (Phase 6.1/6.2/6.2A) (as requested)	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Sustainment Activities (Phase 6/6.6)	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Retirement Activities (Phase 7)	2-4Q	2-4Q	2-4Q	2-4Q
(U) ---System II Interface Development and Integration (in conjunction with the DOE national laboratories)		3-4Q	1-4Q	1-4Q
(U) ---Development of new System II AMAC Tester		2-4Q	1-4Q	1Q
(U) Information Technology Activities	1-4Q	1-4Q	1-4Q	1-4Q

R-1 Line Item No. 66

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Project 5708

Exhibit R-4a (PE 0604222F)

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604226F B-1B
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	76.496	130.053	159.126	128.892	87.318	4.598	6.694	1.290	Continuing	TBD
4596 Conventional Mission Upgrades	76.496	130.053	159.126	128.892	87.318	4.598	6.694	1.290	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Efforts include, but are not limited to, development of upgrades to the B-1B training systems to keep them current with the aircraft's configuration and funding for development efforts to improve the display of threat situational awareness information (to include datalink) to the aircrew and to record mission information. Also included are ALQ-161A defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs). This program addresses reliability, DMS deficiencies, and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), Advanced Targeting Pod (ATP) and Radar Modernization Improvement Program (RMIP). It also provides funding for engineering efforts and engineering/planning studies and initiatives for potential future weapon system enhancements (including, but not limited to, weapons, targeting and sensors) and for weapon system operational/safety, supportability, maintainability, reliability, and total ownership cost improvements. All B-1B development programs support planned requirements for unique identification in their production phases. Also included are the B-1B platform-unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management and communication enhancements. The B-1B CMUP program is included in budget activity 5, system demonstration and development. The CMUP program provides new capabilities to the B-1B weapon system that require significant software development and testing.

(U) **B. Program Change Summary (\$ in Millions)**

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Previous President's Budget	95.910	130.546	95.789	57.750
(U) Current PBR/President's Budget	76.496	130.053	159.126	128.892
(U) Total Adjustments	-19.414			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.003	-0.493		
Congressional Increases				
Reprogrammings	-16.958			
SBIR/STTR Transfer	-2.453			

(U) **Significant Program Changes:**

FY06: Reprogramming to address higher Air Force priorities
FY08 and FY09 program funding increases to fully fund development for all four grounding items.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604226F B-1B				PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4596 Conventional Mission Upgrades	76.496	130.053	159.126	128.892	87.318	4.598	6.694	1.290	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Efforts include, but are not limited to, development of upgrades to the B-1B training systems to keep them current with the aircraft's configuration and funding for development efforts to improve the display of threat situational awareness information (to include datalink) to the aircrew and to record mission information. Also included are ALQ-161A defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs). This program addresses reliability, DMS deficiencies, and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), Advanced Targeting Pod (ATP) and Radar Modernization Improvement Program (RMIP). It also provides funding for engineering efforts and engineering/planning studies and initiatives for potential future weapon system enhancements (including, but not limited to, weapons, targeting and sensors) and for weapon system operational/safety, supportability, maintainability, reliability, and total ownership cost improvements. All B-1B development programs support planned requirements for unique identification in their production phases. Also included are the B-1B platform-unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management and communication enhancements. The B-1B CMUP program is included in budget activity 5, system demonstration and development. The CMUP program provides new capabilities to the B-1B weapon system that require significant software development and testing.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	65.289	123.163	148.940	118.660
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	3.934	2.321	4.399	5.367
(U) Continuing Mission Support	7.058	4.539	4.632	4.626
(U) Modeling & Simulation / Studies & Analyses	0.215	0.030	1.155	0.239
(U) Total Cost	76.496	130.053	159.126	128.892

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	33.456	53.061	53.125	98.725	163.161	184.114	123.601	108.345	777.525	1,595.113
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement	3.476	5.332	7.913	3.221	9.076	9.826	6.408	6.535	58.266	110.053

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604226F B-1B	PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades
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(U) C. Other Program Funding Summary (\$ in Millions)

BP16, Initial Spares										
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	2.391	2.048	2.688	2.683	2.747	2.783	2.839	2.895	5.734	26.808
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	13.285	10.282	0.000	0.000	0.000	0.000	0.000	0.000	10.000	33.567
(U) Appn 28, PE 0207446F, Bomber TDL Core Related RDT&E:	67.913	-3.621	36.560	0.000	0.000	0.000	0.000	0.000	0.000	100.852
(U) Program Element 0205164F, Global Positioning System (GPS)										
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)										
(U) Program Element 0604600F, Wind Corrected Munitions Dispenser (WCMD)										
(U) Program Element 0208006F, Air Force Mission Planning Systems (AFMSS, JMPS)										

(U) D. Acquisition Strategy

(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); installed performance responsibility; use of cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604226F B-1B	PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
(U) Mission Planning System														0.000
(U) Training Systems														0.000
(U) Rockwell Collins	C/FPIF		2.659	1.524	May-06	0.478		0.664		0.748		2.313	8.386	
(U) Weapons														0.000
(U) TBC - INS/GSS	SS/CPIF			7.649	Feb-06	15.398	Nov-06	33.943	Oct-07	19.256	Nov-08	2.731	78.977	
(U) TBC - RADAR R&M Improvements	SS/CPIF			21.082	Jan-06	58.540	Oct-06	49.658	Oct-07	47.194	Oct-08	53.076	229.550	
(U) AIL - ALQ-161 R&M/DMS	SS/CPFF		35.173	8.523	Sep-06	7.698	Nov-06	12.077	Nov-07	22.318	Dec-08	26.612	112.401	
(U) TBC - TSAS/AVTR Improvements	SS/CPFF		37.889	0.972	Sep-06								38.861	
(U) TBC - VSD Upgrade	SS/CPIF			8.332	Mar-06	12.150	Oct-06	33.638	Nov-07	27.285	Nov-08		81.405	
(U) TBC - CITS/R&M/DMS	SS/CPIF		9.241	6.840	Feb-06	11.137	Jan-07	1.770	Jan-08				28.988	
(U) TBC - FIDL SDD	SS/CPIF		18.038	4.760	Mar-06	8.202	Nov-06	8.660	Nov-07	1.859	Nov-08		41.519	
(U) TBC - FIDL (Congressional Add)	SS/CPFF		1.800										1.800	
(U) EO/IR Targeting Pod	TBD					9.560	Mar-07	8.530	Oct-07				18.090	
(U) EO/IR Targeting Pod (Congressional Add)	SS/CPFF		18.494										18.494	
(U) BRU-56 (Congressional Add)	TBD			0.900	Sep-06							31.734	32.634	
(U) Digital Communications (Congressional Add)	TBD			2.889	Sep-06								2.889	
(U) Pneumatic Assist Rack (Congressional Add)	C/CPFF			1.800	Jul-06								1.800	
(U) Mode S/Mode 5	TBD											4.389	4.389	
(U) TBD - Future CMUP Related SDD	TBD											Continuing	TBD	
Subtotal Product Development			123.294	65.271		123.163		148.940		118.660		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
(U) A&AS	Various		30.223	7.097	Jan-06	4.539	Jan-07	4.632	Jan-08	4.626	Jan-09	7.315	58.432	
(U) Studies & Analyses / Modeling & Sim	Various		15.025	0.194	Jun-06	0.030	Jan-07	1.155	Jan-08	0.239	Jan-09	0.421	17.064	
Subtotal Support			45.248	7.291		4.569		5.787		4.865		7.736	75.496	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
(U) Weapons														0.000
(U) AFFTC	P.O.		60.379	3.934	Jul-06	2.321	Jan-07	4.399	Dec-07	5.367	Dec-08	2.656	79.056	
Subtotal Test & Evaluation			60.379	3.934		2.321		4.399		5.367		2.656	79.056	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

**4596 Conventional Mission
Upgrades**

Remarks:

(U) Total Cost	228.921	76.496	130.053	159.126	128.892	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

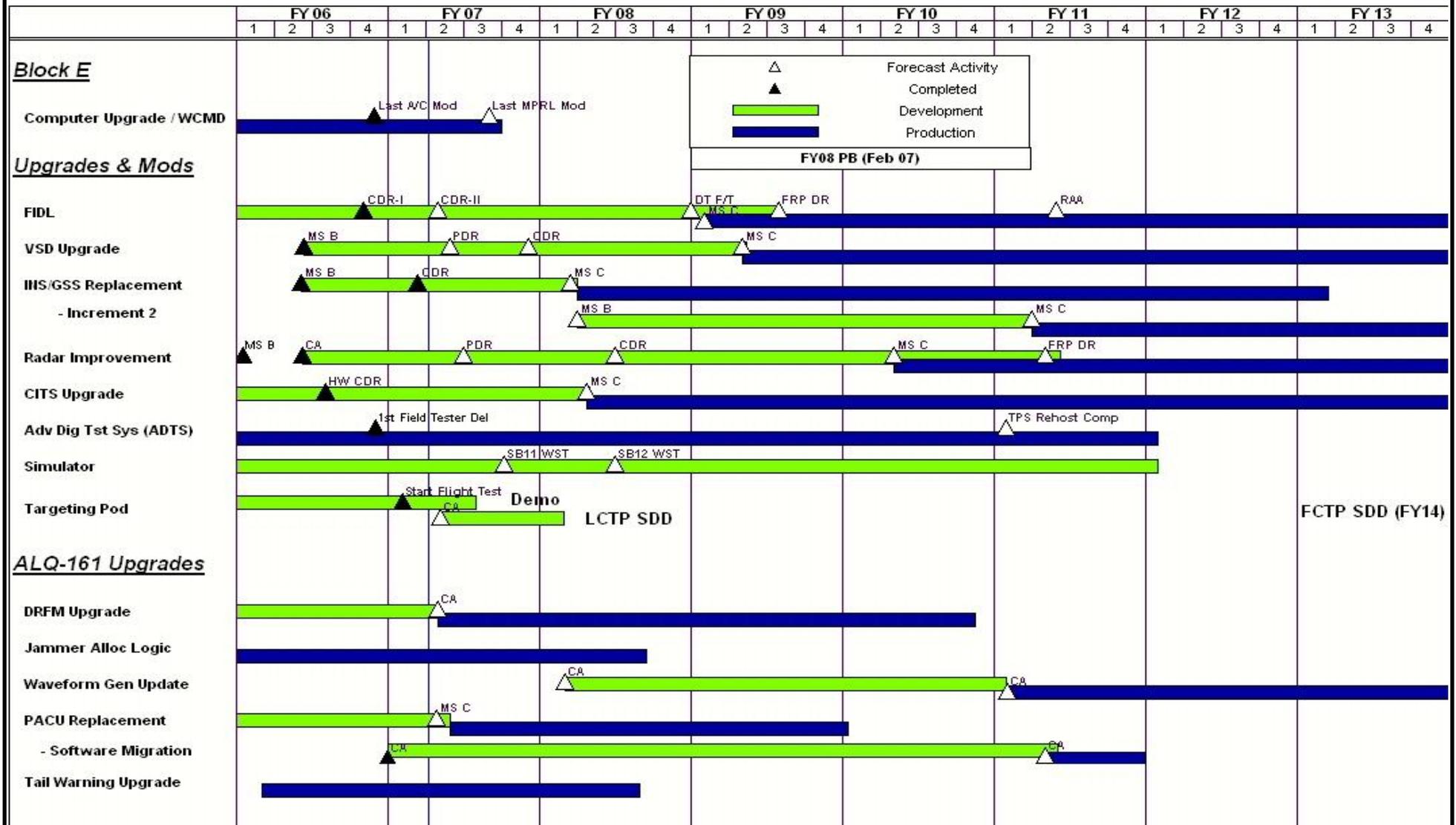
DATE

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604226F B-1B

PROJECT NUMBER AND TITLE
4596 Conventional Mission
Upgrades



R-1 Line Item No. 67

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Project 4596

Exhibit R-4 (PE 0604226F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)	0604226F B-1B	4596 Conventional Mission Upgrades		
(U) Schedule Profile	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Fully Integrated Data Link (FIDL) -- CDR-I	4Q			
(U) Fully Integrated Data Link (FIDL) -- CDR-II		2Q		
(U) Fully Integrated Data Link (FIDL) -- DT&E Flight Test			4Q	
(U) Fully Integrated Data Link (FIDL) -- MS C				1Q
(U) Fully Integrated Data Link (FIDL) -- FRP Decision Review				3Q
(U) Vertical Situation Displays (VSD) Upgrade -- MS B	2Q			
(U) Vertical Situation Displays (VSD) Upgrade -- PDR		2Q		
(U) Vertical Situation Displays (VSD) Upgrade -- CDR		4Q		
(U) Vertical Situation Displays (VSD) Upgrade -- MS C				2Q
(U) Vertical Situation Displays (VSD) Upgrade -- Production				2Q
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- MS B	2Q			
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- CDR		1Q		
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- MS C			1Q	
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- Production			1Q	
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) Increment 2 -- MS B			2Q	
(U) RADAR Improvement Upgrade -- Milestone B	1Q			
(U) RADAR Improvement Upgrade -- SDD Contract Award	2Q			
(U) RADAR Improvement Upgrade -- PDR		2Q		
(U) RADAR Improvement Upgrade -- CDR			2Q	
(U) Central Integrated Test System (CITS) -- CDR	3Q			
(U) Central Integrated Test System (CITS) -- MS C			2Q	
(U) Central Integrated Test System (CITS) -- Production			2Q	
(U) Advanced Digital Testing System (ADTS) -- First Field Tester Delivery	4Q			
(U) Advanced Target Pod (ATP) Demo -- Flight Test		1Q		
(U) Advanced Target Pod (ATP) -- Contract Award		2Q		
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- Contract Award		2Q		
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- Production		2Q		
(U) ALQ-161A Waveform Generator -- Contract Award			1Q	
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- MS C		2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- Production		2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) Software Migration --	4Q			

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Project 4596

Exhibit R-4a (PE 0604226F)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

4596 Conventional Mission
Upgrades

Contract Award

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PE NUMBER: 0604233F

PE TITLE: Specialized Undergraduate Pilot Training

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.832	3.689	12.622	7.524	4.015	5.155	3.700	5.389	Continuing	TBD
4102 Joint Primary Aircraft Training System (JPATS)	5.450	2.193	2.261	2.306	2.367	3.930	2.450	4.114	Continuing	TBD
4376 T-38 Avionics Upgrade Program (AUP)	4.382	1.496	10.361	5.218	1.648	1.225	1.250	1.275	Continuing	TBD

(U) **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. 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). The Air Force is the Executive Service. For FY2006, FY2011 and FY2013, Project 4102, JPATS, includes funding for upgrades to the Simulator for Electronic Combat Training (SECT), a one-of-a-kind simulator at Randolph AFB TX used to train electronic warfare officers. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training. Additionally, there are funds in this project for Phase I testing of propulsion enhancements for the T-38 aircraft and to update T-38 flight performance models, Technical Orders, and AUP software for both aircraft and Aircrew Training Devices for changes brought about by the T-38 Propulsion Modernization Program (PMP). T-38 FY 2006 - FY2009 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. FY2008 - FY2009 includes development funding for improved T-38 brakes.

This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	8.472	3.703	12.504	7.430
(U) Current PBR/President's Budget	9.832	3.689	12.622	7.524
(U) Total Adjustments	1.360	-0.014		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.001	-0.014		
Congressional Increases				
Reprogrammings	1.599			
SBIR/STTR Transfer	-0.238			

(U) **Significant Program Changes:**
 FY2006 includes a Below Threshold Reprogramming for T-38 AUP mission planning software.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training			PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4102 Joint Primary Aircraft Training System (JPATS)	5.450	2.193	2.261	2.306	2.367	3.930	2.450	4.114	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) 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). The aircraft and GBTS will be 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, navigators, 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. Annual JPATS funding is used to develop and test upgrades and enhancements to program hardware and software components.

FY2006, FY2011, and FY2013 include funding to upgrade the Simulator for Electronic Combat Technology (SECT), which supports Air Education and Training Command's (AETC) implementation of Joint Undergraduate Navigator Training. The T25 SECT is used to train all USAF Electronic Warfare Officers. The SECT was designed in the early 1990s as a proprietary based trainer using mini-computers and workstations. Most hardware is now obsolete and is no longer supported by the vendor. Secondary sources do not exist for some hardware items, and secondary sources are also becoming scarce for other hardware items. Future reliability is questionable. Per AETC Test 99-02F T25 Force Development Evaluation Report, the SECT is "not operationally effective" because of inadequate memory, disk space and processing power. Existing hardware memory and processing power cannot be increased to build complex, realistic, up-to-date training scenarios. A non-proprietary, open-architecture trainer will provide reliability and required growth capability to accommodate dynamic EW training environment.

Budget Activity Justification: This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JPATS studies & development efforts.	1.362	2.193	2.261	2.306
(U) SECT software/hardware upgrade	4.088	0.000	0.000	0.000
(U) Total Cost	5.450	2.193	2.261	2.306

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E	5.450	2.193	2.261	2.306	2.267	3.930	2.450	4.114	Continuing	TBD
(U) Other APPN										
(U) Aircraft Procurement, Air										

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Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)
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(U) C. Other Program Funding Summary (\$ in Millions)

Force, BA-3											
(U) JPATS	328.836	304.017	245.889	5.803	1.965	1.829	1.865	1.903	0.000	2,493.869	
(U) JPATS, BA-6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.757	
(U) JPATS Mod Funding	6.061	6.142	17.089	21.343	17.544	11.948	12.182	12.425	Continuing	TBD	
(U) JPATS Post Production	0.000	0.000	0.000	8.929	9.248	9.619	0.000	0.000	0.000	27.796	
(U) Military Construction, Air Force											
(U) PE 0804741F, JPATS	3.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.200	
(U) RDT&E, Navy, BA-7											
(U) PE 0603208N, Training System Aircraft, H1150, JPATS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.300	
(U) Aircraft Procurement, Navy, BA-3	19.151	145.481	295.272	330.906	348.929	353.743	362.797	243.568	37.852	2,377.473	
(U) JPATS											
(U) APN 5 Mod Funding	0.710	1.649	9.872	8.956	6.976	0.000	1.602	1.633	82.007	115.173	
(U) APN 6 Spares	0.763	2.908	8.435	11.122	10.314	10.550	9.093	6.819	0.288	71.739	
(U) Military Construction, Navy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.400	
(U) Aircraft Procurement, Air Force, BA 7											
(U) SECT	1.911	0.000	5.819	0.000	0.000	0.000	0.000	0.000	0.000	7.730	

(U) 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 Contractor Logistics Support (CLS) - Operations and Maintenance funds - contract and a Fixed Price Incentive Firm Target (FPIF) manufacturing development (MD)/production contract with seven options. The FY2002 (Lots 9-13) production contract for both the air vehicle and GBTS is Firm Fixed Price, FAR Part 12 (commercial). The FY2007 production contract for both the air vehicle and GBTS will be awarded as a FAR Part 15 action.

The SECT upgrade effort is an Engineering Change Proposal (ECP) to the competitively awarded Firm Fixed Price Contractor Logistics Support (CLS) contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604233F Specialized Undergraduate Pilot Training						4102 Joint Primary Aircraft Training System (JPATS)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Raytheon Aircraft Company (RAC) */****	C/FPI	RAC, Wichita KS	219.168	1.362	May-06	2.193	May-07	2.261		2.306		Continuing	TBD	TBD
SECT Upgrade	C/FFP	AAI Services Corp, Hunt Valley MD	0.000	4.088	Jun-06	0.000		0.000				0.000	4.088	TBD
Subtotal Product Development			219.168	5.450		2.193		2.261		2.306		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Various	Various											Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			219.168	5.450		2.193		2.261		2.306		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4102 Joint Primary Aircraft Training System (JPATS)

ID	Task Name	06				07				08				09			
		Q1	Q2	Q3	Q4												
1	TAS Development																
2	UWARS Development																
3	Life Raft Development																
4	Parachute Surveillance Development																
5	Brake System Redesign																
6	IDARS Memory Upgrade Development																
7	Canopy Fracture Initiation System																

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SECT Contract Award	3Q			
(U) SECT Software and Hardware Design/Development	3-4Q	1Q		
(U) SECT Software and Hardware Design/Development Complete		2Q		
(U) SECT System Integration Complete		3Q		
(U) SECT System Acceptance		4Q		
(U) JPATS GBTS Traffic Alert System Development Complete	1Q	3Q		
(U) JPATS - Certification of New Emergency Locator Transponder		1Q		
(U) JPATS Follow-on Contract Award		3Q		
(U) JPATS Complete FOT&E		3Q		
(U) JPATS Integrated Data Acquisition Recording System (IDARS) Memory Upgrade Development		1-4Q		
(U) JPATS Brake System Redesign		3Q	3Q	
(U) JPATS Canopy Fracture Initiation System Development			1Q	2Q
(U) JPATS Start of Student Training at Sheppard AFB TX			2Q	
(U) JPATS Parachute Surveillance System Development Complete			4Q	

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4376 T-38 Avionics Upgrade Program (AUP)	4.382	1.496	10.361	5.218	1.648	1.225	1.250	1.275	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The T-38 Avionics Upgrade Program (AUP) is an integrated modernization of the T-38A and AT-38B cockpits to support mission-ready fighter training and converts all T-38A and AT-38B aircraft to T-38C configuration. The modernized digital cockpit will include Global Positioning System (GPS), Head-Up Display (HUD), Inertial Navigation System (INS), Multi-Function Displays (MFDs), Up-Front Control Panel (UFCP), Data Transfer System (DTS), No-Drop Bombing System (NDBS), and Hands-On Throttle and Stick (HOTAS) switchology. HUD symbology is the new USAF standard recently certified as a primary flight reference. Also included is the acquisition of three types of Aircrew Training Devices (ATDs) to replace the existing T-51 simulators. The program includes the design, integration, test, and installation of the cockpit prototype in aircraft, ATDs, and other training devices, as well as engineering services, studies, analysis and support to determine the feasibility of incorporating changes for purposes of making informed life-cycle cost business decisions.

FY 2006 - FY2013 funding is to develop and test aircraft and ATD hardware/software block updates, mission planning software, requirements driven by DoD, FAA and National Aerospace System (NAS) mandated changes (Crash Survivable Flight Data Recorder, Cockpit Voice Recorder, Emergency Locator Transmitter, etc.), enhancements identified during test and evaluation (Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues such as Selective Availability Anti-Spoofing Module (SAASM), and precision and GPS approaches. Other upgrades will include enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations, such as a scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Companion Aircraft Model (CAM) operations.

FY 2008 - FY 2009 includes development funding for the T-38C Improved Brake System Program (IBSP). This effort will include development/missionization of Commercial Off The Shelf (COTS) brakes, wheels, and anti-skid systems as well as necessary flight testing, validation and any additional studies and analysis.

Budget Activity Justification. This project is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Develop and test Block 6 AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.	4.382			
(U) Develop and test Block 7 AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during		1.496		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Test and Evaluation and AETC operations.				
(U) Develop and test additional block updates for AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.			1.492	1.615
(U) Improved Brake System Program, wheel and brake replacement, anti-skid capability modification and its associated integration issues, studies and analyses			8.869	3.603
(U) Total Cost	4.382	1.496	10.361	5.218

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) AF RDT&E	4.382	1.496	10.361	5.218	1.648	1.225	1.250	1.275	Continuing	TBD
(U) Other APPN										
(U) PE 0804741F, T-38 Avionics Upgrade, BP 1100	29.636	40.345	0.781	0.000	0.000	0.000	0.000	0.000	0.000	510.596
(U) PE 0804741F, T-38 Improved Brakes, BP 1100	0.000	0.000	0.000	9.901	9.684	5.580	5.663	5.739	29.804	66.371

(U) D. Acquisition Strategy
 The T-38C AUP competitively awarded three contracts: a) a cost plus award fee EMD contract with six firm fixed price production options; b) a firm fixed price CLS contract for avionics including Contractor Owned and Maintained Base Supply (COMBS) (O&M funds); and c) a fixed price award fee maintenance contract for the current and new Aircrew Training Devices (ATDs). During FY2004 new firm fixed priced contracts were negotiated to complete the AUP modification, and unpriced delivery orders for the period FY2005-2008 were negotiated for the aircraft CLS contract. FY2002 and FY2004 software block updates were changes to existing contracts and FY2005-2009 block updates are being exercised under the new contract.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> The Boeing Corporation	C/CPAF	The Boeing Corporation St. Louis MO		4.382		1.496		1.492		1.615		Continuing	TBD	TBD
TBD	PO	TBD	0.000	0.000		0.000		8.869	Nov-08	3.603		0.000	12.472	TBD
Subtotal Product Development			0.000	4.382		1.496		10.361		5.218		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>													0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>													0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>													0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	4.382		1.496		10.361		5.218		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

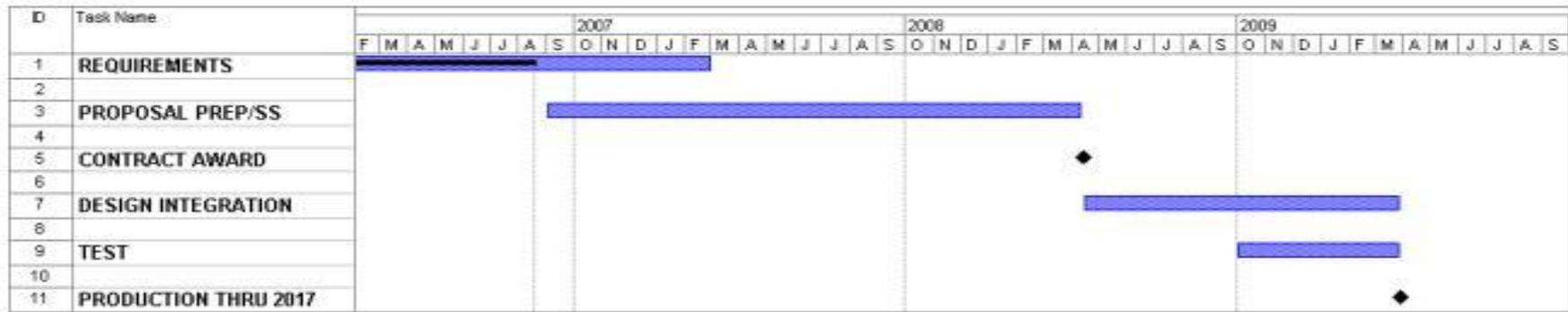
DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604233F Specialized Undergraduate
Pilot Training

PROJECT NUMBER AND TITLE
4376 T-38 Avionics Upgrade
Program (AUP)

Improved Braking System Program (IBSP)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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<u>(U) Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AUP Block 6	1Q	3Q		
(U) AUP Block 7	2Q		3Q	
(U) AUP Block 8		2Q		4Q
(U) AUP Block 9			2Q	
(U) IBSP Requirements	1Q	2Q		
(U) IBSP Proposal Preparation/Source Selection	4Q		3Q	
(U) IBSP Contract Award			3Q	
(U) IBSP Design Intergration			3Q	3Q

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PE NUMBER: 0604239F
 PE TITLE: F-22 EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604239F F-22 EMD
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	71.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24,083.237
4069 Advanced Tactical Fighter FSD	71.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24,083.237

(U) A. Mission Description and Budget Item Justification

The F-22A 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-22A 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 F-22A is currently closing out the Engineering and Manufacturing Development (EMD) phase of acquisition.

This program is in Budget Activity 5, System Development and Demonstration, because the F-22A Program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	75.117	0.000		
(U) Current PBR/President's Budget	71.818	0.000		
(U) Total Adjustments	-3.299			
(U) Congressional Program Reductions	-1.002			
Congressional Rescissions	0.000			
Congressional Increases				
Reprogrammings	-0.186			
SBIR/STTR Transfer	-2.111			
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604239F F-22 EMD				PROJECT NUMBER AND TITLE 4069 Advanced Tactical Fighter FSD		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4069 Advanced Tactical Fighter FSD	71.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24,083.237
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

* Total Cost includes \$3,779,811,000 of Demonstration and Validation funding prior to FY 1992 funded in PE 0603230F.

(U) A. Mission Description and Budget Item Justification

The F-22A 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-22A 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 F-22A is currently closing out the Engineering and Manufacturing Development (EMD) phase of acquisition.

This program is in Budget Activity 5, System Development and Demonstration, because the F-22A Program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Air Vehicle	44.710			
- Completed full-scale airframe structural fatigue testing and analysis (NSP)				
- Continue structural certification analysis activities. (NSP)				
- Completed EMD flight test and flight test support. (NSP)				
- Completed life extension NRE (early aircraft getting modified to get "full life"). (NSP)				
- Initiated and completed technical support for Force Development Evaluation and Follow-on Operational Test and Evaluation (NSP)				
(U) Avionics	23.050			
- Completed Avionics Integration Lab Block 3.1.3 Integration. (NSP)				
- Completed DMS redesign, requalification and retesting activities. (NSP)				
- Complete EMD OFP development and testing. (NSP) - Initiated and completed technical support for Force Development Evaluation and Follow-on Operational Test and Evaluation (NSP)				
(U) Engine	2.200			
- Completed support and test of flight test engines (25 total). (NSP)				
(U) Other Government Cost	1.858			
- Complete flight test and flight test support at Edwards AFB.				
- Mission support of the SPO; travel, computer costs, misc contracts, etc.				
(U) Total Cost	71.818	0.000	0.000	0.000

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604239F F-22 EMD

PROJECT NUMBER AND TITLE

4069 Advanced Tactical Fighter FSD

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) F/A-22 Squadrons RDT&E (PE 0207138F)*	341.789	472.475	743.593	666.848	510.330	417.268	520.979	495.848	Continuing	TBD
(U) F/A-22 Squadrons (3010) Procurement (PE 0207138F)	78.147	188.537	396.402	475.752	421.442	545.565	434.013	425.968	Continuing	TBD
(U) F/A-22 Squadrons (3080) Procurement (PE 0207138F)	1.427	2.727	4.285	0.000	1.237	1.499	2.236	1.559	Continuing	TBD
(U) Military Construction (PE 0207138F)	47.951	62.900	70.180	197.800	26.500	0.000			0.000	457.160
(U) Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	3686.391	3433.079	3614.765	3708.927	47.892	48.804	1.942	1.938	0.000	34,532.40 0
(U) Munitions Procurement (PE 0207219F)	11.183	16.508	12.659	12.973	16.355	13.046	13.307	13.573	0.000	120.424
(U) F/A-22 Tactical Data Link RDT&E (PE 27445F)	91.414	88.099	51.870	72.333	90.460	0.000				394.176

* NOTE: Includes BP10, 11, 12, 16, 19 (Depot Activation).

** NOTE: Includes BP10, 11, 19 and Advance Buy.

(U) D. Acquisition Strategy

The EMD contract is Cost Plus Award Fee with Lockheed Martin Aeronautical Systems (LMAS) to produce the F-22A air vehicle and Pratt & Whitney (P&W) to produce the F119 engines. The engines are provided to LMAS as GFE.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604239F F-22 EMD	PROJECT NUMBER AND TITLE 4069 Advanced Tactical Fighter FSD
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Lockheed (Air Veh)	C/CPAF	Lockheed Martin, Marietta, GA	16,425.368	65.399	Aug-91							0.000	16,490.767	14,727.198
Pratt & Whitney	C/CPFF	Pratt & Whitney, Hartford, CT	2,501.797									0.000	0.000	2,388.171
GFE	Various		66.153									0.000	66.153	
Subtotal Product Development			16,493.521	65.399		0.000		0.000		0.000		0.000	16,556.920	17,115.369
Remarks:														
<u>(U) Support</u> Mission Support	Various		173.997	0.000								0.000	173.997	
Subtotal Support			173.997	0.000		0.000		0.000		0.000		0.000	173.997	0.000
Remarks:														
<u>(U) Test & Evaluation</u> AEDC	PO	Arnold AFB, TN	158.000									0.000	158.000	
AFFTC	PO	Edwards AFB, CA	780.160									0.000	780.160	
All Other Tests	Various		125.131	6.419		0.000						0.000	131.550	
Not Applicable												0.000	0.000	
Subtotal Test & Evaluation			1,063.291	6.419		0.000		0.000		0.000		0.000	1,069.710	0.000
Remarks:														
<u>(U) Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			17,730.809	71.818		0.000		0.000		0.000		0.000	17,800.627	17,115.369

NOTE: Total program cost for Engineering and Manufacturing Development only. Does not include \$3,779,811,000 of Demonstration and Validation funding prior to FY92.

Exhibit R-4, RDT&E Schedule Profile

DATE

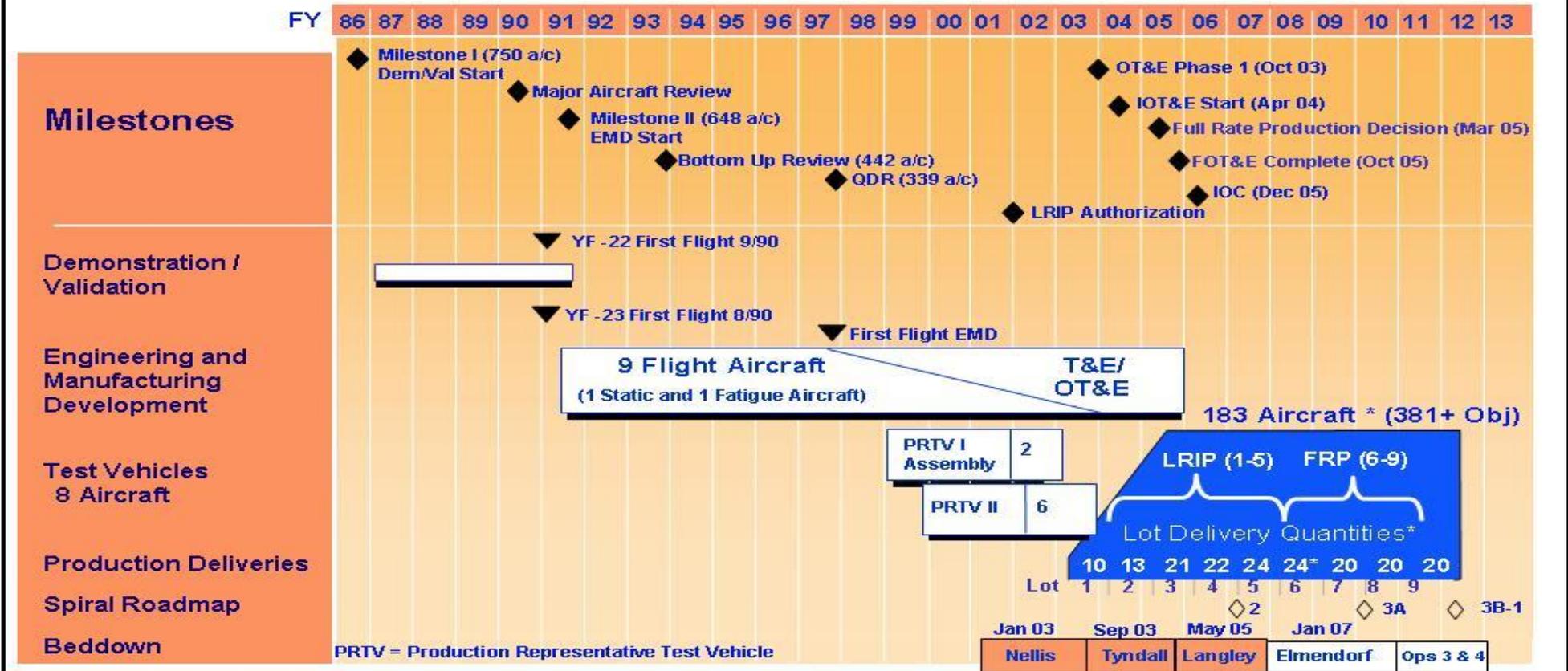
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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604239F F-22 EMD

PROJECT NUMBER AND TITLE
4069 Advanced Tactical Fighter FSD

Program Overview (FY08 BES)



*Lot 6 buy includes one test aircraft

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604239F F-22 EMD	PROJECT NUMBER AND TITLE 4069 Advanced Tactical Fighter FSD
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) IOT&E Complete				
(U) FDE Start				
(U) FDE Complete	1Q			
(U) FOT&E Start				
(U) FOT&E Complete	1Q			

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PE NUMBER: 0604240F

PE TITLE: B-2 Advanced Technology Bomber

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	281.671	241.608	244.019	249.374	188.245	145.352	57.581	19.561	Continuing	TBD
3843 B-2 Advanced Technology Bomber	281.671	241.608	244.019	249.374	188.245	145.352	57.581	19.561	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home safely. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility and lethality of this "capital" asset. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode S/5 Identification Friend or Foe (IFF), and Defensive Management System (DMS) upgrades. RMP changes the operating frequency of the radar to enable the B-2 to legally operate worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment. EHF SATCOM and Computers will provide a dramatic increase in the B-2 data flow rates, paving the way for integration into the Global Information Grid (GIG). Upgrades include extremely high frequency components and the computer infrastructure upgrades necessary to host new capability on the aircraft. Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space; Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management. DMS upgrades improve system performance, increase reliability and supportability, counter hardware obsolescence, and update the current analog design with modern digital technology.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons into the B-2 to destroy a wider array of target sets as well as destroy more targets per sortie. Final testing and integration of the GBU-28 C/B program is underway. The GBU-28 C/B is an improved 5,000 lb "bunker buster" munition that provides greater lethality, thus holding more enemy targets at risk. Universal Armament Interface will provide a commonality among all weapon platforms to interface with all standard armament. Small Diameter Bomb (SDB) and Massive Ordnance Penetrator (MOP) armament efforts will design, develop, integrate, and test the hardware and software required to employ both weapons from the B-2. SDB II will provide all-weather, near-precision accuracy against a wide range of fixed, relocatable, and mobile targets at increased standoff ranges with less collateral damage. The 30K pound MOP will provide the nation with the ability to hold additional hardened and deeply buried targets (HDBT) at risk that are out of reach of the current 5K pound class penetrator munitions. The B-2 is the only penetrating platform capable of carrying the MOP. FY07 Congressional Plus-up for SDB and MOP is insufficient to complete full design, development, test, and integration efforts required for the B-2 fleet. FY07 funds will fund as much effort as possible until additional funds are received in future years.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the Digital Electronic Controller for the F-118 engine. This improvement combines two line replaceable units in the engine that were unsustainable into one sustainable unit, reducing maintenance manhours and increasing aircraft availability rates.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, MAGRAM picture framing, hot structures, tailpipe material maintenance improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, RF diagnostics and LO diagnostic tools development such as improvements of the Signature Diagnostic System database and Low Observable Combat Readiness Model. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Continued baseline B-2 support is essential to the execution of all the RDT&E efforts discussed above. The baseline B-2 support ensures support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, and provides for other B-2 unique government costs. Likewise, baseline support provides a strategic planning capability to include acquisition planning activities, up to but not including solicitation release, that are needed to prepare for program new start implementation when Congressional authorization is received.

This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	294.898	224.177	251.513	236.182
(U) Current PBR/President's Budget	281.671	241.608	244.019	249.374
(U) Total Adjustments	-13.227	17.431		
(U) Congressional Program Reductions		-0.053		
Congressional Rescissions	-0.009	-0.916		
Congressional Increases		18.400		
Reprogrammings	-5.014			
SBIR/STTR Transfer	-8.204			

(U) Significant Program Changes:

Changes to the FY08 budget are primarily due FY08 POM adjustments to the EHF SATCOM and Computers and Aft Deck programs. Changes to the FY09 budget are primarily due to FY08 POM adjustments to the EHF SATCOM and Computers, AFt Deck, and Mode S/5 IFF programs.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)		0604240F B-2 Advanced Technology Bomber						3843 B-2 Advanced Technology Bomber			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3843 B-2 Advanced Technology Bomber	281.671	241.608	244.019	249.374	188.245	145.352	57.581	19.561	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home safely. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility and lethality of this "capital" asset. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode S/5 Identification Friend or Foe (IFF), and Defensive Management System (DMS) upgrades. RMP changes the operating frequency of the radar to enable the B-2 to legally operate worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment. EHF SATCOM and Computers will provide a dramatic increase in the B-2 data flow rates, paving the way for integration into the Global Information Grid (GIG). Upgrades include extremely high frequency components and the computer infrastructure upgrades necessary to host new capability on the aircraft. Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space; Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management. DMS upgrades improve system performance, increase reliability and supportability, counter hardware obsolescence, and update the current analog design with modern digital technology.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons into the B-2 to destroy a wider array of target sets as well as destroy more targets per sortie. Final testing and integration of the GBU-28 C/B program is underway. The GBU-28 C/B is an improved 5,000 lb "bunker buster" munition that provides greater lethality, thus holding more enemy targets at risk. Universal Armament Interface will provide a commonality among all weapon platforms to interface with all standard armament. Small Diameter Bomb (SDB) and Massive Ordnance Penetrator (MOP) armament efforts will design, develop, integrate, and test the hardware and software required to employ both weapons from the B-2. SDB II will provide all-weather, near-precision accuracy against a wide range of fixed, relocatable, and mobile targets at increased standoff ranges with less collateral damage. The 30K pound MOP will provide the nation with the ability to hold additional hardened and deeply buried targets (HDBT) at risk that are out of reach of the current 5K pound class penetrator munitions. The B-2 is the only penetrating platform capable of carrying the MOP. FY07 Congressional Plus-up for SDB and MOP is insufficient to complete full design, development, test, and integration efforts required for the B-2 fleet. FY07 funds will fund as much effort as possible until additional funds are received in future years.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber	PROJECT NUMBER AND TITLE 3843 B-2 Advanced Technology Bomber
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Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the Digital Electronic Controller for the F-118 engine. This improvement combines two line replaceable units in the engine that were unsustainable into one sustainable unit, reducing maintenance manhours and increasing aircraft availability rates.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, MAGRAM picture framing, hot structures, tailpipe material maintenance improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, RF diagnostics and LO diagnostic tools development such as improvements of the Signature Diagnostic System database and Low Observable Combat Readiness Model. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Continued baseline B-2 support is essential to the execution of all the RDT&E efforts discussed above. The baseline B-2 support ensures support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, and provides for other B-2 unique government costs. Likewise, baseline support provides a strategic planning capability to include acquisition planning activities, up to but not including solicitation release, that are needed to prepare for program new start implementation when Congressional authorization is received.

This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning support; trainer support, long range planning, studies, and program integration activities; and other government costs.	15.190	10.096	14.911	17.676
(U) Continue development of EHF SATCOM and Computers, Aft Deck, Low Observable improvements, airframe structures and other avionics improvements.	73.465	92.417	150.756	204.180
(U) Continue development of RMP including continuing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units.	193.016	114.161	68.163	14.876
(U) Begin development of Mode S/5 IFF, PSLU, SDB, and MOP		24.934	10.189	12.642
(U) Total Cost	281.671	241.608	244.019	249.374

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology
Bomber

PROJECT NUMBER AND TITLE

3843 B-2 Advanced Technology
Bomber(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) A/C Proc, AF, Combat A/C/BA07/B-2A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) A/C Proc, AF, Post Prod Support/BA07	6.856	7.665	0.000	0.000	0.000	0.000	1.192	2.926	Continuing	TBD
(U) A/C Proc, AF, Modifications/BA05/B-2A	39.400	180.696	311.537	117.439	82.304	148.225	185.664	131.684	Continuing	TBD
(U) A/C Prod, AF, ICS	26.979	11.666	34.780	37.139	31.314	22.023	13.355	8.855	Continuing	TBD
(U) A/C Proc, AF, Cmn Spt Eq/BA07/Items<\$2M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
(U) A/C Proc, AF, A/C Initial Spares/BA06/B-2A	6.544	2.083	4.676	1.063	0.000	2.073	12.303	6.672	Continuing	TBD
(U) Proc (Other), AF/BA 02,03, 04/B-2A	7.508	8.055	4.233	4.388	0.000	0.000	0.000	0.000	0.000	TBD
(U) Military Construction/BA01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

(U) **D. Acquisition Strategy**

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee (CPAF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber	PROJECT NUMBER AND TITLE 3843 B-2 Advanced Technology Bomber
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>									
(U) <u>Product Development</u>														
Air Vehicle	Multiple	Various		258.666	Oct-05	228.740	Oct-06	227.622	Oct-07	220.824	Oct-08	Continuing	TBD	
Aircrew Training	Multiple	Various		6.930	May-06	1.700	Jan-07	0.808	Jan-08	8.294	Jan-09	Continuing	TBD	
Mission Planning	Multiple	Various		1.935	Mar-06	0.626	Mar-07	1.510	Mar-08	3.504	Mar-09	Continuing	TBD	
Engines	Multiple	Various		0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A		0.000	
Subtotal Product Development			0.000	267.531		231.066		229.940		232.622		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Other Govt Costs	N/A	Various		11.591	Oct-05	7.189	Oct-06	10.714	Oct-07	13.283	Oct-08	Continuing	TBD	
Subtotal Support			0.000	11.591		7.189		10.714		13.283		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Govt Test	N/A	AFFTC		2.549	Oct-05	2.653	Oct-06	3.365	Oct-07	3.469	Oct-08	Continuing	TBD	
Subtotal Test & Evaluation			0.000	2.549		2.653		3.365		3.469		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>														
Cancelled Year Invoices	N/A	Various		0.000		0.700	May-07						0.700	
Subtotal Management			0.000	0.000		0.700		0.000		0.000		0.000	0.700	0.000
Remarks:														
(U) Total Cost			0.000	281.671		241.608		244.019		249.374		Continuing	TBD	0.000
Award dates listed are the first incremental funding opportunity associated with cost categories														

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604240F B-2 Advanced Technology Bomber

PROJECT NUMBER AND TITLE
3843 B-2 Advanced Technology Bomber

B-2 Detailed Schedule

AIRCRAFT MODS

EGBU-28
UHF SATCOM IFC P3
SBRA/JDAM-82

LINK-16/CID/IFR IFC P4

RADAR FREQUENCY MOD IFC P5

EHF SATCOM IFC P6

CLASSIFIED PROGRAMS IFC P6

Massive Ordnance Penetrator
Small Diameter Bomb

AIRCRAFT MAINTAINABILITY

AFT DECK LONG TERM SOLUTION
AFT DECK REPAIR KITS

ALTERNATE HIGH FREQ MATERIAL
TRAINERS UPGRADES

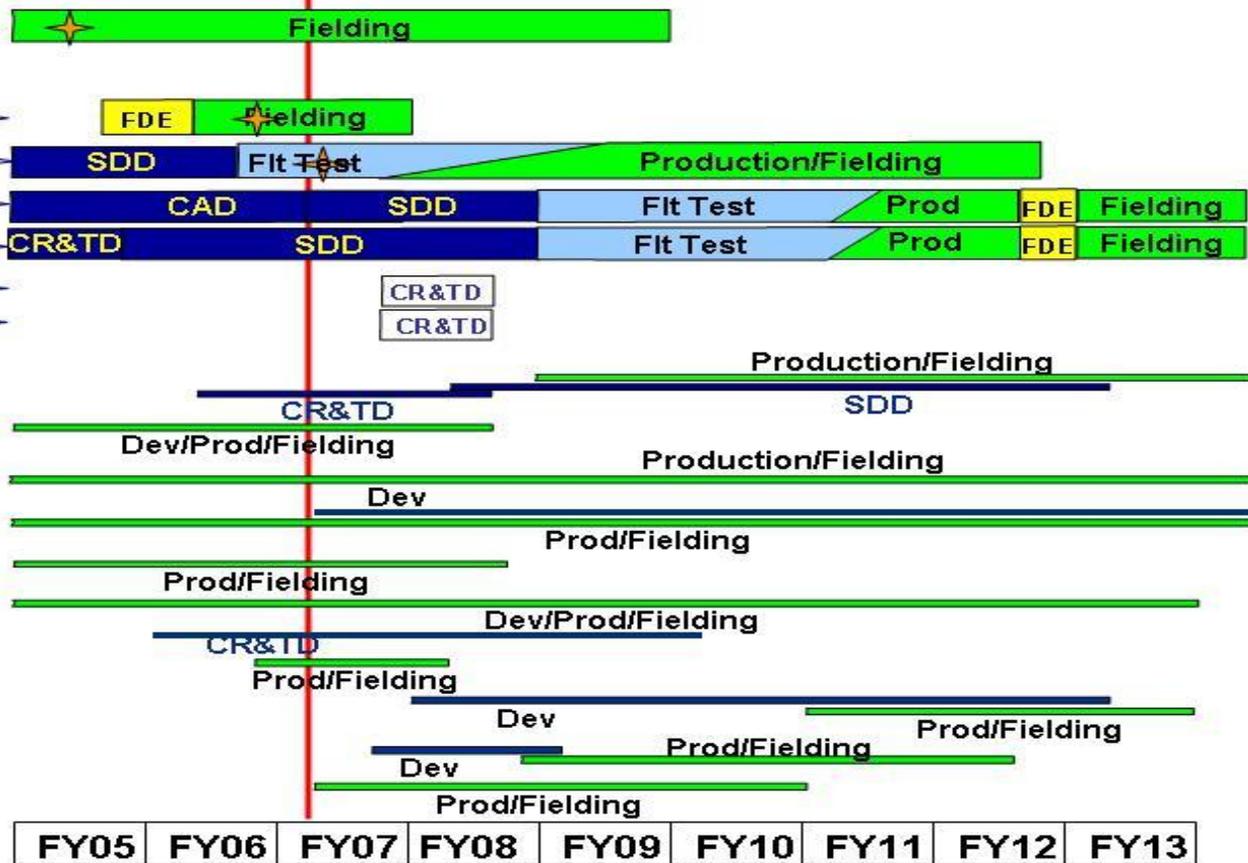
DIGITAL ENGINE CONTROL

SUPPORTABILITY MODIFICATIONS
WINDSHIELD TAPE ALTERNATIVE
OGADS

MODE S/MODE 5 IFF

PROXIMITY SENSOR LOGIC UNIT
ENGINE FAN BLADES SAFETY MOD

FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
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As of: 11 Jan 07

★ Initial Operational Capability

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber	PROJECT NUMBER AND TITLE 3843 B-2 Advanced Technology Bomber
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) EHF Increment 1 Milestone B		2Q		
(U) EHF SDD Contract Award		3Q		
(U) RMP Flight Test Begins	3Q			
(U) RMP Milestone C		3Q		
(U) Aft Deck CR&TD Contract Award	2Q			
(U) Mode S/5 Contract Award		3Q		
(U) Proximity Sensor Logic Unit Contract Award		3Q		
(U) Aft Deck Milestone B Decision			1Q	
(U) Aft Deck SDD Contract Award			1Q	
(U) RMP Development Completes				4Q
(U) EHF Flight Test Begins				1Q

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PE NUMBER: 0604261F
 PE TITLE: Personnel Recovery Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	200.695	290.059	356.698	378.460	346.754	264.298	262.939	Continuing	TBD
5213 CSAR-X	0.000	200.695	279.958	344.908	368.310	342.700	261.770	260.415	Continuing	TBD
5249 HC-130Recap	0.000	0.000	10.101	11.790	10.150	4.054	2.528	2.524	0.000	0.000

In FY 2007, Project Number 5213, CSAR-X, RDT&E efforts were transferred from PE 0207224F, Combat Rescue and Recovery, CSAR-X, to more accurately reflect funding within the CSAR-X program.

In FY 2008, Project Number 5249, HC-130 Recap, includes new start efforts.

Procurement funding for CSAR-X and HC-130 Recap remains in PE 0207224F and is reported in P-Docs.

(U) A. Mission Description and Budget Item Justification

Program Element 0604261F includes development projects 5213 and 5249 for the Combat Search and Rescue Replacement Aircraft (CSAR-X), and HC-130 Recapitalization (Recap) programs, respectively.

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces. Exhibits R-2a describe these projects in detail.

The HC-130 Recapitalization (Recap) Program will augment and eventually replace the aging USAF fleet of Combat Rescue Tanker (CRT) aircraft which is experiencing airworthiness, maintainability and operational limitations. The low density / high demand CRT fleet consists of several C-130 variants--37 aircraft in all--in Active Duty, Air Force Reserve and Air National Guard squadrons. This is a new start request. Exhibits R-2a describe these projects in detail.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	254.310	285.136	223.970
(U) Current PBR/President's Budget	0.000	200.695	290.059	356.698
(U) Total Adjustments	0.000	-53.615		
(U) Congressional Program Reductions		-52.855		
Congressional Rescissions		-0.760		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

- CSAR-X program successfully completed a Block 0 Milestone B. Budget reflects Milestone B Block 0 requirements as well as Block 10 requirements beginning in FY08 after a successful Milestone A.
- HC-130 Recap is a New Start in FY08 with funds transfered from terminated "HC-130 Conversion Program," PE 0207224F, BPAC 655249

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604261F Personnel Recovery Systems			PROJECT NUMBER AND TITLE 5213 CSAR-X		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5213 CSAR-X	0.000	200.695	279.958	344.908	368.310	342.700	261.770	260.415	Continuing	TBD
Quantity of RDT&E Articles	0	0	1	2	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide the USAF Combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, to include passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: RDT&E funding includes, but is not limited to, the development of three Block 0 Test Vehicles, non-recurring engineering, software development, integration, testing and certification of the CSAR-X mission components required by the Capability Development Document (CDD), as well as simulator development for both aircrew and maintenance trainers.

On 8 Nov 2006 USD(AT&L) approved the CSAR-X program to enter System Development and Demonstration (SDD). On 9 Nov 2006 the Air Force awarded a contract for SDD of an H-47 variant proposed by Boeing Integrated Defense Systems of Ridley Park, PA.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SPO support to include, but not limited to the development of test and evaluation master plan, preparation of Block 10 Milestone (MS) A and Block 0 MS C documentation, and execution of SDD contract.		5.575	5.859	5.983
(U) Studies and Analysis		3.097	3.164	3.231
(U) Government Test & Evaluation		12.559	16.349	13.946
(U) Development Support		8.518	10.950	8.681
(U) Software		20.522	28.866	17.847
(U) Simulator Development		28.008	26.945	48.676
(U) Block 0 System Development and Demonstration (SDD) to include, but not limited to non-recurring engineering, test vehicle hardware, and data.		122.416	184.869	213.997

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems	PROJECT NUMBER AND TITLE 5213 CSAR-X
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 SDD to include, but not limited to non-recurring engineering, test vehicle hardware, software, simulator development, and data.			2.956	32.547
(U) Total Cost	0.000	200.695	279.958	344.908

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) APAF (including Advanced Procurement), PE 0207224F				65.900	657.625	624.000	804.343	960.459	Continuing	TBD
(U) RDT&E, AF PE 0207224F	50.672									

(U) **D. Acquisition Strategy**

The CSAR-X program will pursue an incremental development strategy. There will be a Block 0 and a Block 10 platform. Block 0 development will field a new Combat Search and Rescue (CSAR) weapon system. Block 0 will correct HH-60G force-size shortfalls while improving current CSAR capabilities of range, payload, armament, and defensive systems. Block 10 will provide for the insertion of additional systems and improved technologies into the CSAR-X to meet all thresholds stated in the CDD.

Block 0 production deliveries will begin in FY11, and have an Initial Operational Capability (IOC) in FY12. At the conclusion of Block 10 Operational Testing, the program will begin Block 10 aircraft production and the retrofitting of Block 0 aircraft to a Block 10 configuration. The program will procure and field 141 CSAR-X helicopters along with support equipment, spares, as well as aircrew and maintenance trainers and Type 1 training.

Block 10 development is planned to begin in FY08 after a successful Milestone A decision. Block 10 will develop two Test Vehicles to the Block 10 configuration allowing design, integration, and test of the Block 10 capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems	PROJECT NUMBER AND TITLE 5213 CSAR-X
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Studies & Analysis Block 0 SDD	Various CPIF/AF	Various Boeing IDS, Ridley Park, PA				3.097		3.164		3.231		Continuing	TBD	
Test Vehicle Hardware	CPIF/AF	Boeing IDS, Ridley Park, PA				96.309		123.113		109.114		Continuing	TBD	
Software	CPIF/AF	Boeing IDS, Ridley Park, PA				15.603		41.933		56.113			113.649	
Simulator Development	CPIF/AF	Boeing IDS, Ridley Park, PA				20.522		28.866		17.847		Continuing	TBD	
Block 10 SDD	CPIF/AF	Boeing IDS, Ridley Park, PA				28.008		26.945		48.676		Continuing	TBD	
Subtotal Product Development			0.000	0.000		163.539		226.977		267.528		Continuing	TBD	0.000
Remarks:														
<u>(U) Support</u>														
Development Support	CPIF/AF	Boeing IDS, Ridley Park, PA				8.518		10.950		8.681		Continuing	TBD	
Subtotal Support			0.000	0.000		8.518		10.950		8.681		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Gov't Test & Evaluation		413 TW, Eglin AFB, FL				12.559		16.349		13.946		Continuing	TBD	
Contractor Test & Evaluation	CPIF/AF	Boeing IDS, Ridley Park, PA				10.504		19.823		48.770			79.097	
Subtotal Test & Evaluation			0.000	0.000		23.063		36.172		62.716		Continuing	TBD	0.000
Remarks:														
<u>(U) Management</u>														
SPO Support						5.575		5.859		5.983		Continuing	TBD	
Subtotal Management			0.000	0.000		5.575		5.859		5.983		Continuing	TBD	0.000
Remarks:														

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

PROJECT NUMBER AND TITLE

5213 CSAR-X

(U) Total Cost	0.000	0.000	200.695	279.958	344.908	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

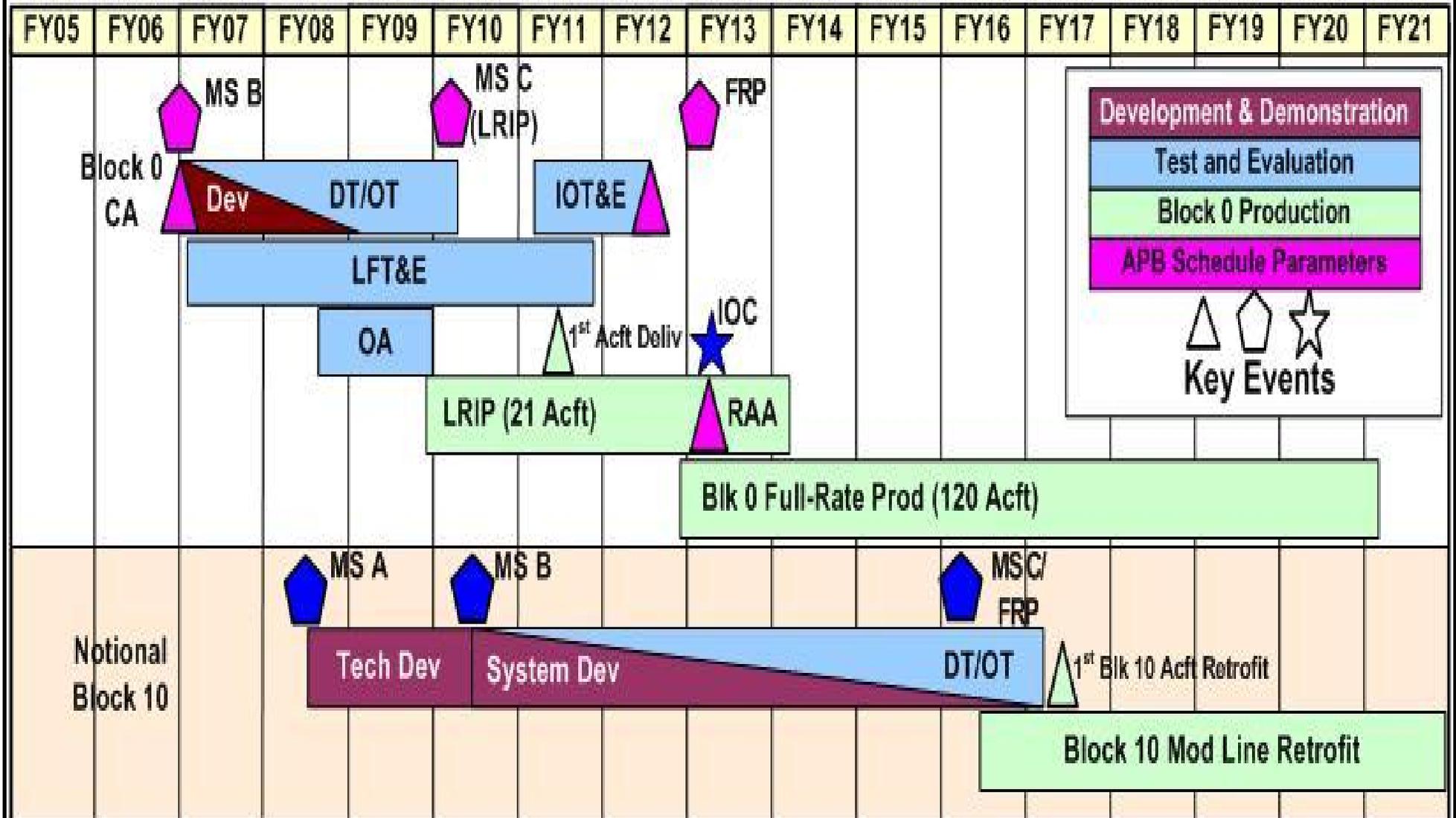
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February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604261F Personnel Recovery
Systems

PROJECT NUMBER AND TITLE
5213 CSAR-X



R-1 Line Item No. 71

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems	PROJECT NUMBER AND TITLE 5213 CSAR-X
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) RFP Release	1Q			
(U) Conduct CSAR-X Source Selection	1-4Q			
(U) Block 0 Milestone (MS) B		1Q		
(U) Contract Award		1Q		
(U) Block 10 MS A			3Q	

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604261F Personnel Recovery Systems			PROJECT NUMBER AND TITLE 5249 HC-130Recap			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5249 HC-130Recap	0.000	0.000	10.101	11.790	10.150	4.054	2.528	2.524	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2008, Project Number 5249, HC-130 Recap includes new start efforts.

(U) A. Mission Description and Budget Item Justification

The HC-130 Recapitalization (Recap) Program will augment and eventually replace the aging USAF fleet of Combat Rescue Tanker (CRT) aircraft which is experiencing airworthiness, maintainability and operational limitations. The low density / high demand CRT fleet consists of several C-130 variants--37 aircraft in all--in Active Duty, Air Force Reserve and Air National Guard squadrons. The Analysis of Alternatives, completed in FY06, recommended a modified, medium-transport aircraft as the best solution to fill the capability gap. The FY 2008 President's Budget requests RDT&E to integrate and test mature, fielded capabilities (eg., IRCM, EO/IR imaging, Universal Aerial Refueling Receptacle Slipway Installation (UARRSI)) with medium-transport aircraft. This is a new start request.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Acquisition Planning, Milestone Preparation, RFP development and Source Selection Activities			2.101	2.250
(U) Systems Engineering and Integration			4.000	4.740
(U) Test and Evaluation Planning, Conduct and Support			4.000	4.800
(U) Total Cost	0.000	0.000	10.101	11.790

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) APAF (Including Advance Procurement) PE 0207224F			9.990	210.132	357.678	332.819	298.445	242.837		TBD

(U) D. Acquisition Strategy

The USAF is conducting market research in FY07 to determine the availability of commercial sources under the procedures prescribed in the Federal Acquisitions Regulation and to prepare for a Milestone decision and contract award in 2Q/FY08. In addition, USAF is developing a Capabilities Development Document and an acquisition strategy for the program and anticipates a 2Q FY08 milestone decision and contract award.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604261F Personnel Recovery Systems						5249 HC-130Recap				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Systems Engineering and Integration	TBD	TBD	0.000	0.000		0.000		4.000	Nov-07	5.835	Nov-08	15.000	24.835	TBD
Subtotal Product Development			0.000	0.000		0.000		4.000		5.835		15.000	24.835	TBD
Remarks:														
(U) <u>Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Test and Evaluation Conduct	TBD	TBD	0.000	0.000		0.000		2.000	Mar-08	3.600	Nov-08	2.000	7.600	TBD
Test and Evaluation Support	TBD	TBD	0.000	0.000		0.000		2.000	Mar-08	2.200	Nov-08	2.000	6.200	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		4.000		5.800		4.000	13.800	TBD
Remarks:														
(U) <u>Management</u>														
SPO Support								1.994					1.994	TBD
Subtotal Management			0.000	0.000		0.000		1.994		0.000		0.000	1.994	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		9.994		11.635		19.000	40.629	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604261F Personnel Recovery
Systems

PROJECT NUMBER AND TITLE
5249 HC-130Recap

HC/MC-130 Recap Program (Notional)

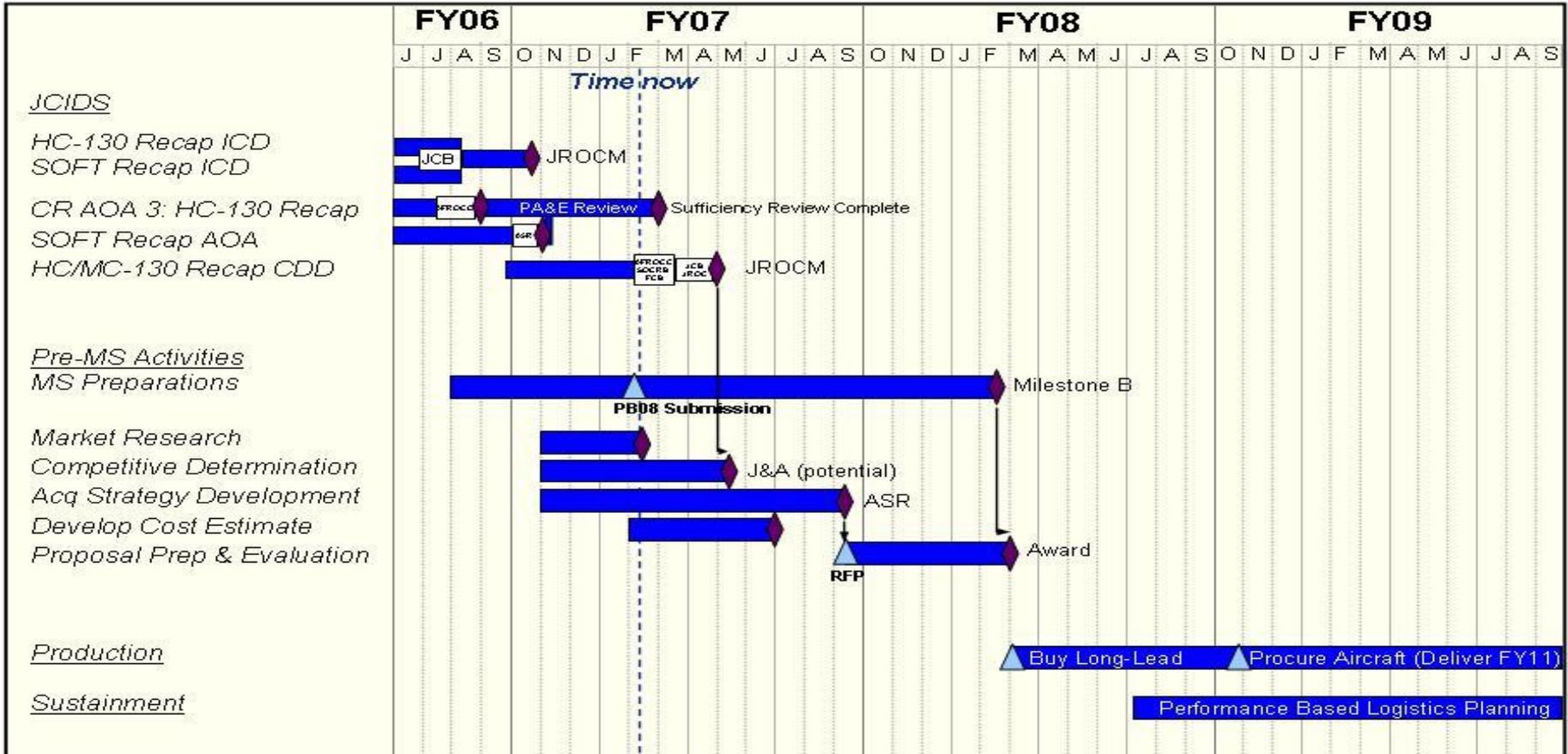


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

PROJECT NUMBER AND TITLE

5249 HC-130Recap

(U) **Schedule Profile**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Develop Acquisition Strategy

1-4Q

(U) Conduct Market Research

1Q

(U) RFP Release

4Q

(U) Milestone B/C

2Q

(U) Contract Award

2Q

Note: Schedule Profile is notional and depends on Acquisition Strategy, Sources Sought Synopsis, and FY07 New Start Approval.

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PE NUMBER: 0604270F
 PE TITLE: EW Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	97.122	92.832	101.649	16.637	0.245	0.508	0.512	0.517	Continuing	TBD
3891 Advanced IR Counter Measures (AIRCМ)	0.019	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.913
3945 TEWS Upgrade	3.378	3.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4832 Precision Location and Identification (PLAID)	27.593	11.330	5.482	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
8462 Miniature Air Launched Decoy	66.132	77.660	96.167	16.637	0.245	0.508	0.512	0.517	Continuing	TBD

BPAC 653891 (AIRCМ) includes Advanced Strategic and Tactical Infrared Expendables (ASTE).

(U) A. Mission Description and Budget Item Justification

This program element (PE) consolidates Air Force funding and management of common Electronic Warfare (EW) systems from engineering development through transition to operational capability. EW is an integral part of offensive and defensive Counter-air, Counterland, and Countersea operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electro-magnetic spectrum. This PE supports Electronic Support (ES), Electronic Protection (EP), and Electronic Attack (EA). ES programs support the collection, analysis, and dissemination of information related to the detection, geo-location, characterization, and identification of threats to air operations. EP programs provide self-protection through active and passive measures that deceive threats to air operations. EA programs provide kinetic and non-kinetic means to defeat threats that rely on the electro-magnetic spectrum.

This program is in budget activity 5 - System Development and Demonstration (SDD) because of the common development to meet user requirements that provide electronic warfare combat capability.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	91.169	87.784	34.838	11.446
(U) Current PBR/President's Budget	97.122	92.832	101.649	16.637
(U) Total Adjustments	5.953			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.004	-0.352		
Congressional Increases		1.000		
Reprogrammings	7.904	4.400		
SBIR/STTR Transfer	-1.947			

(U) Significant Program Changes:

- FY2007, Project 654832, reprogrammed \$4.4M from APAF and received \$1M Congressional add for Rapid Replacement of Mission Critical Logistics Electronics

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

- FY2008, Project 658462, added \$62.9M for continued development of MALD/MALD-J
- FY2008, Project 654832, added \$3.9M for continued development of AT3

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 3891 Advanced IR Counter Measures (AIRCМ)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3891 Advanced IR Counter Measures (AIRCМ)	0.019	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.913	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

Advanced Infrared Countermeasures (AIRCМ) will support the continued testing and/or product improvement efforts at OO-ALC under PE 28030F War Reserve Ammunition (WRM) for procurement/sustainment of Advanced Strategic and Tactical IR Expendables (ASTE) expendables.

(U) A. Mission Description and Budget Item Justification

The Advanced Infrared Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated infrared-guided surface-to-air and air-to-air missiles. These missiles may employ sophisticated next-generation electro-optics or dual-mode IR and radio frequency seekers. AIRCМ will provide advanced IR expendable countermeasures and/or IRCМ techniques that will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF weapon systems and the Navy's F/A-18 E/F. This also explicitly includes any and all flare and decoy development and testing that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. These activities may also be paid for under platform specific funding or through other testing activities such as joint services or NATO test groups. This program has been transferred to Ogden Air Logistics Center, Hill AFB (OO-ALC) for sustainment and modernization. FY07 funds are being used to close out technical support to complete transition to OO-ALC. There are no funding requirements under this program element after 2007.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AIRCМ Modeling & Simulation, flight test analysis, and technical support	0.019	0.010	0.000	0.000
(U) Total Cost	0.019	0.010	0.000	0.000

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E										
(U) Other APPN										
(U) Procurement of Ammunition, AF, PE 0208030F, WSC Flares	38.761	42.350	136.817	163.886	144.961	144.049	144.563	147.743	Continuing	TBD

(U) D. Acquisition Strategy

The planned acquisition strategy for AIRCМ efforts is competitive cost-plus.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 3891 Advanced IR Counter Measures (AIRCМ)					
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
ASTE - Development	CP			0.000		0.000							0.000	0.000
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Support</u>														
CESS/TW IRCM technical support for EW roadmap	Various	Combat Electronic Systems Squadron, WPAFB OH								0.000			0.000	
542 EWSG/CI support	Various	542 Electronic Warfare Group Warner Robins Air Logistics Center (WR-ALC)		0.019		0.010							0.029	
Subtotal Support			0.000	0.019		0.010		0.000		0.000		0.000	0.029	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
AFRL/SNJW Electro-Optical Countermeasures	Various	Air Force Research Lab, WPAFB OH											0.000	
Naval Surface Warfare Center	Various	Naval Surface Warfare Ctr., Crane IN											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:		USN/Crane is Joint Service Testing of ASTE flares in NATO Trail Embow X												
<u>(U) Management</u>														
A&AS contractor support													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	0.019		0.010		0.000		0.000		0.000	0.029	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures (AIRCМ)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 3891 Advanced IR Counter Measures (AIRCM)
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AIRCM modeling, flight test, and support	1-4Q	1-4Q		

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 3945 TEWS Upgrade		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3945 TEWS Upgrade	3.378	3.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The Tactical Electronic Warfare Suite (TEWS) Upgrade program will develop a Fiber Optic Towed Decoy (FOTD) for the joint Integrated Defensive Electronic Countermeasures (IDECM) Navy-led program. The current AF approved program will provide a FOTD suitable for future F-15 requirements and will include a Reel-In/Reel-Out (RORI) prototype launcher capability.

(U) A. Mission Description and Budget Item Justification

The FOTD improves electronic countermeasure performance against tier one-threat systems and improves electronic warfare system performance against future missile threat systems. The Radio Frequency (RF) towed decoy is a countermeasure that increases survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement.

This program develops and establishes integration for an Air Force FOTD system. The FOTD portion of the budget provides Air Force participation in the Navy-led IDECM program that is jointly developing, integrating, flight testing, conducting effectiveness testing, and live fire testing using a FOTD. The Air Force will provide for its unique development, integration, and testing requirements that are not covered by the Navy-led joint development effort. The Air Force also participates in a joint FOTD risk reduction effort with the Navy looking at alternate FOTDs and methods of deployment to develop an alternative launcher system (Reel-Out/Reel-In [RORI]), which reduces life cycle cost. The Air Force completes FOTD testing and development in FY07.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) F-15 (F-15 TEWS & Two Tube FOTD & Flight Test)	1.400	0.000		
(U) FOTD Integration and RORI Development	0.966	0.000		
(U) Mission and Test Support	1.012	3.832	0.000	0.000
(U) Total Cost	3.378	3.832	0.000	0.000

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement, AF PE 0207442F, War Consumable (RF decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

(U) D. Acquisition Strategy

The acquisition strategy for IDECM RDT&E is competitive, cost-plus incentive fee, cost-plus award fee and cost-plus fixed fee.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
05 System Development and Demonstration (SDD)				0604270F EW Development						3945 TEWS Upgrade					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH										0.000	0.000		
Development Raytheon	CPIF	Raytheon, Goleta, CA										0.000	0.000		
Raytheon Development (FO-50 Two Tube)	CPFF	Raytheon, Goleta, CA										0.000	0.000		
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Misc		1.398	Dec-05							0.000	1.398		
RORI Launcher Prototype/Development	CPFF	Raytheon, CA & BAE, NH										0.000	0.000		
Subtotal Product Development			0.000	1.398		0.000		0.000		0.000		0.000	1.398	0.000	
Remarks:															
(U) <u>Support</u>															
ASC/AA - IDECM	Various	Misc		1.012	Dec-05	1.900	Nov-06		Nov-07		Nov-08	0.000	2.912	0.000	
Subtotal Support			0.000	1.012		1.900		0.000		0.000		0.000	2.912	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
Flight Test Support (Effectiveness Testing)	Various	Misc		0.764	Aug-06	0.560	Apr-07	0.000		0.000		0.000	1.324		
Eglin Flight Test Support	Various	Misc		0.204	Mar-06	0.557	Apr-07					0.000	0.761		
NRL F-15 Effectiveness Flight Test						0.815	Jan-07						0.815		
Subtotal Test & Evaluation			0.000	0.968		1.932		0.000		0.000		0.000	2.900	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	3.378		3.832		0.000		0.000		0.000	7.210	0.000	

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

RDT&E Schedule Profile Milestones

ID	Task Name	2006				2007				2008			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	RORI Launcher Prototype Demo Flt Test		★										
2	FOTD Envelope Expansion Final Flt Test (ALE-55)				☆								
3	RORI Launcher Protoype Final Demo Flt Test				☆								
4	FOTD Envelope Expansion Final Flt Test (AFOTD)				☆								
5	FOTD Effectiveness Flt Test						☆						
6	Program Close out & HWV Disposition										☆		
7	Program Closed Out										☆		

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

(U) Schedule Profile

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) RORI Launcher Prototype Demo Flight Test	2Q			
(U) FOTD Envelope Expansion Final Flight Test (ALE-55)	3-4Q			
(U) RORI Launcher Prototype Final Demo Flight Test	4Q			
(U) FOTD Envelope Expansion Final Flight Test (AFOTD)	4Q			
(U) FOTD Effectiveness Flight Test		2Q		
(U) Program Closeout & HW Disposition		1-3Q		
(U) Program Closeout		3Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	27.593	11.330	5.482	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The AN/ALR-69A radar warning receiver (RWR) is an evolutionary development program consisting of a core digital receiver/processor with growth increments. The core ALR-69A program objectives are to improve identification of threat type, provide substantially more receiver sensitivity compared to the legacy AN/ALR-69, and utilize digital processor technology to operate in a dense signal environment. Effort has begun on evolutionary growth spirals for single and multi-ship geolocation. The underlying technology and algorithms enabling precise threat geolocation and Specific Emitter Identification (SEI) are often collectively known as Precision Location and Identification (PLAID) technology. When integrated with existing mission planning systems, the AN/ALR-69A will improve aircrew situational awareness by providing real time threat avoidance route information. ALR-69A development is currently focused on a replacement RWR for AFSOC and AMC C-130 aircraft but this digital RWR is also installed in two ANG F-16Cs for developmental and operational testing and this RWR is also under consideration by AFSOC, AMC and ACC for installation in other mission design series aircraft. Quantities shown reflect preproduction ALR-69A systems being used in testing. Full rate production for AFSOC and AMC C-130 aircraft begins in FY08.

Multiple platform geolocation capability is being developed under an OSD-ATL and CENTCOM sponsored Advanced Tactical Targeting Technology (AT3) Advanced Concept Technology Demonstration (ACTD). A plan to develop this technology for US Armed Forces airborne platforms has been approved.

In FY06, Congress added \$1.4M AF RDT&E funds to the EW Development PE 064270F for "Rapid Replacement of Mission Critical Logistics Electronics Components" (RRMCLEC). In FY07 Congress added \$1.0M AF RDT&E funds for RRMCLEC. Warner Robins Air Logistics Center (ALC) is performing RRMCLEC work and tracking those funds. RRMCLEC will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Raytheon Core C-130 SDD	6.668	1.870		
(U) Raytheon Option 11 AT3 ACTD	8.139	1.752	3.442	
(U) AT3 ACTD Program Office Support	0.988	1.038	0.850	
(U) Engineering Support	1.444	0.281	0.300	
(U) AFOTEC Det 1 46 OGS Responsible Test Organization (RTO)	2.295	1.020	0.000	
(U) AT3 ACTD Test and Evaluation	1.335	1.566	0.690	
(U) Platform Integration	5.381	2.803	0.200	
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	1.343	1.000	0.000	
(U) Total Cost	27.593	11.330	5.482	0.000

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) DARPA Funding (AT3 ACTD)										1.300
(U) OSD Funding (AT3 ACTD)	4.000									14.000
(U) PE 0207442F Common ECM Equipment	0.000	6.315	10.378	10.642	1.666	0.000			Continuing	TBD
(U) PE 0401115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement to commence in FY07	0.000	29.789	54.596	42.184	21.135	9.238	9.421	9.608	Continuing	TBD

(U) D. Acquisition Strategy

Acquisition was accomplished through full and open competition. The SDD contract was awarded to Raytheon Corporation in August 2001.

Program is based on 'Evolutionary Acquisition Strategy'.

- CORE SDD: SOF-130 DT/OT
- Option 1: F-16 DT/OT
- Option 2: Risk Reduction, AT3 Bridge Requirements Definition
- Option 3: F-16 Geo-Location
- Option 4: SOF-130 Geo-Location
- Options 5-10: Production
- Option 11: Advanced Tactical Targeting Technology (AT3)

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		6.668	Nov-05	1.870						0.000	8.538	23.152
Raytheon Option 3/4 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA										0.000	0.000	5.440
Raytheon Option 11 AT3 + Fee	Sole Source - Raytheon	Raytheon - Goleta CA		8.139	Nov-05	1.752		3.442				0.000	13.333	8.384
Subtotal Product Development Remarks:			0.000	14.807		3.622		3.442		0.000		0.000	21.871	36.976
(U) <u>Support</u> AT3 Program Office Support Program Office	PR	Various Contractors		0.988	Nov-05			0.850				0.000	1.838	1.255
Engineering	Various			1.444	Nov-05	0.281		0.300				0.000	2.025	2.500
Subtotal Support Remarks:			0.000	2.432		1.319		1.150		0.000		0.000	4.901	5.365
(U) <u>Test & Evaluation</u> AFOTEC Det 1 46 OGS C-130	PO			2.295	Nov-05	1.020						0.000	3.315	4.455
AT3 ACTD T&E (Western Test Range)	PO			1.335		1.566		0.690					3.591	0.739
Subtotal Test & Evaluation Remarks:			0.000	3.630		2.586		0.690		0.000		0.000	6.906	5.194
(U) Platform Integration - C-130, F-16 AT3 ACTD	Various	Various		5.381	Nov-05	2.803		0.200				0.000	8.384	7.027
Platform Integration Options 3/4	Various	Various											0.000	0.395
Subtotal Remarks:			0.000	5.381		2.803		0.200		0.000		0.000	8.384	7.422
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	IDIQ Time and Matls	Scientific Research Corp - Atlanta GA		1.343		1.000							2.343	3.900
ALQ-172 AEA Upgrade	Sole	ITT, Clifton,											0.000	

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)
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	Source, BOA	NJ								
Subtotal			0.000	1.343	1.000	0.000	0.000	0.000	2.343	3.900
Remarks:										
(U) Total Cost			0.000	27.593	11.330	5.482	0.000	0.000	44.405	58.857

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
4832 Precision Location and Identification (PLAID)



ALR-69A / AT3 ACTD Schedule

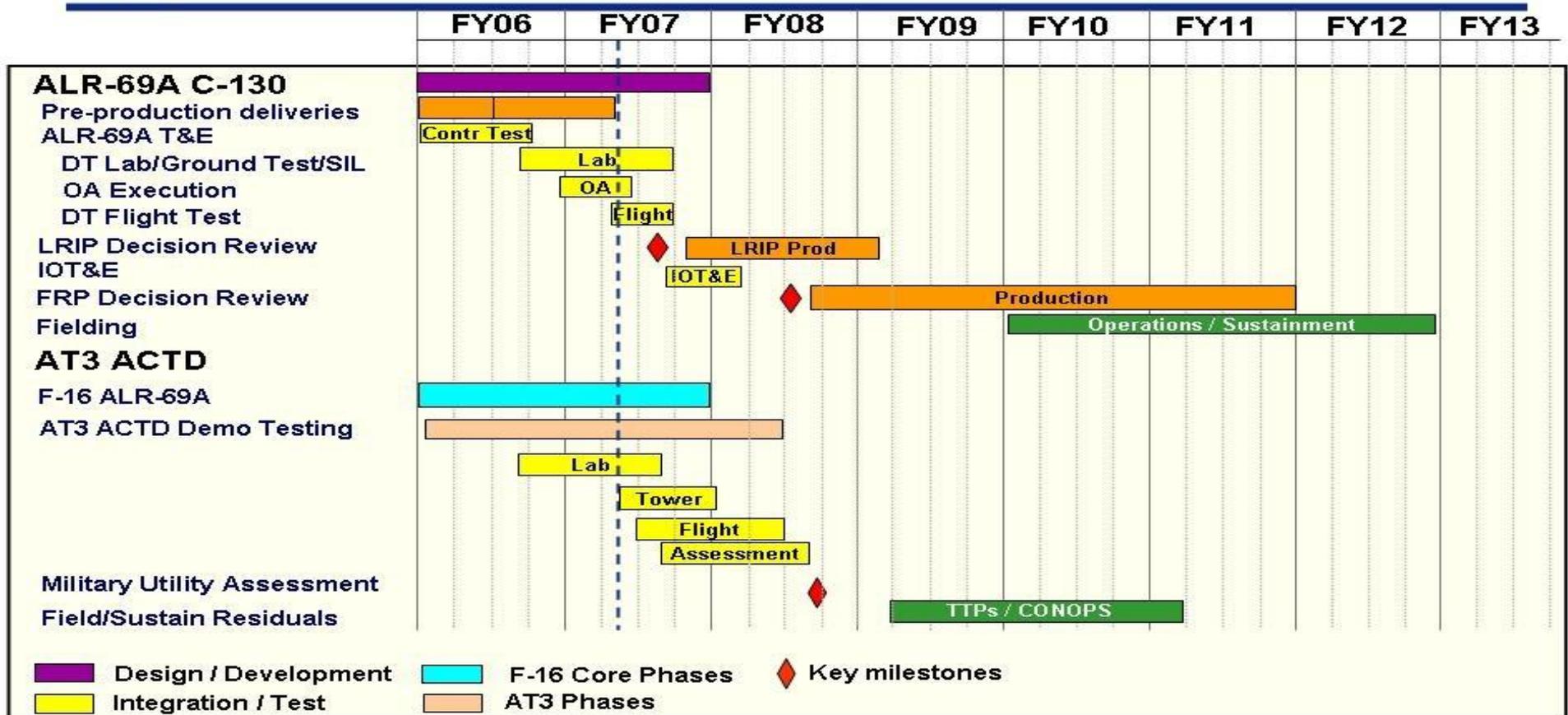


Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

(U) Schedule Profile

(U) Developmental Testing and Evaluation

(U) Initial Operational Test and Evaluation

(U) LRIP Decision

(U) MSIII Decision

FY 2006

1-4Q

FY 2007

1-3Q

3-4Q

2Q

FY 2008

1Q

3Q

FY 2009

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604270F EW Development				8462 Miniature Air Launched Decoy		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
8462 Miniature Air Launched Decoy	66.132	77.660	96.167	16.637	0.245	0.508	0.512	0.517	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project develops the Miniature Air Launch Decoy (MALD) and MALD Jammer (MALD-J). The decoy and jammer configurations are key enablers supporting the Air Force Global Strike, Global Response, Space and C4ISR, and the Air and Space Expeditionary Force Concepts of Operations. MALD is a low cost, powered, expendable decoy designed to represent the kinematics and radar signature characteristics of various combat aircraft. The MALD will be employed from various aircraft platforms to stimulate, saturate, and deceive an enemy Integrated Air Defense System (IADS) thus increasing the survivability of coalition strike aircraft.

MALD-J will provide stand-in jamming capability for the Airborne Electronic Attack Systems of Systems. MALD-J will be launched against a preplanned target and will jam specific radars in a stand-in role to degrade or deny the IADS detection of friendly aircraft or munitions. MALD-J will be able to operate in both decoy and jammer modes.

Planned efforts for this program are risk reduction (to include prototyping) and System Development and Demonstration (SDD) of the decoy and jammer configurations. This will include design, development, test, aircraft integration, and seamless verification.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MALD and MALD-J RR and SDD Contract	52.997	59.690	76.813	12.178
(U) MALD Program Office Support (Government)	2.629	3.905	3.175	1.192
(U) MALD / MALD-J B-52 Aircraft Integration	3.810	3.210	0.960	0.114
(U) MALD / MALD-J Mission and Test Support	6.391	10.395	14.836	3.096
(U) MALD / MALD-J F-16 Aircraft Integration	0.305	0.460	0.383	0.057
(U) Total Cost	66.132	77.660	96.167	16.637

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E										
(U) Other APPN (PE 0207442F MALD procurement)	0.000	0.000	63.405	56.988	113.339	138.299	89.542	91.323	Continuing	TBD

(U) D. Acquisition Strategy

A full and open competition for MALD was held in FY03 resulting in award of a cost plus award fee contract to Raytheon.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604270F EW Development						8462 Miniature Air Launched Decoy				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center											0.000	40.074
MALD / MALD-J RR and SDD	CPAF	Raytheon Missile Systems, Tucson AZ	61.387	52.997		59.690		76.813		12.178			263.065	TBD
MALD/MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO	6.440	3.810		3.210		0.960		0.114			14.534	0.000
MALD/MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO	0.389	0.305		0.460		0.383		0.057			1.594	0.000
Subtotal Product Development			68.216	57.112		63.360		78.156		12.349		0.000	279.193	TBD
Remarks:														
(U) <u>Support</u> Contractor Support to AAC/AAMSW/SASG/RC	Various	Various	3.800	2.124		2.875		2.060		0.916			11.775	
Subtotal Support			3.800	2.124		2.875		2.060		0.916		0.000	11.775	0.000
Remarks:														
(U) <u>Test & Evaluation</u> MALD Government Test Planning	Various	Various	5.471	6.391		10.395		14.836		3.096			40.189	
Subtotal Test & Evaluation			5.471	6.391		10.395		14.836		3.096		0.000	40.189	0.000
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.													
(U) <u>Management</u> AAC/AAMSW/SASG/RC	Various	AAC, Eglin AFB FL	1.361	0.505		1.030		1.115		0.276			4.287	
Subtotal Management			1.361	0.505		1.030		1.115		0.276		0.000	4.287	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and information technology expenses.													
(U) Total Cost			78.848	66.132		77.660		96.167		16.637		0.000	335.444	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
8462 Miniature Air Launched Decoy



MALD / MALD-J Schedule

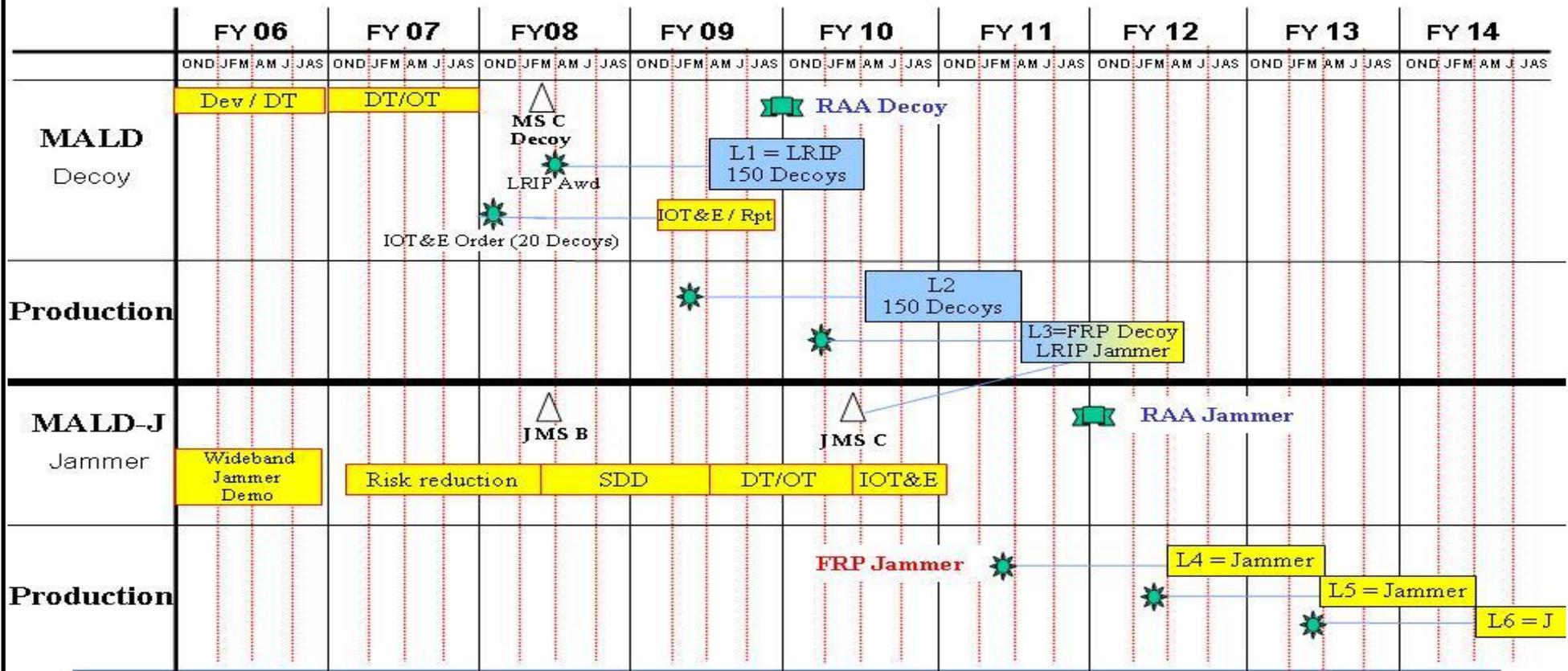


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

8462 Miniature Air Launched Decoy

(U) **Schedule Profile**

(U) MALD Critical Design Review

(U) MALD-J Spiral Start

(U) MALD Flight Readiness Review

(U) MS C

(U) IOT&E

FY 2006

2Q

2Q

FY 2007

1Q

FY 2008

2Q

FY 2009

1-4Q

UNCLASSIFIED

PE NUMBER: 0604280F

PE TITLE: JOINT TACTICAL RADIO SYSTEMS (JTRS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	77.130	0.000	0.000	275.909	203.852	101.144	103.112	105.222	Continuing	TBD
5068 Joint Tactical Radio System (JTRS)	77.130	0.000	0.000	275.909	203.852	101.144	103.112	105.222	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The JTRS Budget Item Justification is found in the Navy's FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5). The JTRS development program is a joint program managed through the JTRS JPEO. The funding for the program resides in the Navy budget.

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	81.036	0.000	284.673	272.230
(U) Current PBR/President's Budget	77.130	0.000	0.000	275.909
(U) Total Adjustments	-3.906			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-3.906			
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY 2008 funding was transferred to the Navy's FY 2008 President's Budget under PE 0604280N, BA 5 (Joint Tactical Radio System Program) since the JTRS program is a joint program and the funding resides in the Navy's Budget.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)				PROJECT NUMBER AND TITLE 5068 Joint Tactical Radio System (JTRS)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5068 Joint Tactical Radio System (JTRS)	77.130	0.000	0.000	275.909	203.852	101.144	103.112	105.222	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The JTRS Budget Item Justification is found in the Navy's FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5). The JTRS development program is a joint program managed through the JTRS JPEO. The funding for the program resides in the Navy budget.

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) The JTRS budget justification will be found in the Navy's FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget.	77.130			275.909
(U) Total Cost	77.130	0.000	0.000	275.909

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
(U)	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) D. Acquisition Strategy

Since the JTRS development program is a joint program the acquisition strategy will be determined by the JTRS JPEO.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)	PROJECT NUMBER AND TITLE 5068 Joint Tactical Radio System (JTRS)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> The JTRS budget justification will be found in the Navy's FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget. Subtotal Product Development Remarks:			0.000	77.130		0.000		0.000		275.909	N/A	Continuing	TBD	TBD
<u>(U) Support</u> Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
<u>(U) Test & Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
<u>(U) Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
<u>(U) Total Cost</u>			0.000	77.130		0.000		0.000		275.909		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604280F JOINT TACTICAL RADIO
SYSTEMS (JTRS)

PROJECT NUMBER AND TITLE

5068 Joint Tactical Radio System
(JTRS)

U.S. AIR FORCE

JTRS Development Schedule

The JTRS budget justification will be found in the Navy FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)	PROJECT NUMBER AND TITLE 5068 Joint Tactical Radio System (JTRS)
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<p>(U) <u>Schedule Profile</u></p> <p>(U) The JTRS budget justification will be found in the Navy's FY 2008 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget.</p>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
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PE NUMBER: 0604287F
 PE TITLE: Physical Security Equipment

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604287F Physical Security Equipment
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.685	0.093	0.034	0.052	0.052	0.053	0.054	0.055	Continuing	TBD
5120 Physical Security Equipment - SD/ED	10.685	0.093	0.034	0.052	0.052	0.053	0.054	0.055	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consists of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Networks and Information Integration (NII). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	11.153	0.093		
(U) Current PBR/President's Budget	10.685	0.093	0.034	0.052
(U) Total Adjustments	-0.468			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.309			
SBIR/STTR Transfer	-0.159	-0.003		
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604287F Physical Security Equipment			PROJECT NUMBER AND TITLE 5120 Physical Security Equipment - SD/ED			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5120 Physical Security Equipment - SD/ED	10.685	0.093	0.034	0.052	0.052	0.053	0.054	0.055	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consists of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Networks and Information Integration (NII). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION	10.685			
- Conduct operational test of MDARS-E.				
- Provide Engineering Support for fielding the MDARS-E.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.093		
In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2007 plans.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION			0.034	
In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2008 plans.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				0.052
In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2009 plans.				
(U) Total Cost	10.685	0.093	0.034	0.052

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) Not Applicable

(U) D. Acquisition Strategy

Not Applicable

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY			PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
05 System Development and Demonstration (SDD)			0604287F Physical Security Equipment						5120 Physical Security Equipment - SD/ED					
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
PM-FPS (US Army)	MIPR			10.367		0.093		0.034		0.052			10.546	
Subtotal Product Development			0.000	10.367		0.093		0.034		0.052		0.000	10.546	0.000
Remarks:														
<u>(U) Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Program Office Support				0.318									0.318	
Subtotal Management			0.000	0.318		0.000		0.000		0.000		0.000	0.318	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	10.685		0.093		0.034		0.052		0.000	10.864	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

Exhibit R-4, Schedule Profile		Date: September 2005																																		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)		PE NUMBER AND TITLE PE 0604287F Physical Security Equipment																PROJECT NUMBER AND NAME 5120 Physical Security Equipment - SD/ED																		
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conduct Operational test of MDARS																																				
Provide Engineering Support for fielding MDARS																																				

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5120 Physical Security Equipment - SD/ED
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Conduct operational test of MDARS-E	1Q			
(U) Provide engineering support for fielding the MDARS-E	3Q			
(U) Robotic Security Systems Integration		1-4Q	1-4Q	1-4Q

UNCLASSIFIED

PE NUMBER: 0604329F
 PE TITLE: Small Diameter Bomb

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	64.474	105.481	145.191	125.112	129.864	77.850	79.366	80.989	156.905	1,284.391
5006 Small Diameter Bomb	36.334	15.105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	370.598
5191 Small Diameter Bomb Increment II	25.140	90.376	145.191	125.112	129.864	77.850	79.366	80.989	156.905	910.793
5258 Focused Lethality Munition (FLM)	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment I (SDB I) is an Air Force ACAT 1C program providing increased kills per sortie on current and future aircraft platforms. SDB I addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, A-10, Joint Strike Fighter (JSF), F-22A, F-16, B-52, and the Predator B. SDB I completed IOT&E in June 2006 and is currently in Full Rate Production (FRP).

The government is buying SDB I based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, near-precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, and provides a migration path to net-centric ops capability. Threshold aircraft are the F-15E for the US Air Force and the F-35 B/C for the US Navy (RAA FY16). Objective aircraft include: F-22A, F-35A, F-16, A-10, MQ-9, B-1, B-2, B-52, and the F/A-18. SDB II will be compatible with the BRU-61 miniature munitions carriage system and SDB I container system. SDB II began Risk Reduction in FY06 and Milestone B is scheduled in FY10. Milestone C is planned for FY13 followed by RAA on the F-15E in FY14.

SDB will continue incremental development to include pursuing network Centric interoperability. SDB is a key component of the Air Force's Global Strike Task

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

Force CONOP.

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM): is a Joint Capabilities Technology Demonstrations (JCTD) program to increase the near field blast but decrease collateral damage, thus giving increased options to the war fighter. Extends access to targets restricted by collateral damage limitations.

The technical approach is to combine and leverage 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases Near-Field Blast Impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, minor weapon OFP changes allow it to leverage SDB I accuracy 4) Remains compatible with BRU-61 miniature munition carriage and SDB I container system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	63.521	104.080	143.723	123.533
(U) Current PBR/President's Budget	64.474	105.481	145.191	125.112
(U) Total Adjustments	0.953			
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	-0.002	-0.399		
Congressional Increases	0.000	1.800		
Reprogrammings	2.668			
SBIR/STTR Transfer	-1.713			
(U) <u>Significant Program Changes:</u>				
N/A				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604329F Small Diameter Bomb				PROJECT NUMBER AND TITLE 5006 Small Diameter Bomb			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
5006 Small Diameter Bomb	36.334	15.105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	370.598	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment I (SDB I) is an Air Force ACAT 1C program providing increased kills per sortie on current and future aircraft platforms. SDB I addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, A-10, Joint Strike Fighter (JSF), F-22A, F-16, B-52, and the Predator B. SDB I completed IOT&E in June 2006 and is currently in Full Rate Production (FRP).

The government is buying SDB I based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue aircraft integration.	0.899	1.734	0.000	0.000
(U) Continue program office support.	0.590	0.240	0.000	0.000
(U) Continue mission support.	0.266	0.361	0.000	0.000
(U) Continue System Development and Demonstration (SDD) phase for fixed target variant.	31.946	12.770	0.000	0.000
(U) Continue SDD testing and continue test support.	2.633	0.000	0.000	0.000
(U) Total Cost	36.334	15.105	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Missile Procurement, AF, 0207327F, App 3020	52.209	98.669	95.297	148.142	165.658	138.347	140.818	143.706	101.191	1,113.159

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5006 Small Diameter Bomb

(U) **D. Acquisition Strategy**

All major contracts within this Program Element have been awarded through full and open competition. Two contractors were selected for the 24 month CAD phase using Firm Fixed Price contracts. The Air Force downselected to Boeing in August 2003. SDD is a fixed target variant with near precision and significant weapon effectiveness. SDD is a Cost Plus Award Fee contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)										0604329F Small Diameter Bomb		5006 Small Diameter Bomb			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
CAD Contract 1	FFP	Lockheed Martin, Orlando FL	53.616									0.000	53.616	53.616	
CAD Contract 2	FFP	Boeing, St Louis MO	53.616									0.000	53.616	53.616	
SDD Baseline Contract	CPAF	Boeing, St Louis MO	165.820	31.944	Oct-03	12.770	Oct-03					0.000	210.534	210.534	
Subtotal Product Development			273.052	31.944		12.770		0.000		0.000		0.000	317.766	317.766	
Remarks:															
(U) <u>Support</u>															
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	15.026	0.592	N/A	1.539	N/A					0.000	17.157	17.157	
Other A/C SPOs	PO (In-House)	Wright Patterson AFB, OH	1.665	0.307	N/A	0.195	N/A					0.000	2.167	2.167	
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	6.674	0.590	Jun-01	0.240	Jun-01					0.000	7.504	7.504	
Other	Misc	Various	5.755	0.161	N/A	0.061	N/A					0.000	5.977	5.977	
Subtotal Support			29.120	1.650		2.035		0.000		0.000		0.000	32.805	32.805	
Remarks:															
(U) <u>Test & Evaluation</u>															
46 TW	PO (In-House)	Eglin AFB, FL	15.322	2.635	N/A	0.000	N/A					0.000	17.957	17.957	
Subtotal Test & Evaluation			15.322	2.635		0.000		0.000		0.000		0.000	17.957	17.957	
Remarks:															
(U) <u>Management</u>															
COLSA	C/CPAF	Eglin AFB, FL	1.665	0.105	Aug-05	0.300	Aug-05					0.000	2.070	2.070	
Subtotal Management			1.665	0.105		0.300		0.000		0.000		0.000	2.070	2.070	
Remarks:															
(U) Total Cost			319.159	36.334		15.105		0.000		0.000		0.000	370.598	370.598	

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE
5006 Small Diameter Bomb

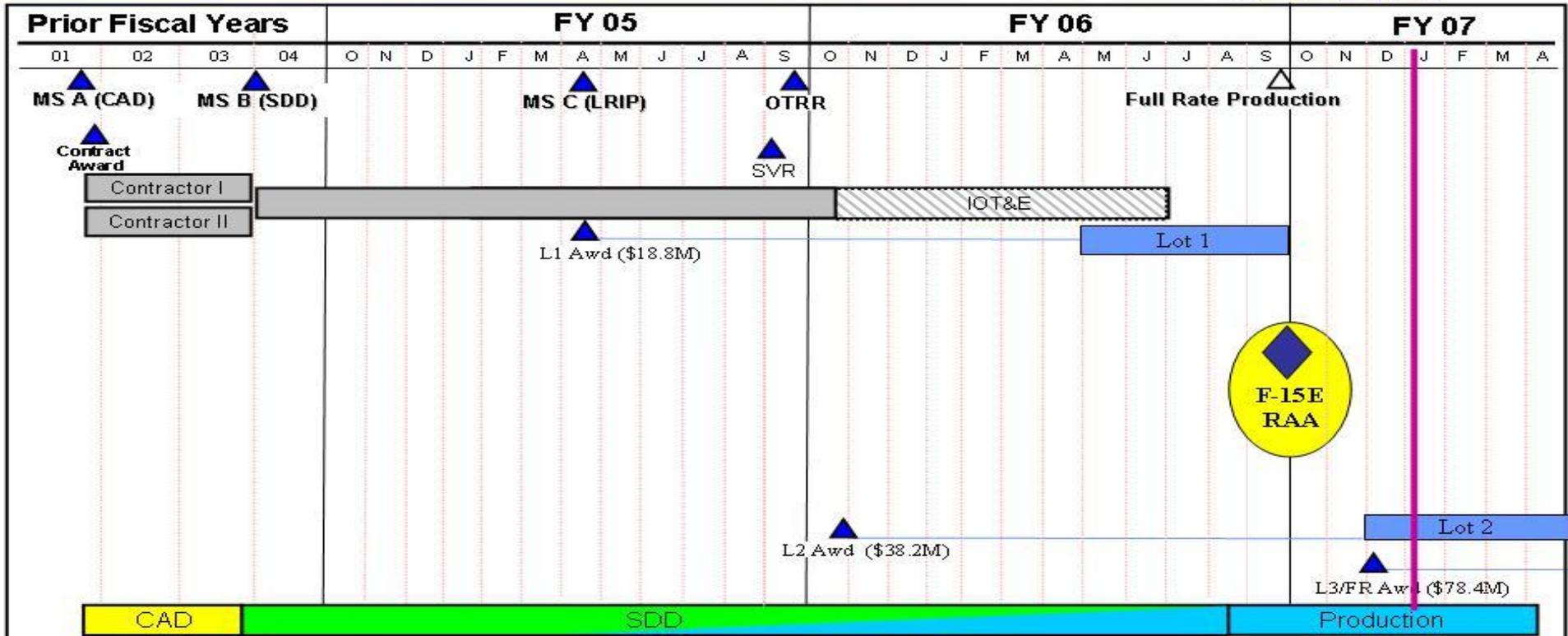


SDB I Schedule

Commander's Intent: You Will Deliver Small Diameter Bomb (SDB) to the Warfighter in FY06. Schedule Is Paramount



Small Diameter Bomb



	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	To Complete	Total
C-Sys	27	128	300	335	377	454	379	0	0	0	2,000
SDB	283	567	1343	1395	3212	3558	3560	3774	3774	2,534	24,000

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5006 Small Diameter Bomb

(U) Schedule Profile

(U) Lot 2 Award

(U) F-15E RAA

(U) Lot 3 FRP Award

(U) Lot 4 Award

(U) Lot 5 Award

FY 2006

1Q

4Q

FY 2007

1Q

FY 2008

1Q

FY 2009

1Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604329F Small Diameter Bomb			PROJECT NUMBER AND TITLE 5191 Small Diameter Bomb Increment II		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5191 Small Diameter Bomb Increment II	25.140	90.376	145.191	125.112	129.864	77.850	79.366	80.989	156.905	910.793
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, near-precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, and provides a migration path to net-centric ops capability. Threshold aircraft are the F-15E for the US Air Force and the F-35 B/C for the US Navy (RAA FY16). Objective aircraft include: F-22A, F-35A, F-16, A-10, MQ-9, B-1, B-2, B-52, and the F/A-18. SDB II will be compatible with the BRU-61 miniature munitions carriage and the SDB I container systems. SDB II began Risk Reduction in FY06 and Milestone B is scheduled in FY10. Milestone C is planned for FY13 followed by RAA on the F-15E in FY14.

SDB will continue incremental development to include pursuing network Centric interoperability. SDB is a key component of the Air Force's Global Strike Task Force CONOP.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SDB II Risk Reduction	18.658	79.294	130.822	113.410
(U) Aircraft Integration	1.990	3.067	6.311	3.489
(U) Program Office Support	4.492	8.015	8.058	8.213
(U) Total Cost	25.140	90.376	145.191	125.112

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E,N	11.655	9.983	9.832	9.818	10.168	10.250	35.250	40.905	94.373	232.234
(Includes F-35 B/C Integration and Support Cost)										

(U) D. Acquisition Strategy

All major contracts within this Program Element were awarded through full and open competition. Two contractors were selected for a 42 month Risk Reduction phase using Cost Plus Fixed Fee contracts. Downselect to one contractor will occur prior to System Development and Demonstration (SDD). SDD will be a Cost Plus Fixed Fee with performance incentives. This approach allows higher risk, less mature technologies to be fielded in an evolutionary fashion. Limited US Navy funding and resources may support the Risk Reduction phase.

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5191 Small Diameter Bomb Increment II
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The Government is buying the SDB II based on contractor-developed System Performance Specification (SPS) which will become contractually binding at downselect. The contractor will be accountable for system performance as defined in the SPS and may include a system warranty. Accordingly, the contractor is responsible not only for the design of the weapon system, but also for planning and executing the Development Test and Evaluation (DT&E) program to verify the system performance. The Government formally arranges and funds the use of Government flight test support for DT&E. Although funded by the Government, flight test support funds are part of the negotiated commitment between the contractor and the Government ensuring the contractor is able to execute the DT&E Program according to the scope of the RR/SDD contract.

Note: SDB II program Acquisition Strategy and funding adjusted to incorporate GAO recommendation. (B295402, 18 Feb 05)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)													0604329F Small Diameter Bomb		5191 Small Diameter Bomb Increment II	
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>		
<u>(U) Product Development</u>																
Risk Reduction Contract 1	CPFF	Boing, St. Louis MO		9.329	May-06	39.647	May-06	65.411	May-06	56.705	May-06	0.000	171.092	171.092		
Risk Reduction Contract 2	CPFF	Raytheon, Tucson AZ		9.329	May-06	39.647	May-06	65.411	May-06	56.705	May-06	0.000	171.092	171.092		
SDD	CPIF	TBD										480.773	480.773	480.773		
Subtotal Product Development			0.000	18.658		79.294		130.822		113.410		480.773	822.957	822.957		
Remarks:																
<u>(U) Support</u>																
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH		1.525	Apr-06	2.279	Apr-06	3.341	Apr-06	3.109	Apr-06	1.000	11.254	11.254		
BRU-61/A	PO (In-House)	St. Louis, MO		0.465	N/A	0.788	N/A	2.970	N/A	0.380	N/A	0.000	4.603	4.603		
TEAS (Sverdrup Inc.)	C/CPAF	Eglin AFB, FL		3.098	Oct-06	4.144	Oct-06	4.698	Oct-06	4.796	Oct-06	15.011	31.747	31.747		
Other	Misc.	Various		1.394	N/A	3.796	N/A	3.283	N/A	3.339	N/A	9.431	21.243	21.243		
Subtotal Support			0.000	6.482		11.007		14.292		11.624		25.442	68.847	68.847		
Remarks:																
<u>(U) Test & Evaluation</u>																
46 TW	PO (In-House)	Eglin AFB, FL		0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	18.514	18.514	18.514		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		18.514	18.514	18.514		
Remarks:																
<u>(U) Management</u>																
TAMS	C/CPAF	Eglin AFB, FL		0.000	Oct-06	0.075	Oct-06	0.077	Oct-06	0.078	Oct-06	0.245	0.475	0.475		
Subtotal Management			0.000	0.000		0.075		0.077		0.078		0.245	0.475	0.475		
Remarks:																
<u>(U) Total Cost</u>			0.000	25.140		90.376		145.191		125.112		524.974	910.793	910.793		

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE
5191 Small Diameter Bomb
Increment II

SDB II Program Schedule

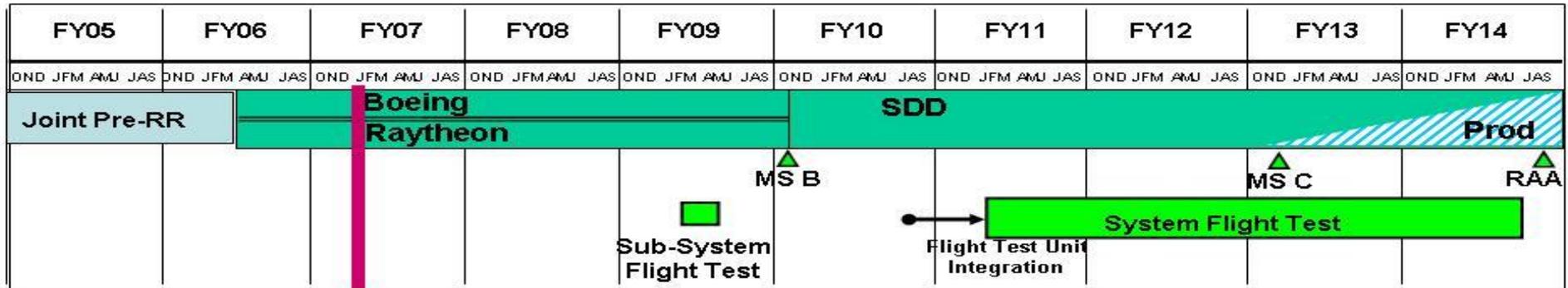


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5191 Small Diameter Bomb Increment II
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Risk Reduction Contract Award	3Q			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604329F Small Diameter Bomb				PROJECT NUMBER AND TITLE 5258 Focused Lethality Munition (FLM)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5258 Focused Lethality Munition (FLM)	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM) is a Joint Capabilities Technology Demonstration (JCTD) program to increase the near field blast but decrease collateral damage, thus giving increased options to the warfighter. Extends access to targets restricted by collateral damage limitations.

The technical approach is to combine and leverage 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases near-field blast impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, minor weapon OFP changes allow it to leverage SDB I accuracy 4) Remains compatible with the BRU-61 miniature munition carriage and SDB I container system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Support, Design, Development, and Integration contract	3.000	0.000	0.000	0.000
(U) Initiate testing	0.000	0.000	0.000	0.000
(U) Program Office Support	0.000	0.000	0.000	0.000
(U) Total Cost	3.000	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E Defense Agency	2.000	4.000	5.000	1.000	0.000	0.000	0.000	0.000	0.000	12.000

(U) D. Acquisition Strategy

The Focused Lethality Munition (FLM) Joint Capabilities Technology Demonstration (JCTD) contract was sole sourced to Boeing based on only one responsible source to field this capability. It is a Cost Plus Fixed Fee contract with an additional Incentive Fee to motivate schedule.

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5258 Focused Lethality Munition (FLM)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
System Support Development	CPFF	Boeing, St Louis Mo	0.000	3.000	Aug-06	0.000		0.000		0.000		0.000	3.000	
Subtotal Product Development			0.000	3.000		0.000		0.000		0.000		0.000	3.000	0.000
Remarks:														
<u>(U) Support</u>														
Air Force Research Lab (AFRL)	PO	Eglin AFB FL	0.000	0.000									0.000	
Sverdrop	C/CPAF	Eglin AFB FL	0.000	0.000									0.000	
Other	MISC	Eglin AFB FL	0.000	0.000									0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
46 TW	PO	Eglin AFB FL											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
COLSA	C/CPAF	Eglin AFB FL											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	3.000		0.000		0.000		0.000		0.000	3.000	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE
5258 Focused Lethality Munition (FLM)

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JCTD Top-Level Schedule

681 ARSS

Munitions Directorate

FY 06

FY 07

FY 08

S O N D J F M A M J J A S O N D J F M A M

PO's Placed (Long Lead)



19-Month Capability

Evaluate Flying Qualities / Modal Data (Aero & GNC)

Flight Worthiness (Temp/ EMI/ Antenna, Shock/Vibe, Modal/ Dyn Resp)

Static Live Fire

Flight Test Program

MUA Live Flight

GTV Design / Case Machining / Builds

Develop Comprehensive Test Plan

Program Plans Updated (SE, Risk Mgt, etc)

Logistics Impact Assessment / Support Concept Update

Initial Threat Hazard Assessment

Residual Phase →

Environmental Testing / Qual

IM / HC

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5258 Focused Lethality Munition (FLM)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) FLM JCTD Contract Award	4Q			
(U) Technology Readiness Review		2Q		
(U) Ground Testing		4Q		
(U) Flight Testing		3-4Q		
(U) Military Utility Assessment			2Q	
(U) Delivery of Residual Assets			2Q	

UNCLASSIFIED

PE NUMBER: 0604421F
 PE TITLE: Counterspace Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.203	50.253	53.412	105.309	111.009	102.090	104.052	106.172	Continuing	TBD
A001 Counter Satellite Communications System	5.984	15.902	18.017	30.248	32.065	21.961	22.382	22.838	Continuing	TBD
A003 Rapid Identification Detection and Reporting System (RAIDRS)	17.514	22.062	28.059	67.489	71.208	72.251	73.641	75.141	Continuing	TBD
A005 Offensive Counterspace (OCS) C2	4.705	12.289	7.336	7.572	7.736	7.878	8.029	8.193	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program supports the conduct of critical planning, technology insertion, and system acquisition in support of Air Force space control systems and associated command and control development to meet current and future military space control needs. Development and acquisition of counterspace systems will be conducted, capitalizing on the technology development and risk reduction efforts of PE 0603438F, Space Control Technology. This funding supports all development phases of the acquisition process: concept development, risk reduction, design, and demonstration. Space control systems include both offensive counterspace (OCS) and defensive counterspace (DCS) systems. OCS systems include the means to disrupt, deny, degrade, or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. DCS systems include both active and passive measures to protect U.S. and friendly space related capabilities (satellites, communications links, and supporting ground systems) from enemy attack or interference. This includes development efforts to prevent adversarial ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. Offensive Counterspace Command and Control (OCS C2) supports the development of command and control and mission planning capabilities in support of the fielding and employment of offensive counterspace systems.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	29.074	47.292	49.104	106.061
(U) Current PBR/President's Budget	28.203	50.253	53.412	105.309
(U) Total Adjustments	-0.871	2.961		
(U) Congressional Program Reductions		-0.048		
Congressional Rescissions	-0.001	-0.191		
Congressional Increases		3.200		
Reprogrammings				
SBIR/STTR Transfer	-0.870			
(U) <u>Significant Program Changes:</u>				
FY 2007: Congressional Reduction to RAIDRS -- \$2M				
FY 2007: Congressional Add to OCS C2 -- \$5.2M for Space Control Test Capability				
FY 2008: \$4.3M add is a redistribution of program RDT&E and Production funding due to program re-phase.				
FY 2009: \$0.75M reduction due to redistribution of RDT&E and Production funding due to program re-phase.				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems				PROJECT NUMBER AND TITLE A001 Counter Satellite Communications System		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A001 Counter Satellite Communications System	5.984	15.902	18.017	30.248	32.065	21.961	22.382	22.838	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This effort supports concept exploration and follow-on system development of mobile/transportable counter satellite communications capabilities and associated command and control, derived from technologies examined in PE 0603438F, Space Control Technology, in the area of Offensive Counter Space. It includes architecture engineering, system hardware design and development, software design and integration, testing and procurement of capabilities to provide disruption of satellite communications signals in response to USSTRATCOM requirements.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Block 10 Capability Upgrades	2.325	7.986	2.412	1.256
(U) Study/refine, develop, integrate, test and field the next Block (Block 20) advanced counter communications capability	1.897	3.828	9.186	22.389
(U) Architecture Development Support			2.245	2.305
(U) Program Office and other Technical Support, to include Systems Engineering and Integration	1.762	4.088	4.174	4.298
(U) Total Cost	5.984	15.902	18.017	30.248

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) OPAF (PE 0604421F) Counterspace Systems	14.300	14.137	8.891	0.000	0.000	10.156	10.379	10.608	Continuing	TBD

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible, to upgrade existing capabilities as well as to acquire next generation capabilities through incremental acquisitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)			0604421F Counterspace Systems							A001 Counter Satellite Communications System				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Architectural Engineering Support	Various	Various	20.918					2.245	Dec-07	2.305	Dec-08	Continuing	TBD	
Block 10 Capability Upgrades	CPAF	Harris Corp, Melbourne, FL	4.750	2.325	Feb-06	7.986	Nov-06	2.412	Dec-07	1.256	Dec-08	Continuing	TBD	TBD
Block 20 Capability Development & Future Capability Studies	TBD	TBD		1.897	Feb-06	3.828	Nov-06	9.186	Dec-07	22.389	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			25.668	4.222		11.814		13.843		25.950		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
System Program Office Support	Various	SMC, El Segundo, CA	3.961	1.762	Oct-05	4.088	Oct-06	4.174	Oct-07	4.298	Oct-08	Continuing	TBD	TBD
Subtotal Support			3.961	1.762		4.088		4.174		4.298		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.100	0.100		0.000		0.000		0.000		0.000	0.100	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD
Remarks:													0.000	TBD
<u>(U) Total Cost</u>			29.729	5.984		15.902		18.017		30.248		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

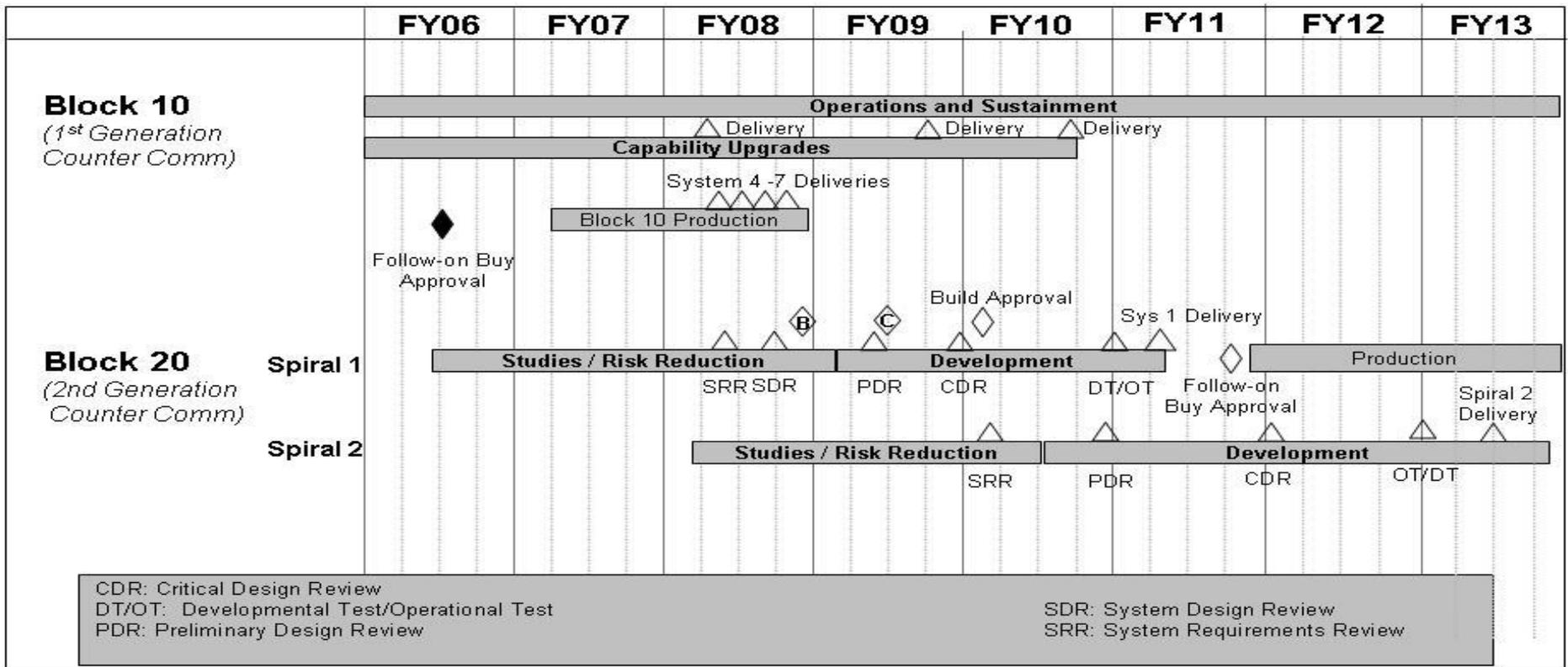
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A001 Counter Satellite
Communications System

CCS Schedule



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A001 Counter Satellite Communications System
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Capability Upgrades	1-4Q	1-4Q	1-4Q	1-4Q
(U) Block 20 Spiral 1 Studies	2-4Q	1-4Q	1-4Q	1Q
(U) Block 10 Follow-on Buy Approval	3Q			
(U) Block 10 Production		1-4Q	1-4Q	1-2Q
(U) Block 10 Deliveries			2-4Q	
(U) Block 20 Spiral 1 Development				1-4Q
(U) Block 20 Spiral 1 SRR			2Q	
(U) Block 20 Spiral 1 SDR			3Q	
(U) Block 20 Spiral 1 PDR				2Q
(U) Block 20 Spiral 1 CDR				4Q
(U) Block 20 Spiral 2 Studies			1-4Q	1-4Q
(U) Block 20 Spiral 1 KDP B			4Q	
(U) Block 20 Spiral 1 KDP C				2Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems				PROJECT NUMBER AND TITLE A003 Rapid Identification Detection and Reporting System (RAIDRS)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A003 Rapid Identification Detection and Reporting System (RAIDRS)	17.514	22.062	28.059	67.489	71.208	72.251	73.641	75.141	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This effort supports mission area architecture development, concept exploration, and engineering and manufacturing development to provide attack detection, threat identification and characterization, and support rapid mission impact assessments of U.S. space systems. This effort will investigate and implement the technical architecture, operational concept, support concept, training, verification (test), and deployment of a Rapid Attack Identification Detection and Reporting System (RAIDRS). Incremental capability deliveries are planned.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 1. (Name change to RAIDRS Block 10)	14.017	15.457	19.070	23.506
(U) Continue concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 2. (Name Change to RAIDRS Block 20)	0.000	2.889	4.620	34.972
(U) Program Office and Other Technical Support	3.497	3.716	4.369	9.011
(U) Total Cost	17.514	22.062	28.059	67.489

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) OPAF (PE 0604421F), Counterspace Systems	0.000	17.139	13.955	28.224	26.892	27.543	28.060	28.593	Continuing	TBD

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. System will be designed and acquired in Block increments using a Block Acquisition strategy.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A003 Rapid Identification Detection and Reporting System (RAIDRS)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Architecture Development & Systems Engineering	Various	Various	13.616	1.462	Nov-05	2.925	Nov-06	2.906	Nov-07	8.323	Nov-08	Continuing	TBD	TBD
RAIDRS Block 10 System Development	CPAF	Integral Systems Inc, Lanham, MD	7.833	12.555	Jan-06	12.538	Jan-07	16.164	Nov-07	15.183	Nov-08	Continuing	TBD	TBD
RAIDRS Block 20 System Development	TBD	TBD								34.322	Jan-09	Continuing	TBD	TBD
RAIDRS Block 20 Concept Development	Various	Various	4.787			1.000	Jan-07	2.696	Jan-08			Continuing	TBD	TBD
RAIDRS Block 20 Requirements Development/Risk Reduction	TBD	TBD				1.883	Jan-07	1.924	Jan-08	0.650	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			26.236	14.017		18.346		23.690		58.478		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program Office Support for RAIDRS	Various	SMC, El Segundo	3.667	3.497	Oct-05	3.716	Oct-06	4.369	Oct-08	9.011	Oct-08	Continuing	TBD	TBD
Subtotal Support			3.667	3.497		3.716		4.369		9.011		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	TBD
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	TBD
Remarks:														
<u>(U) Total Cost</u>			29.903	17.514		22.062		28.059		67.489		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A003 Rapid Identification Detection and Reporting System (RAIDRS)

RAIDRS Schedule

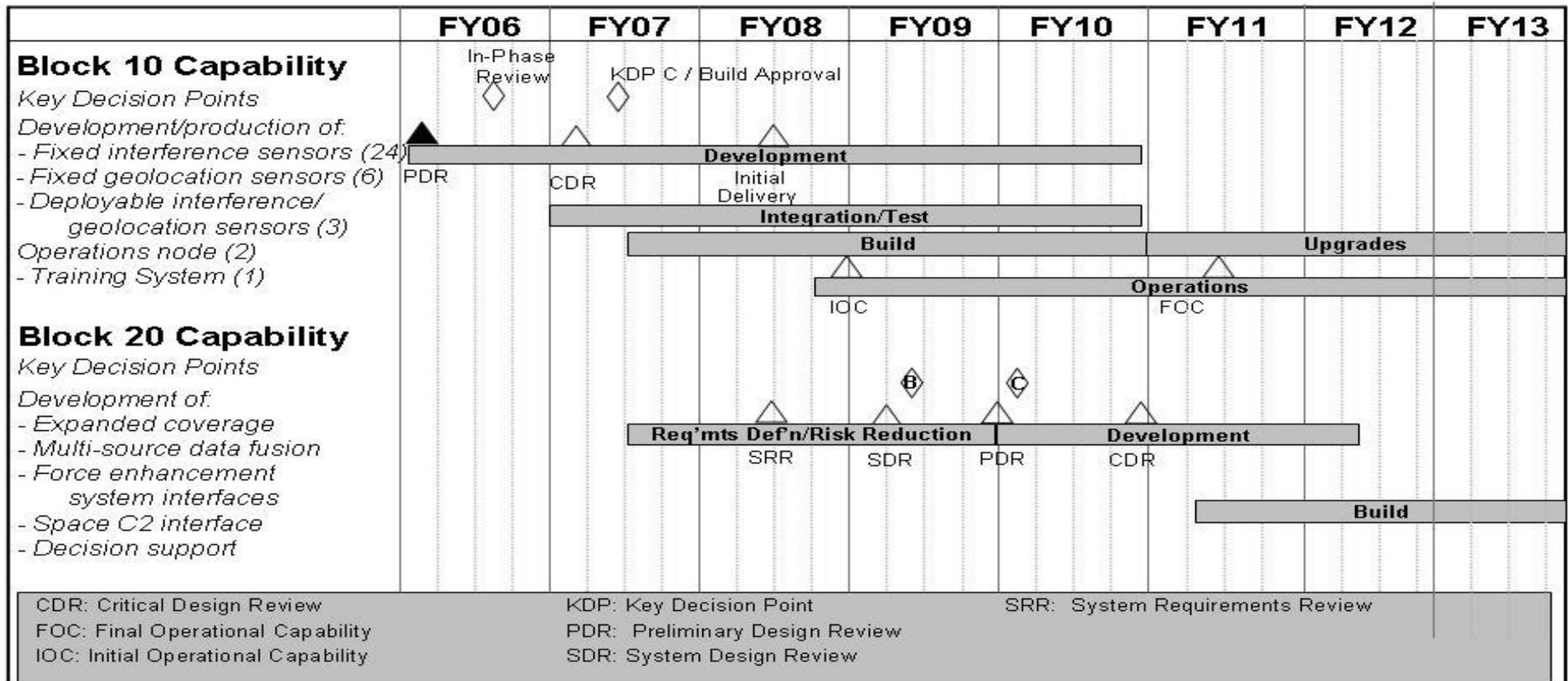


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A003 Rapid Identification Detection and Reporting System (RAIDRS)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) RAIDRS Block 10 Preliminary Design Review	1Q			
(U) RAIDRS Block 10 Critical Design Review		1Q		
(U) RAIDRS Block 10 In-Phase Review	3Q			
(U) RAIDRS Block 10 Key Decision Point (KDP C & Build Approval)		2Q		
(U) RAIDRS Block 10 Initial Delivery			2Q	
(U) RAIDRS Block 20 SRR			2Q	
(U) RAIDRS Block 20 SDR				1Q
(U) RAIDRS Block 20 KDP B				2Q
(U) RAIDRS Block 20 System Development Contract Award				2Q
(U) RAIDRS Block 20 Preliminary Design Review				4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems				PROJECT NUMBER AND TITLE A005 Offensive Counterspace (OCS) C2			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A005 Offensive Counterspace (OCS) C2	4.705	12.289	7.336	7.572	7.736	7.878	8.029	8.193	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

FY06: Congressional add: \$4.9M

FY07: Congressional add: \$5.2M

(U) A. Mission Description and Budget Item Justification

This effort supports the development of command and control and mission planning capabilities in support of the fielding and employment of Offensive Counterspace (OCS) Systems. It provides for the integration and development of collaborative tools to link deployable OCS systems with Joint Warfighting C2 systems and to enable integrated planning and execution of the OCS mission. Developed capabilities will be integrated into current and future command and control systems. This program will also leverage other existing and developing C2 efforts in support of space control and the counterspace mission areas.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Model, conduct "virtual testing," and analyze architectural options for the Rapid Attack Identification Detection and Reporting System (RAIDRS) and for the Counter Satellite Communications System (CCS) Command and Control (C2) and operational data flows.	4.705	5.200		
(U) Continue development of Counterspace mission planning and command and control capability		6.339	6.604	6.833
(U) Program Office and Other Technical Support		0.750	0.732	0.739
(U) Total Cost	4.705	12.289	7.336	7.572

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

FY 2007 contracts will be awarded using competitive procedures to the maximum extent possible to acquire next generation capabilities through incremental acquisitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A005 Offensive Counterspace (OCS) C2
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology, Huntsville, AL	3.382	4.705	Mar-06	5.200							13.287	3.382
Develop Counterspace Planning and C2 System	TBD	TBD				6.339	Nov-06	6.604	Nov-07	6.833	Nov-08	Continuing	TBD	
Subtotal Product Development			3.382	4.705		11.539		6.604		6.833		Continuing	TBD	3.382
Remarks:														
(U) <u>Support</u>													0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>													0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Program Office and Other Technical Support	Various	SMC, El Segundo, CA				0.750	Nov-06	0.732	Nov-07	0.739	Nov-08	Continuing	TBD	
Subtotal Management			0.000	0.000		0.750		0.732		0.739		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			3.382	4.705		12.289		7.336		7.572		Continuing	TBD	3.382

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A005 Offensive Counterspace (OCS)
C2

OCS C2 Schedule

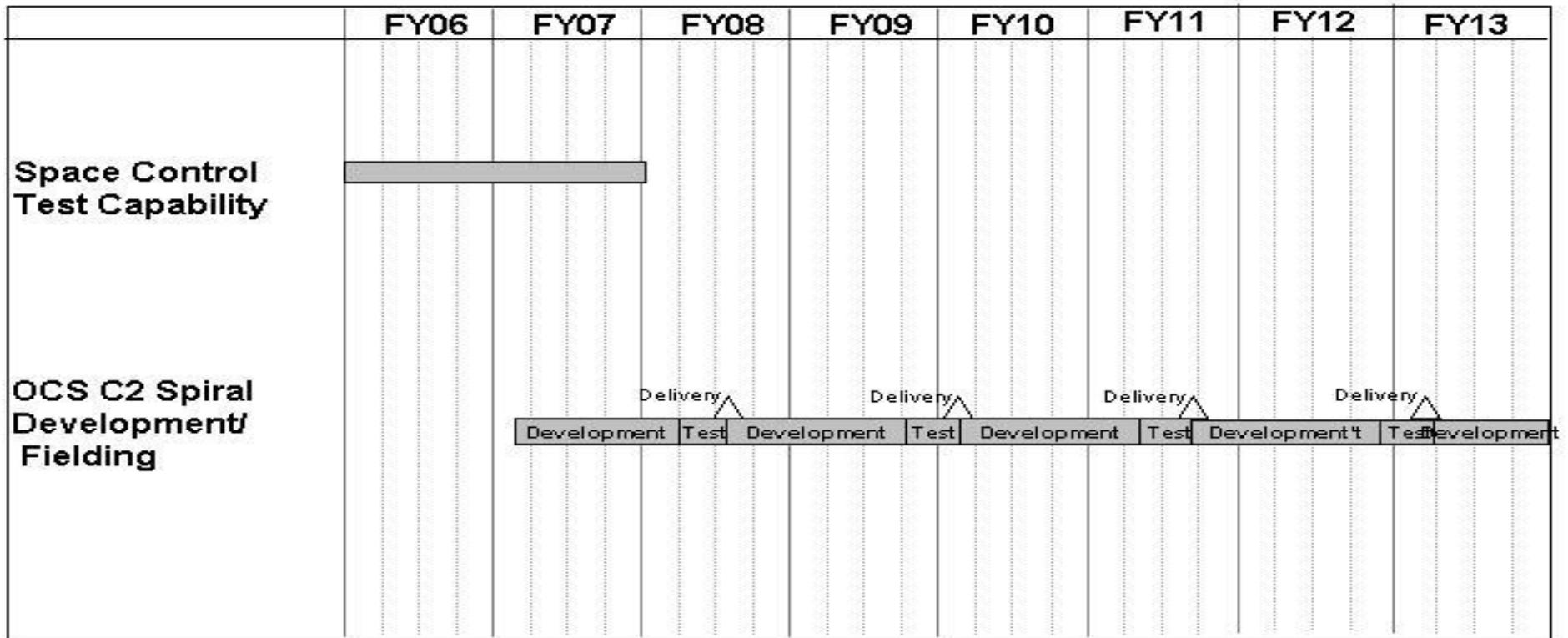


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A005 Offensive Counterspace (OCS) C2
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Modeling, "virtual test," analysis	1-4Q	1-2Q		
(U) Develop/test OCS C2 Spiral		1-4Q	1-4Q	1-4Q
(U) OCS C2 Spiral Delivery			3Q	

UNCLASSIFIED

PE NUMBER: 0604425F

PE TITLE: Space Situation Awareness Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	121.696	187.804	160.458	313.338	379.907	351.677	264.286	Continuing	TBD
A006 Space Based Space Surveillance	0.000	110.141	157.457	122.715	196.118	240.695	245.804	159.103	Continuing	TBD
A008 Integrated Space Situation Awareness (ISSA)	0.000	11.555	26.212	22.998	50.614	43.517	24.697	22.416	Continuing	TBD
A009 Space Fence	0.000	0.000	4.135	14.745	66.606	95.695	81.176	82.767	Continuing	TBD

In FY 2007 these projects transferred from PE 0305910F, Spacetrack, to reflect evolution of space surveillance to the Space Situation Awareness construct.

(U) A. Mission Description and Budget Item Justification

Space Situation Awareness (SSA) is knowledge of all aspects of space related to operations. The foundation for space control, it encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element develops new Air Force sensors for the SSA network and improved information capabilities for integration across it; companion program element 0305940F, Space Situation Awareness Operations, fields, upgrades, operates, and sustains sensors and information integration capabilities within that network. Development activities are necessary to deploy new, advanced sensors capable of finding, fixing, tracking, and reconnoitering the expanding number of debris objects on orbit as well as the increasing number of satellites launched by other nations, many of them smaller and more capable than previous spacecraft. They are also required to better integrate the disparate elements of SSA in order to enable rapid, responsive space operations.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	121.157	216.972	285.475
(U) Current PBR/President's Budget	0.000	121.696	187.804	160.458
(U) Total Adjustments	0.000	-0.461		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.461		
Congressional Increases			1.000	
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY 2007: +\$1.0M congressional add for Joint Space Intelligent Decision Support

FY 2008 - FY 2009: Adjustments to rephase/delay Space-Based Space Surveillance Block 20 and Space Fence programs, and to increase Integrated Space Situation Awareness funding to conduct SSA Foundational Enterprise activities

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems				PROJECT NUMBER AND TITLE A006 Space Based Space Surveillance		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A006 Space Based Space Surveillance	0.000	110.141	157.457	122.715	196.118	240.695	245.804	159.103	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 this effort transferred from Project 674930, Space-Based Space Surveillance, in PE 0305910F, Spacetrack, to reflect the evolution of space surveillance to the Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for it is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities prior to FY 2007.

(U) A. Mission Description and Budget Item Justification

Building upon the success of the Space-Based Visible technology demonstration, which proved the utility of surveilling orbiting objects from space, the Space-Based Space Surveillance (SBSS) project will develop a constellation of optical sensing satellites to search, detect, and track objects in Earth orbit. It will accomplish this via collecting and processing space object identification and satellite metric data, then communicating it to command and control nodes. Migrating surveillance to space augments existing ground sensors with timely 24-hour, all-weather object search capabilities. In conjunction with information from other Space Situation Awareness network sensors, SBSS data will enable more timely detection and tracking of space objects, particularly those in geosynchronous orbits.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new spacecraft system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 design, development, and risk reduction	0.000	89.938	124.415	60.146
(U) Block 10 launch vehicle integration	0.000	9.176	9.991	5.275
(U) Block 20 concept, design, development, and risk reduction	0.000	0.000	4.950	36.700
(U) Program operations and Systems Engineering & Integration	0.000	11.027	18.101	20.594
(U) Total Cost	0.000	110.141	157.457	122.715

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, Air Force (PE 0305190F, Spacetrack)	107.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	252.038
(U) Missile Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	0.000	31.824	95.783	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A006 Space Based Space Surveillance

(U) D. Acquisition Strategy

This system is being acquired via a block approach. Block 10 will develop and field a pathfinder satellite-based capability to replace the aging Space-Based Visible sensor on the orbiting Midcourse Space Experiment research & development spacecraft with a capability significantly improving the timeliness of data on objects in geosynchronous orbit. Block 20 will develop additional satellites to provide simultaneous, worldwide space surveillance in order to observe smaller objects on shorter timelines. Lessons learned from the former block will guide development of the latter. Block 10 began as an option on the existing Mission Area Prime Integrating Contract for the space control mission area to expedite fielding but was transformed into its own contract when a competitive award was held for the Block 10 subcontract. The contracting approaches for additional capabilities will be determined in the future.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2007		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems					PROJECT NUMBER AND TITLE A006 Space Based Space Surveillance				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Block 10 design and development	C/CPAF	Northrop Grumman, Redondo Beach, CA	0.000	0.000		89.938	Oct-06	124.415	Nov-07	60.146	Nov-08	Continuing	TBD	
Technical risk reduction, mission planning, and mission data processing	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		3.240	Jan-07	1.950	Jan-08	1.100	Jan-09	Continuing	TBD	
Launch vehicle integration	MIPR	Space and Missile Systems Center Det., Kirtland AFB, NM	0.000	0.000		9.176	Oct-06	9.991	Nov-07	5.275	Nov-08	0.000	24.442	
Block 20 concept, design, and development	TBD	TBD	0.000	0.000		0.000		4.950	Nov-07	36.700	Nov-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		102.354		141.306		103.221		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Program operations and Systems Engineering & Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA	0.000	0.000		7.787	Oct-06	16.151	Oct-07	19.494	Oct-08	Continuing	TBD	
Subtotal Support			0.000	0.000		7.787		16.151		19.494		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Not applicable													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Not applicable													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	0.000		110.141		157.457		122.715		Continuing	TBD	0.000

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Project A006

Exhibit R-3 (PE 0604425F)

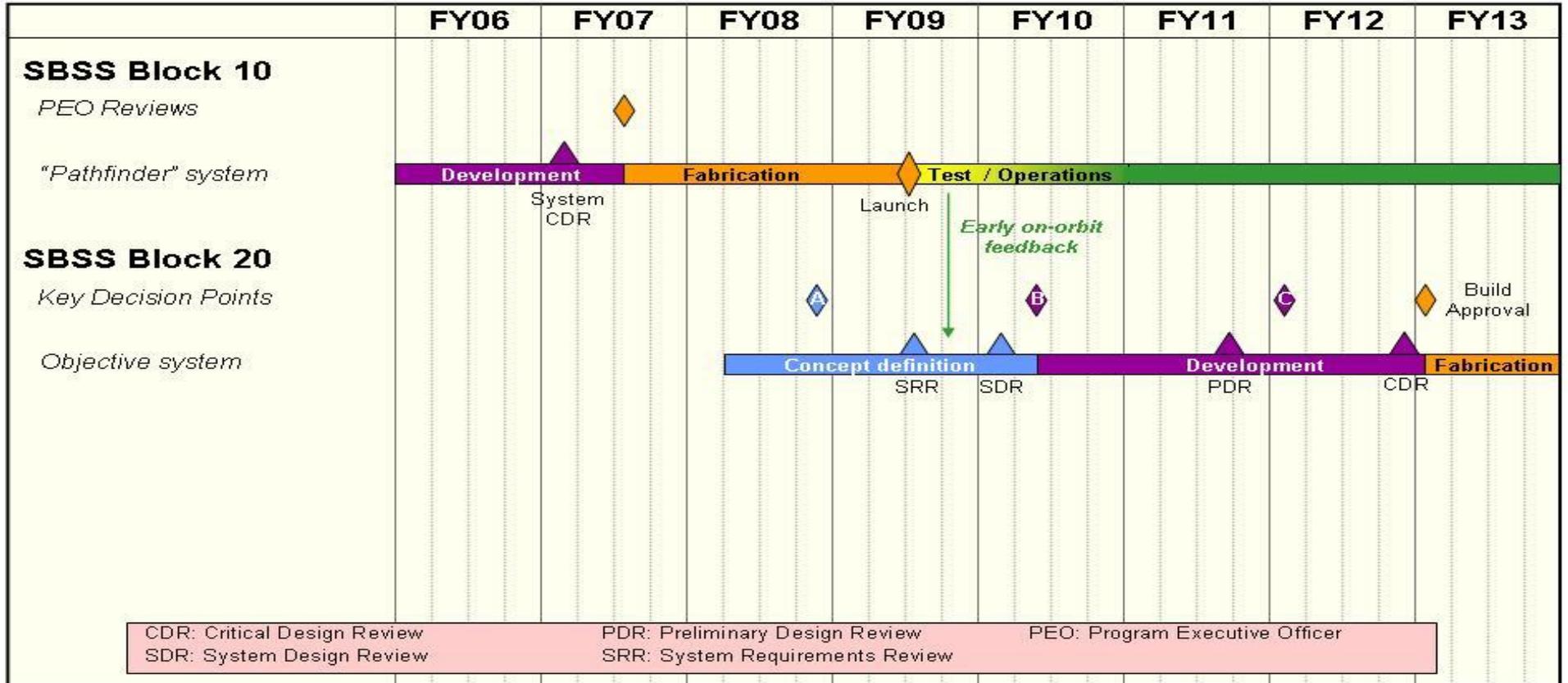
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A006 Space Based Space Surveillance



CDR: Critical Design Review
SDR: System Design Review
PDR: Preliminary Design Review
SRR: System Requirements Review
PEO: Program Executive Officer

- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A006 Space Based Space Surveillance
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Block 10 System Critical Design Review		1Q		
(U) Block 10 Program Executive Officer Review		3Q		
(U) Block 10 spacecraft launch				3Q
(U) Block 20 Key Decision Point A			4Q	
(U) Block 20 System Requirements Review				3Q

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems				PROJECT NUMBER AND TITLE A008 Integrated Space Situation Awareness (ISSA)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A008 Integrated Space Situation Awareness (ISSA)	0.000	11.555	26.212	22.998	50.614	43.517	24.697	22.416	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY 2007 these efforts transferred from Project 675011, Space Situational Awareness Initiatives, in PE 0305910F, Spacetrack, to reflect the evolution of space surveillance to the Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for them is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities prior to FY 2007.

In FY 2008 this project was renamed from Space Situation Awareness Initiatives to its present name.

(U) A. Mission Description and Budget Item Justification

Integrated Space Situation Awareness (ISSA) efforts improve the integration of the disparate data components of Space Situation Awareness (SSA) in order to provide timely, actionable knowledge necessary for maintaining space superiority and exercising successful command and control of space forces. ISSA activities are primarily centered on replacing and improving Space Defense Operations Center space object orbit detection and tracking functions with a net-centric SSA Foundational Enterprise (SSAFE) enabling automated, real-time correlation, integration, and distribution of orbitology data obtained by the various sensors in the space surveillance network. Additional ISSA efforts develop applications and tools that fuse data from space intelligence, surveillance, reconnaissance, and environmental sources or create new methods for providing current and predictive knowledge of space events, threats, activities, and conditions as well as space system status, capabilities, constraints, and employment. Other efforts conduct architecture, modeling, roadmap, and study efforts to capture SSA needs; develop short- and mid-term enterprise architectures; and evaluate satisfaction of capabilities in order to guide planning, budget formulation, systems integration, operations, and requirements allocation toward improved fulfillment of SSA requirements. All ISSA efforts are focused on providing the actionable, integrated SSA necessary to enable rapid, responsive decisions on space activities by the Commander of U.S. Strategic Command's Joint Functional Component Command for Space and other space capability users ensuring the protection of U.S. space assets from proliferating adversary threats.

These efforts are in Budget Activity 5, System Development and Demonstration, because they develop and demonstrate capabilities for better integration of SSA data or develop architectures guiding associated technical and budgetary planning.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Intelligence, surveillance, reconnaissance, and environmental data integration and applications	0.000	4.005	3.203	2.958
(U) Fusion tool development, assessments, requirements development, and technical support	0.000	3.376	1.733	2.098
(U) Extended Space Sensors Architecture Advanced Concept Technology Demonstration (ESSA ACTD)	0.000	1.500	2.100	1.000
(U) SSA architecture development and modeling activities	0.000	1.674	1.207	0.720
(U) SSA Foundational Enterprise technology and system development	0.000	0.000	17.969	16.222
(U) Joint Space Intelligent Decision Support	0.000	1.000	0.000	0.000
(U) Total Cost	0.000	11.555	26.212	22.998

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A008 Integrated Space Situation Awareness (ISSA)
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) RDT&E, Air Force (PE 0305910F, Spacetrack)	14.469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.126
(U) Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	9.133	0.000	0.000	0.000	0.000	0.000	9.133

(U) D. Acquisition Strategy

Ongoing ISSA activities utilize existing engineering and study contracts awarded and maintained by space planning and development organizations throughout the Department of Defense in order to accomplish required development activities and to obtain infrastructure and technical support. Many activities develop, test, and deliver capabilities or provide products in successive spirals. Operational needs drive the prioritization and selection of particular applications, modeling tools, and architecture products for development. SSAFE activities will similarly employ block development approaches for deployment of new systems and tools to progressively advance operational capabilities toward the truly integrated SSA envisioned by existing SSA architectures and roadmaps.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A008 Integrated Space Situation Awareness (ISSA)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
Data applications and integration	Various	Various	0.000	0.000		4.005	Nov-06	3.203	Nov-07	2.958	Nov-08	Continuing	TBD	
ESSA ACTD	SS/Cost reimburse ment (no fee)	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		1.500	Nov-06	1.350	Nov-07	0.625	Nov-08	0.000	3.475	
SSA architecture development	Various	Various	0.000	0.000		1.674	Nov-06	1.207	Nov-07	0.720	Nov-08	Continuing	TBD	
SSA Foundational Enterprise	TBD	TBD	0.000	0.000		0.000		15.268	Jan-08	13.281	Nov-08	Continuing	TBD	
Joint Space Intelligent Decision Support	TBD	21st Century Systems, Omaha, NE	0.000	0.000		1.000	Mar-07	0.000		0.000		0.000	1.000	
Subtotal Product Development			0.000	0.000		8.179		21.028		17.584		Continuing	TBD	0.000
Remarks:														
<u>(U) Support</u>														
Fusion tool development, requirements, and technical support	Various	Electronic Systems Center Det., Peterson AFB, CO	0.000	0.000		3.376	Oct-06	1.733	Oct-07	2.098	Oct-08	Continuing	TBD	
ESSA ACTD support	C/CPFF	ITSP, Colorado Springs, CO	0.000	0.000		0.000		0.750	Nov-07	0.375	Nov-08		1.125	
Systems engineering	SS/FP-LO E	MITRE, Colorado Springs, CO	0.000	0.000		0.000		1.363	Nov-07	1.313	Nov-08	Continuing	TBD	
Program operations	Various	Space and Missile Systems Center, Los Angeles AFB, CA; Electronic Systems Center Det., Peterson AFB, CO	0.000	0.000		0.000		1.338	Oct-07	1.628	Oct-08	Continuing	TBD	
Subtotal Support			0.000	0.000		3.376		5.184		5.414		Continuing	TBD	0.000
Remarks:														

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Project A008

Exhibit R-3 (PE 0604425F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604425F Space Situation Awareness Systems	A008 Integrated Space Situation Awareness (ISSA)
(U) <u>Test & Evaluation</u>		
Not applicable		0.000
Subtotal Test & Evaluation	0.000 0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) <u>Management</u>		
Not applicable		0.000
Subtotal Management	0.000 0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) Total Cost	0.000 0.000 11.555 26.212	22.998 Continuing TBD 0.000

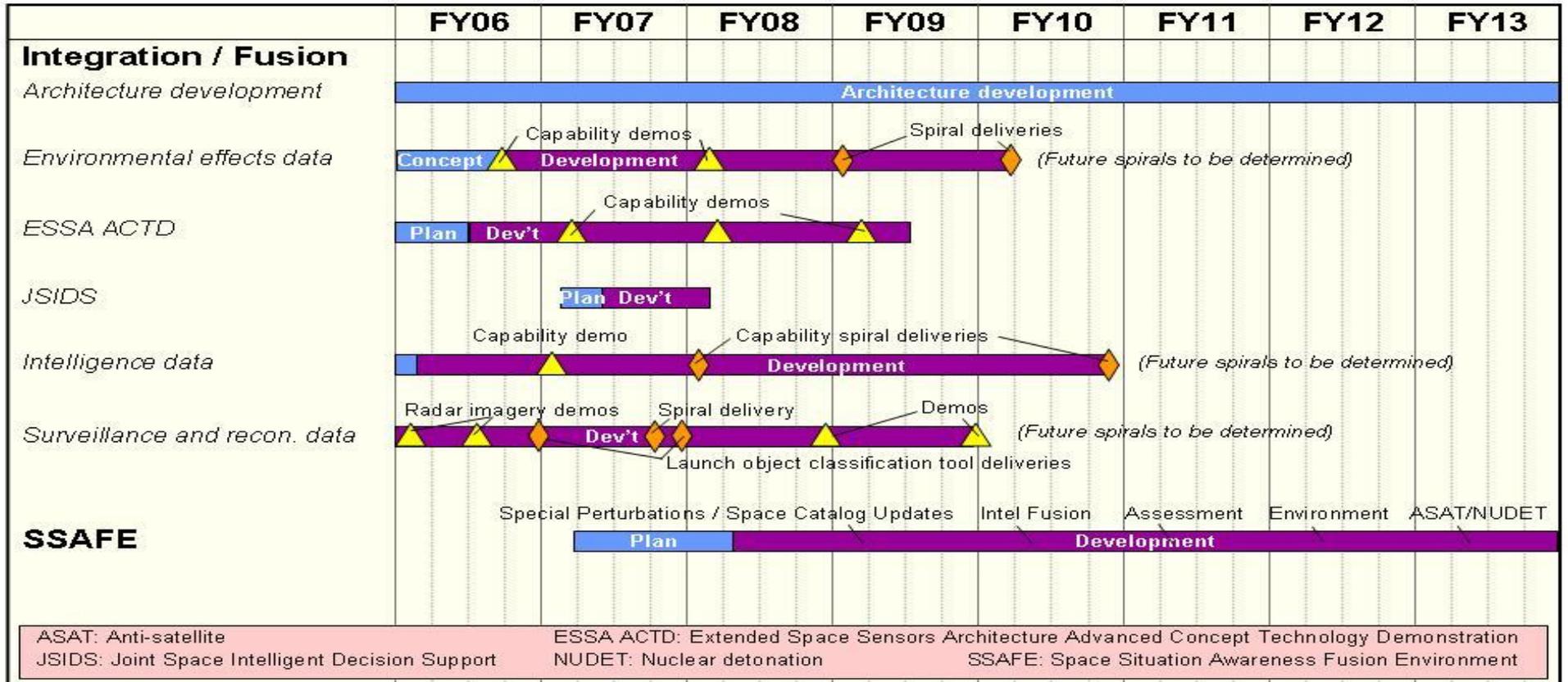
Exhibit R-4, RDT&E Schedule Profile

DATE
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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A008 Integrated Space Situation Awareness (ISSA)



- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / sustainment
- Key events

Exhibit R-4a, RDT&E Schedule Detail

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A008 Integrated Space Situation Awareness (ISSA)

(U) **Schedule Profile**

(U) ESSA ACTD capability demonstrations

(U) Joint Space Intelligent Decision Support development

(U) Data integration and application tool deliveries

(U) SSAFE development commencement

FY 2006

FY 2007

FY 2008

FY 2009

1Q

1Q

1Q

2-4Q

1Q

1-4Q

1-4Q

1-4Q

2Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems			PROJECT NUMBER AND TITLE A009 Space Fence		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A009 Space Fence	0.000	0.000	4.135	14.745	66.606	95.695	81.176	82.767	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 this effort transferred from Project 67A015, Space Fence, in PE 035910F, Spacetrack, to reflect the evolution of space surveillance to the Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for the effort is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities prior to FY 2007.

(U) A. Mission Description and Budget Item Justification

The Space Fence effort will develop a system of ground-based sensors to replace the aging Air Force Space Surveillance System (AFSSS), a Very High Frequency radar operational since 1961. By using higher radio frequencies in conjunction with radar transmitters and receivers co-located at sites dispersed worldwide, the Space Fence will provide timely detection of smaller orbiting objects, primarily those in Low Earth Orbit. As a result, it will expand the detection and tracking capacity of the Space Situation Awareness network by an order of magnitude, from 10,000 to 100,000 objects, while working in concert with other network sensors.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new system of ground-based sensors.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Design and development	0.000	0.000	0.000	9.493
(U) Design review, management, and support	0.000	0.000	4.135	5.252
(U) Total Cost	0.000	0.000	4.135	14.745

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, Air Force (PE 0305910F, Spacetrack)	6.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.103
(U) Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	0.000	62.522	63.890	Continuing	TBD

(U) D. Acquisition Strategy

The Air Force competitively awarded requirements definition contracts for the effort in FY 2006. A block approach acquisition strategy for the program will be developed in FY 2007 - FY 2008 with a development contract award to follow in FY 2009 after a full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A009 Space Fence
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
(U) <u>Product Development</u>														
Design and development	C/TBD	TBD	0.000	0.000		0.000		0.000		9.493	Jan-09	Continuing	TBD	
Design evaluation	SS/FP-LO E	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		0.000		0.500	Oct-07	0.959	Oct-08	Continuing	TBD	
Design evaluation	SS/FP-LO E	MITRE Corp., Bedford, MA	0.000	0.000		0.000		0.500	Oct-07	0.998	Oct-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		1.000		11.450		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Design review and management	Various	Electronic Systems Center, Hanscom AFB, MA; others	0.000	0.000		0.000		3.135	Nov-07	3.295	Nov-08	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		3.135		3.295		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Not applicable													0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
(U) <u>Management</u>														
Not applicable													0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
(U) Total Cost			0.000	0.000		0.000		4.135		14.745		Continuing	TBD	0.000

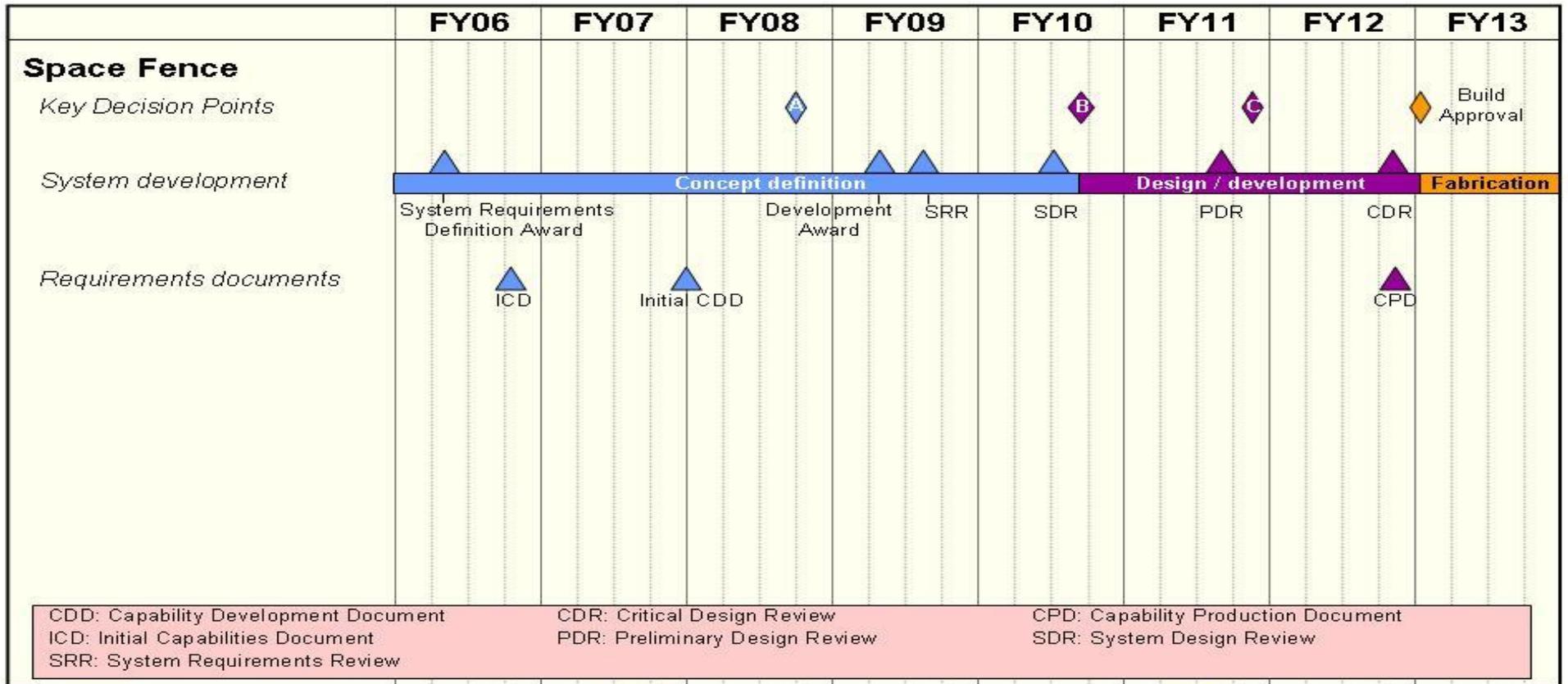
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation
Awareness Systems

PROJECT NUMBER AND TITLE
A009 Space Fence



- Concept activities
- Design / development
- Production / fielding
- Operations / sustainment
- Integration / test
- △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A009 Space Fence

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Key Decision Point A

3Q

(U) Development award

2Q

(U) System Requirements Review

3Q

UNCLASSIFIED

PE NUMBER: 0604429F
 PE TITLE: AIRBORNE ELECTRONIC ATTACK

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK
--	--

Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	29.833	12.374	20.007	24.684	11.805	11.783	12.006	12.249	Continuing	TBD
5192 Network & Sys -of-Sys Dev	18.368	12.374	20.007	24.684	11.805	11.783	12.006	12.249	Continuing	TBD
5193 B-52 Stand-Off Jammer	11.465	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

Project 655193, B-52 Stand-Off Jammer, is terminated in FY 2007.

(U) A. Mission Description and Budget Item Justification

This program element supports the development of the critical electronic attack capabilities, from technology demonstrations through transition to operational capability, for Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. The Joint SEAD presentation identified the Navy AEA components as the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms and indicated the Air Force will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) and its stand-in jammer variant called MALD-J, the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration and Active Electronically Scanned Array (AESAs) radar equipped aircraft, and potentially, recoverable unmanned stand-in and manned long range stand-off jammer platforms.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	119.262	12.421	12.485	12.492
(U) Current PBR/President's Budget	29.833	12.374	20.007	24.684
(U) Total Adjustments	-89.429			
(U) Congressional Program Reductions				
Congressional Rescissions	-92.804			
Congressional Increases				
Reprogrammings	4.000			
SBIR/STTR Transfer	-0.625			

(U) Significant Program Changes:

- FY2006, Airborne Electronic Attack (AEA) efforts were transferred from PE 0604270F, EW Development, into this PE
- FY2007, Project 655193, B-52 Stand-Off Jammer terminates
- FY2008/2009, Funds added to Network & Sys-of-Sys Dev (BPAC 655192) for AEA Technology Maturation efforts

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK			PROJECT NUMBER AND TITLE 5192 Network & Sys -of-Sys Dev		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5192 Network & Sys -of-Sys Dev	18.368	12.374	20.007	24.684	11.805	11.783	12.006	12.249	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project concentrates on the overall systems engineering, modeling and simulation, architecture and network requirements development, effectiveness assessment and requirements allocation to component systems of the Airborne Electronic Attack (AEA) System of Systems (SoS). It also includes establishment and use of virtual test capabilities for system of systems effectiveness testing/evaluation for AEA, studies and technology risk mitigation demonstrations for AEA SoS components and AEA SoS battle management, and the development and maintenance of the Air Force electronic warfare capability investment strategy. These efforts are crucial in the development of critical electronic attack capabilities in support of Air Force and joint operations to include Global Strike and Persistent Global Attack Concepts of Operations (CONOPS).

The joint AEA SoS includes the Navy EA-6B and EA-18G core components; the Air Force Miniature Air Launched Decoy (MALD) and its stand-in jammer variant, MALD-J; the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration; Active Electronically Scanned Array (AESA) radar equipped aircraft; and potentially an unmanned recoverable stand-in jamming platform and a low/mid frequency, high power component capable of location and reactive jamming suppression of enemy integrated air defense system (IADS) radars outside the ranges of the associated Surface-to-Air Missiles (SAMs) and non-IADS targets.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AEA Synchronization Office Support	1.025	1.074	1.250	1.300
(U) AEA System of Systems engineering/architecture development/requirements refinement	5.700	5.800	6.407	6.410
(U) AEA virtual test/modeling & simulation/EW capability investment strategy/technology demonstrations	11.643	5.500	12.350	16.974
(U) Total Cost	18.368	12.374	20.007	24.684

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) D. Acquisition Strategy

Project 5192 "Network and System of Systems Development" plans to use existing ASC, AFRL, and other contracts and instruments to provide engineering, architecture development, and other support for the AEA System of Systems.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK	PROJECT NUMBER AND TITLE 5192 Network & Sys -of-Sys Dev
--	--	--

(U)	<u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U)	<u>Product Development</u>															
	AEA system of systems engineering	MIPR & CPFF	Various		4.650	Jan-06	4.750	Dec-06	5.300	Dec-07	5.110	Dec-08	Continuing	TBD		
	Subtotal Product Development			0.000	4.650		4.750		5.300		5.110		Continuing	TBD	0.000	
	Remarks:	Includes system of systems engineering; architecture development; network requirements development; EW assessments; working group support; engineering, test planning, and milestone preparation assistance for AF AEA SoS components														
(U)	<u>Support</u>															
	AEA requirements support	MIPR	Various		1.050	Jan-06	1.050	Dec-06	1.107	Dec-07	1.300	Dec-08	Continuing	TBD		
	Subtotal Support			0.000	1.050		1.050		1.107		1.300		Continuing	TBD	0.000	
	Remarks:	Requirements support includes contracted requirements refinement support for ACC and AF/A5R														
(U)	<u>Test & Evaluation</u>															
	AEA Virtual test/AFEWICS/Technology Demonstrations	Various	Various		11.643	Nov-05	5.500	Nov-06	12.350	Nov-07	16.974	Dec-08	Continuing	TBD		
	Subtotal Test & Evaluation			0.000	11.643		5.500		12.350		16.974		Continuing	TBD	0.000	
	Remarks:	AEA virtual test element includes modeling and simulation for SoS EW assessments, conducting technology risk mitigation demonstrations, DoD scenario initiation & distribution, SoS test planning/rehearsal, and supports Air Force Electronic Warfare Capability Investment Strategy (AFEWCIS) roadmap development, maintenance, & assessments														
(U)	<u>Management</u>															
	ASC/XR (AEA Synch office)	Various	Various		1.025	Oct-05	1.074	Oct-06	1.250	Oct-07	1.300	Oct-07	Continuing	TBD		
	Subtotal Management			0.000	1.025		1.074		1.250		1.300		Continuing	TBD	0.000	
	Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by program offices. Costs include travel, office equipment, office supplies, printing, contract services, program management administrative and communications expenses.														
(U)	Total Cost			0.000	18.368		12.374		20.007		24.684		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604429F AIRBORNE ELECTRONIC
ATTACK

PROJECT NUMBER AND TITLE
5192 Network & Sys -of-Sys Dev



AEA SoS Synchronization Schedule

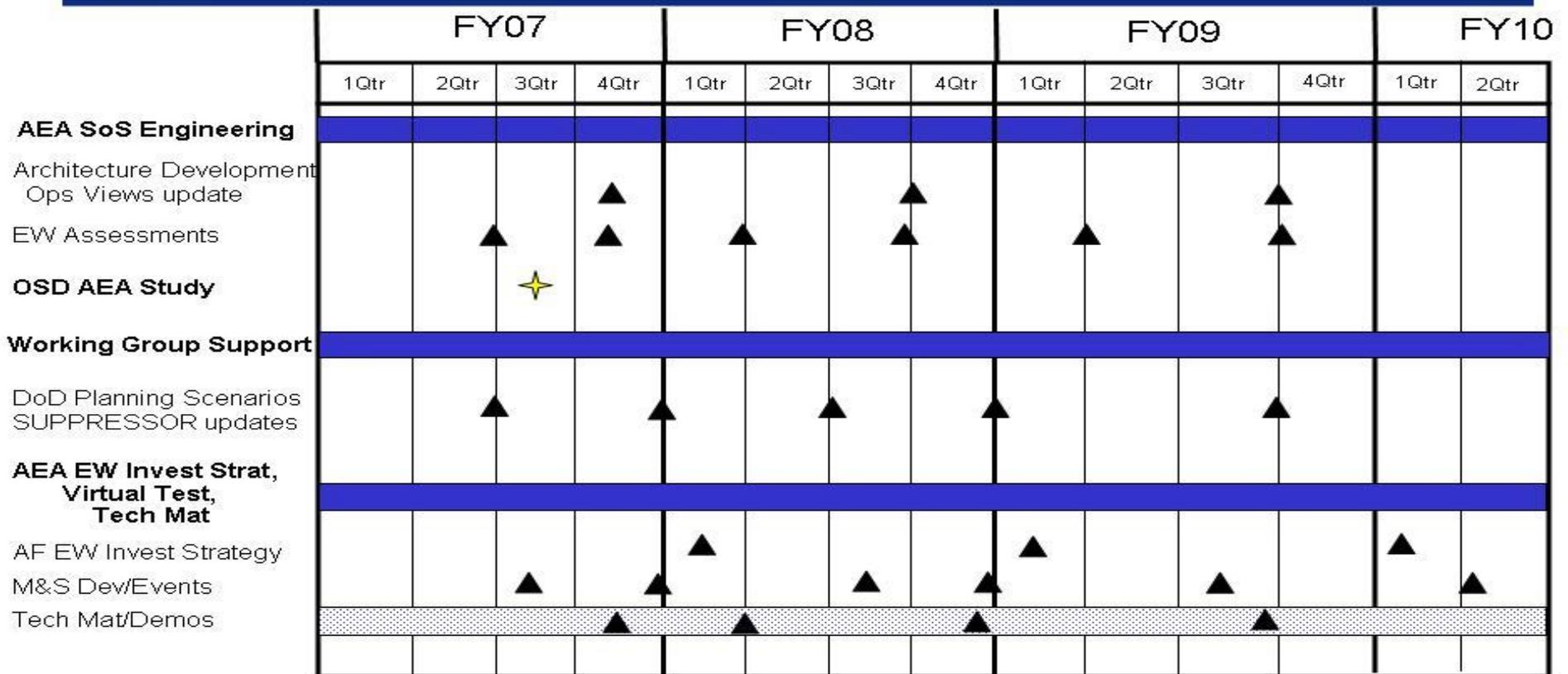


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC
ATTACK

PROJECT NUMBER AND TITLE

5192 Network & Sys -of-Sys Dev

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Continuing to support ongoing AEA systems engineering efforts

1-4Q

1-4Q

1-4Q

1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK			PROJECT NUMBER AND TITLE 5193 B-52 Stand-Off Jammer		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5193 B-52 Stand-Off Jammer	11.465	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project 655193, B-52 Stand-Off Jammer, efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Miniature Air Launched Decoy.

(U) A. Mission Description and Budget Item Justification

This program is terminated in FY07. The Air Force is continuing to perform studies and mature technologies to a level needed to provide an electronic attack capability for reactive jamming suppression of enemy integrated air defense systems (IADS) and IADS component radars from stand-off distances.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) B-52 SOJ Pre-SDD Contract				
(U) B-52 SOJ SDD Contract				
(U) Tech Demo	7.728			
(U) Mission and Test Support	0.500			
(U) Program Office Support	3.237			
(U) Total Cost	11.465	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) PE 0207442F (AEA procurement)									0.000	0.000

(U) D. Acquisition Strategy

Maturation of high risk technologies will continue via AFRL contracts with applicable vendors. This effort will mature technologies that are applicable to the AEA System of Systems requirements. The Air Force will not award a prime contract for the B-52 SOJ due to termination of program.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK	PROJECT NUMBER AND TITLE 5193 B-52 Stand-Off Jammer
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
					<u>Date</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>														
B-52 SOJ Pre-SDD Contract				0.000									0.000	0.000
B-52 SOJ SDD Contract												0.000	0.000	0.000
Low Band Phased Array Tech Development				7.728									7.728	7.728
Subtotal Product Development			0.000	7.728		0.000		0.000		0.000		0.000	7.728	0.000
Remarks:														
(U) <u>Support</u>														
SOJ Program Support				3.237								Continuing	TBD	
Government Furnished Equipment				0.000								Continuing	TBD	
Subtotal Support			0.000	3.237		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:		Studies and Analysis includes modeling and simulation												
(U) <u>Test & Evaluation</u>														
Test Support				0.000								Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:		Funds for test planning support from various organizations												
(U) <u>Management</u>														
Management Support				0.100									0.100	
Studies and Analysis				0.400								Continuing	TBD	
Subtotal Management			0.000	0.500		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:		Includes support of Acquisition and Sustainment wings at Wright-Patterson AFB and Tinker AFB, studies, analysis modeling and simulation												
(U) Total Cost			0.000	11.465		0.000		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
**0604429F AIRBORNE ELECTRONIC
ATTACK**

PROJECT NUMBER AND TITLE
5193 B-52 Stand-Off Jammer



Schedule



Dominant Air Power: Design For Tomorrow... Deliver Today

FY: **2005** **2006** **2007** **2008**

Milestones:

Program Termination

Capabilities Documents:



Technology Demonstration Phase

LB Array Tech Demos

Tech Maturation

Requirements Analysis

Program Definition

LEGEND

ICD: Initial Capabilities Document

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK	PROJECT NUMBER AND TITLE 5193 B-52 Stand-Off Jammer
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(U) <u>Schedule Profile</u> (U) Program termination	<u>FY 2006</u>	<u>FY 2007</u> 1Q	<u>FY 2008</u>	<u>FY 2009</u>
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PE NUMBER: 0604441F

PE TITLE: Space Based Infrared Systems (SBIRS) High EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	706.560	664.872	587.004	510.544	403.890	263.753	0.303	0.303	448.500	8,362.540
3616 SBIRS High Element EMD	706.560	664.872	587.004	510.544	403.890	263.753	0.303	0.303	448.500	8,362.540

(U) A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is in orbit and conducting on-orbit testing.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High program.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	696.562	668.902	579.369	486.335
(U) Current PBR/President's Budget	706.560	664.872	587.004	510.544
(U) Total Adjustments	9.998			
(U) Congressional Program Reductions	0.000	-1.505		
Congressional Rescissions	0.000	-2.525		
Congressional Increases				
Reprogrammings	9.998			
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY08 inflation adjustment. In FY09 Factory Support funding was transferred from PE 0305915F, SBIRS High O&M to PE 0604441F, SBIRS High EMD, in order to continue developmental efforts through the end of Early On-Orbit Test (EOT) for GEO-2.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD			PROJECT NUMBER AND TITLE 3616 SBIRS High Element EMD			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3616 SBIRS High Element EMD	706.560	664.872	587.004	510.544	403.890	263.753	0.303	0.303	448.500	8,362.540	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is in orbit and conducting on-orbit testing.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High program.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO development, GEO 1&2 integration, assembly and test, design activities for GEO block upgrades, proposal preparation, HEO integration and test, HEO message certification, Ground System Development, System Engineering and Program Management, Host program office support, Technical Intelligence activities, Data Exploitation activities, Combined Task Force (CTF) support activities, continuation of systems integration and test studies, and related support activities).	659.528	613.340	533.378	454.159
(U) Continue System Program Office Support, to include SETA and Systems Engineering and Integration	13.454	16.275	16.607	17.514
(U) Continue technical analysis and independent verification and validation of contractor.	33.578	35.257	37.019	38.871
(U) Total Cost	706.560	664.872	587.004	510.544

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement (PE 0305915F, BA-03, P-61)	3.640	4.198	3.979	1.947	1.956	1.949	1.992	2.036	0.000	21.697
(U) Missile Procurement (PE	0.000	0.000	479.000	1960.915	0.000	0.000	0.000	0.000	0.000	2,439.915

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604441F Space Based Infrared
Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE

3616 SBIRS High Element EMD

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

0305915F, BA-05, P-30)

(U) **D. Acquisition Strategy**

The pre-SDD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1995 for the pre-SDD phase. A single contract was awarded to Lockheed Martin in 1996 for the SDD phase.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)													0604441F Space Based Infrared Systems (SBIRS) High EMD		3616 SBIRS High Element EMD	
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>		
<u>(U) Product Development</u>																
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600									0.000	159.600	159.600		
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	4,316.489	659.528	Oct-05	613.340	Oct-06	533.378	Oct-07	454.159	Oct-08	901.872	7,478.766	7,478.766		
SBIRS Pre-SDD Contract Adjustment			4.780									0.000	4.780	4.780		
Technology	Various		11.600									0.000	11.600	11.600		
Phenomenology	Various		17.350									0.000	17.350	17.350		
Sandia Natl Lab (Cobra Brass)	Various		10.000									0.000	10.000	10.000		
Not Applicable													0.000			
Subtotal Product Development			4,519.819	659.528		613.340		533.378		454.159		901.872	7,682.096	7,682.096		
Remarks:																
<u>(U) Support</u>																
Aerospace Corp	Reimbursable Order	Aerospace Corp, El Segundo CA	181.692	33.578	Oct-05	35.257	Oct-06	37.019	Oct-07	38.871	Oct-08	164.068	490.485	465.386		
Prgm Mgmt Supt	Various	Various	75.300	13.454	Oct-05	16.275	Oct-06	16.607	Oct-07	17.514	Oct-08	50.809	189.959	215.058		
Subtotal Support			256.992	47.032		51.532		53.626		56.385		214.877	680.444	680.444		
Remarks:																
<u>(U) Test & Evaluation</u>																
Not Applicable													0.000			
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000		
Remarks:																
<u>(U) Management</u>																
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000		
Remarks:																
<u>(U) Total Cost</u>			4,776.811	706.560		664.872		587.004		510.544		1,116.749	8,362.540	8,362.540		

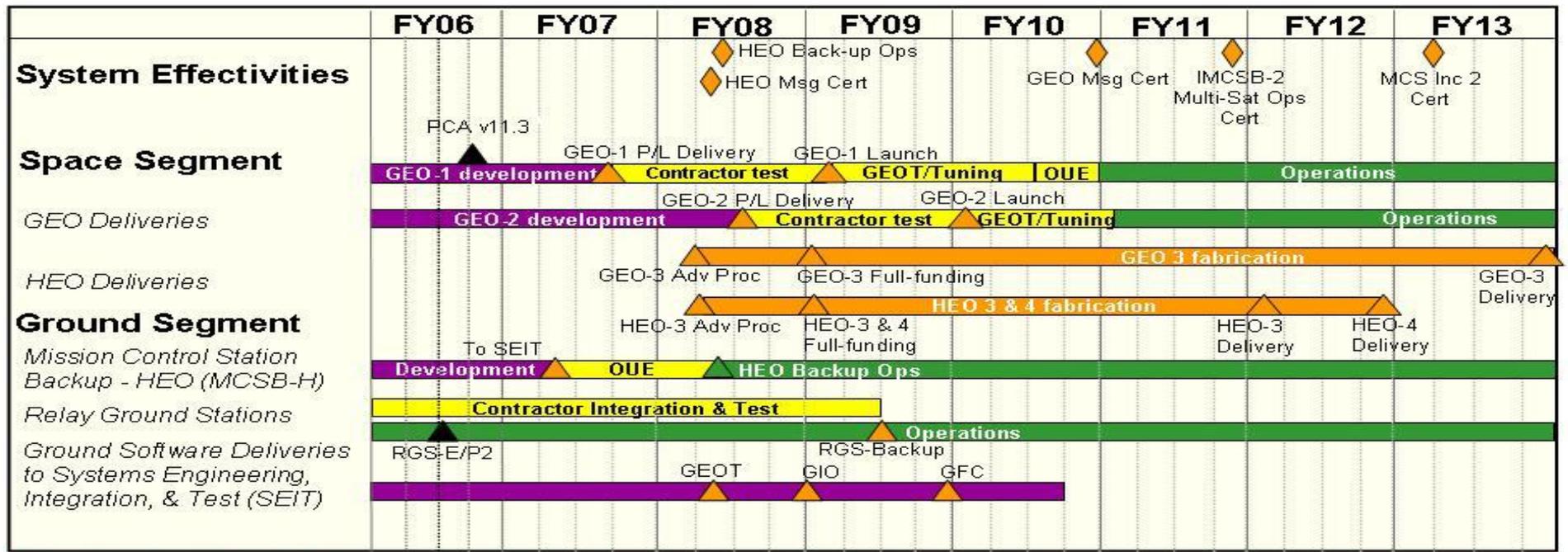
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604441F Space Based Infrared
Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE
3616 SBIRS High Element EMD



GEOT: GEO Early On-Orbit Test GFC: GEO Full Capability GIO: GEO Interim Operations HEO: Highly Elliptical Orbit
 HEOT: HEO Early Orbit Test HIO: HEO Interim Operations IMCSB: Interim Mission Control Station Backup
 MCS: Mission Control Station OUE: Operational User Evaluation PCA: Pointing & Control Assembly RGS: Relay Ground Station

- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD	PROJECT NUMBER AND TITLE 3616 SBIRS High Element EMD
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) HEO Interim Operations (HIO) software delivered to Systems Engineering, Integration, and Test (SEIT)	3Q			
(U) Relay Ground Station Europe (RGS-E) and Pacific (RGS-P) Asynchronous Transfer Mode (ATM) Phase 3 Complete	4Q			
(U) Spacecraft Functional Ambient Test	4Q			
(U) Delivery of Mission Control Station Backup-HEO (MCSB-H) to SEIT		2Q		
(U) GEO-1 Payload Thermal Vacuum Test 2		3Q		
(U) GEO-1 Payload delivery to prime for integration with spacecraft		4Q		
(U) HEO message certification			2Q	
(U) HEO Back-up Operations			2Q	
(U) GEO Early On-Orbit Test (GEOT) Software delivery			2Q	
(U) GEO-2 payload delivery to prime for integration with spacecraft			3Q	
(U) GEO Interim Operations (GIO) Software delivery				1Q
(U) GEO-1 Launch				1Q
(U) GEO Full Capability (GFC) software delivery				4Q

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PE NUMBER: 0604443F

PE TITLE: Alternative Infrared Satellite System (AIRSS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Alternative Infrared Satellite System (AIRSS)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	67.552	230.887	354.308	543.534	708.657	722.287	736.998	Continuing	TBD
A020 AIRSS	0.000	67.552	230.887	354.308	543.534	708.657	722.287	736.998	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) The Alternative Infrared Satellite System (AIRSS) mission is to provide a missile warning capability to warn of ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace awareness and technical intelligence missions. As a result of the Nunn-McCurdy certification for the Space Based Infrared System High (SBIRS High) program, the USD(AT&L) directed the DoD Executive Agent for Space to plan for a new program for space-based Overhead Non-Imaging Infrared (ONIR) that generates competition for the SBIRS GEO 3 satellite and exploits alternative technologies. AIRSS will pursue an approach with acceptable technical risk that offers, at a minimum, Defense Support Program (DSP)-like missile warning capability and can ensure a launch availability date of FY2015. In FY2007, the program office awarded a number of contracts for system definition, in preparation for the May 2008 Key Decision Point-B, including flight and ground demonstrations. Contract deliverables will define the geosynchronous warning satellite(s) to support missile detection and missile defense; and define the ground systems including legacy interfaces. Particular attention will be given to identifying key enabling technologies, ground system trades, allocation of requirements to sub-systems, identification of risk areas, and major costs.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for an alternative to the SBIRS High program for the next generation of missile warning satellites.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget		102.962	228.727	350.000
(U) Current PBR/President's Budget	0.000	67.552	230.887	354.308
(U) Total Adjustments	0.000			
(U) Congressional Program Reductions		-35.153		
Congressional Rescissions		-0.257		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

Congress appropriated \$35 million less than the President's Budget request in FY 2007.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604443F Alternative Infrared Satellite System (AIRSS)			PROJECT NUMBER AND TITLE A020 AIRSS		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A020 AIRSS	0.000	67.552	230.887	354.308	543.534	708.657	722.287	736.998	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) The Alternative Infrared Satellite System (AIRSS) mission is to provide a missile warning capability to warn of ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace awareness and technical intelligence missions. As a result of the Nunn-McCurdy certification for the Space Based Infrared System High (SBIRS High) program, the USD(AT&L) directed the DoD Executive Agent for Space to plan for a new program for space-based Overhead Non-Imaging Infrared (ONIR) that generates competition for the SBIRS GEO 3 satellite and exploits alternative technologies. AIRSS will pursue an approach with acceptable technical risk that offers, at a minimum, Defense Support Program (DSP)-like missile warning capability and can ensure a launch availability date of FY2015. In FY2007, the program office awarded a number of contracts for system definition, in preparation for the May 2008 Key Decision Point-B, including flight and ground demonstrations. Contract deliverables will define the geosynchronous warning satellite(s) to support missile detection and missile defense; and define the ground systems including legacy interfaces. Particular attention will be given to identifying key enabling technologies, ground system trades, allocation of requirements to sub-systems, identification of risk areas, and major costs.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for an alternative to the SBIRS High program for the next generation of missile warning satellites.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AIRSS Demonstration Unit		52.100	117.847	104.700
(U) Systems Definition		12.000	43.455	0.000
(U) System Design		0.000	62.540	239.183
(U) FFRDC, SETA and Systems Engineering and Integration Technical Support		3.452	7.045	10.425
(U) Total Cost	0.000	67.552	230.887	354.308

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U)										

(U) D. Acquisition Strategy

The AIRSS program has been directed to undertake technology development, risk reduction and program planning to meet a milestone review in May 2008 that could approve acquisition of an engineering model development (EMD) satellite beginning in FY2008. A system definition phase began in early FY2007 and will be

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Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Alternative Infrared Satellite System (AIRSS)	PROJECT NUMBER AND TITLE A020 AIRSS
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followed by a two-contractor system design phase with one offeror selected at a Preliminary Design Review (PDR) in FY2009. In parallel, a demonstration unit is under development to lower program risk. Space and Missile Systems Center (SMC) and Air Force Research Laboratory (AFRL) teamed for the risk reduction program using a Broad Agency Announcement (BAA) to contract for integrated sensor assemblies. This hardware should be delivered in FY2008 and undergo space qualification testing in FY2009. Space vehicle demonstration hardware and processing testing will occur in FY2010.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Alternative Infrared Satellite System (AIRSS)	PROJECT NUMBER AND TITLE A020 AIRSS
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
AIRSS Demo Unit	Various	Various				52.100	Oct-06	117.847	Oct-07	104.700	Oct-08	229.100	503.747	503.347
System Definition	Various	Various				12.000	Dec-06	43.455	Oct-07	0.000		0.000	55.455	55.855
System Design	Various	Various				0.000		62.540	Oct-07	239.183	Oct-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		64.100		223.842		343.883		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program office and technical support including federally funded research and development center (FFRDC/SETA)	Various	Space and Missile Center, El Segundo, CA				3.452	Oct-06	7.045	Oct-07	10.425	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	0.000		3.452		7.045		10.425		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			0.000	0.000		67.552		230.887		354.308		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604443F Alternative Infrared
Satellite System (AIRSS)

PROJECT NUMBER AND TITLE
A020 AIRSS

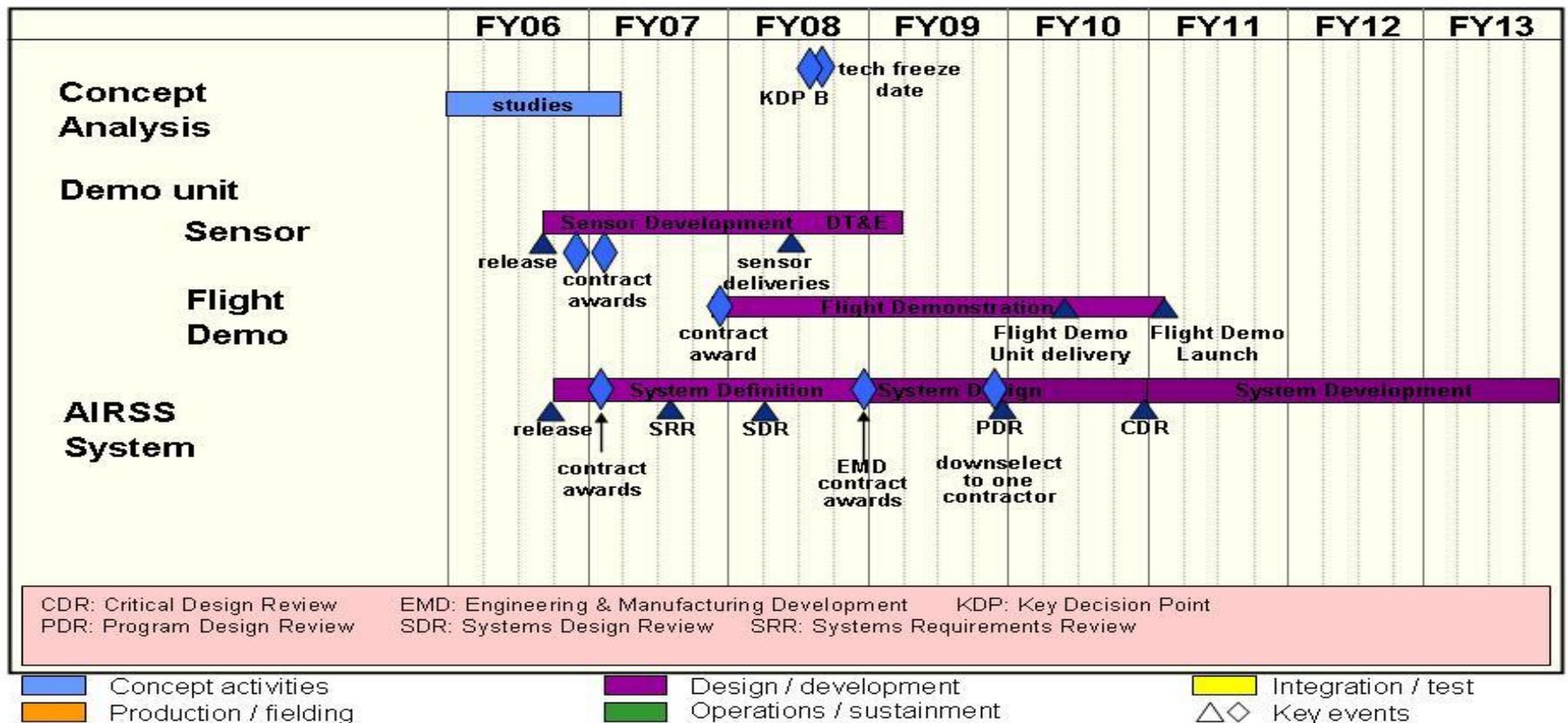


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Alternative Infrared Satellite System (AIRSS)	PROJECT NUMBER AND TITLE A020 AIRSS
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Program Plan	3Q			
(U) Demonstration Sensors Awards (x2 contractors)	4Q	1Q		
(U) AIRSS System Definition Awards		1Q		
(U) AIRSS System Requirements Review (SRR)		3Q		
(U) Flight demonstration award		4Q		
(U) Demo Sensor Deliveries			2Q	
(U) System Design Contract Award (x2 contractors)			3Q	
(U) Key Decision Point (KDP)-B (AIRSS)			3Q	
(U) Space Qualification Test for demonstration sensors				2Q
(U) Flight Demonstration ground terminal acquisition				2Q
(U) System Design PDR & Downselect				4Q

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PE NUMBER: 0604600F
 PE TITLE: Munitions Dispenser Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604600F Munitions Dispenser Development
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.587
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	14.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.587

(U) A. Mission Description and Budget Item Justification

This project is to extend the range and improve accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) was intended to increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness. The WCMD-ER development would support an initial capability on the F-16 and provide the AF's only standoff, anti-armor capability and clean battlefield area munitions.

This is funded in budget activity 5, System Development and Demonstration, because it develops the WCMD-ER and associated software, flight testing, and other developmental efforts.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	5.952	0.000		
(U) Current PBR/President's Budget	15.384	0.000		
(U) Total Adjustments	9.432			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	9.547			
SBIR/STTR Transfer	-0.115			

(U) Significant Program Changes:

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604600F Munitions Dispenser Development				PROJECT NUMBER AND TITLE 1015 Wind Corrected Munitions Dispenser (WCMD) Kit			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	14.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.587	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This project is to extend the range and improve accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) was intended to increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness. The WCMD-ER development would support an initial capability on the F-16 and provide the AF's only standoff, anti-armor capability and clean battlefield area munitions.

This is funded in budget activity 5, System Development and Demonstration, because it develops the WCMD-ER and associated software, flight testing, and other developmental efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) WCMD-ER contract to design and procure test hardware.	14.747			
(U) Aircraft integration and testing on F-16 and B-52	0.400			
(U) Engineering support, program office support, and other government support.	0.237			
(U) Total Cost	15.384	0.000	0.000	0.000

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Procurement of Ammunition, AF P-1 Line Item 8	15.490	34.704	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.194

(U) D. Acquisition Strategy

Contract is Cost Plus Award Fee.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604600F Munitions Dispenser Development					PROJECT NUMBER AND TITLE 1015 Wind Corrected Munitions Dispenser (WCMD) Kit				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Lockheed Martin	C/CPAF	Missile & Fire Control, Orlando, FL		14.747	Oct-05							0.000	14.747	46.300
Subtotal Product Development			0.000	14.747		0.000		0.000		0.000		0.000	14.747	46.300
Remarks:														
(U) <u>Support</u> AAC/YH	Various	Eglin AFB, FL		0.044								0.000	0.044	4.602
Support Contracts	Various	Eglin AFB, FL		0.193	Feb-06							0.000	0.193	1.154
Subtotal Support			0.000	0.237		0.000		0.000		0.000		0.000	0.237	5.756
Remarks:														
(U) <u>Test & Evaluation</u> 46 OG/OGML	REO	Eglin AFB, FL		0.071								0.000	0.071	10.458
Safety				0.000									0.000	
Aircraft Integration	AF 616	Tinker AFB, OK and WPAFB, OH		0.329								0.000	0.329	5.845
Subtotal Test & Evaluation			0.000	0.400		0.000		0.000		0.000		0.000	0.400	16.303
Remarks:														
(U) <u>Management</u>													0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)													0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)													0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)													0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														

Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604600F Munitions Dispenser
Development

PROJECT NUMBER AND TITLE

1015 Wind Corrected Munitions
Dispenser (WCMD) Kit

(U) Total Cost	0.000	15.384	0.000	0.000	0.000	0.000	0.000	15.384	68.359
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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604600F Munitions Dispenser Development	PROJECT NUMBER AND TITLE 1015 Wind Corrected Munitions Dispenser (WCMD) Kit
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) System Development and Demonstration Contract Incremental Funding	1Q			
(U) Flight Schedule	1Q			

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PE NUMBER: 0604602F

PE TITLE: Armament/Ordnance Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.613	5.020	1.985	2.120	2.136	2.111	2.145	2.183	Continuing	TBD
3133 Armament Subsystems	6.197	3.781	1.985	2.120	2.136	2.111	2.145	2.183	Continuing	TBD
4696 Armament Standardization Program	1.272	1.084	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5613 Containers	0.144	0.155	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Starting in FY08, moved all funds and activities from the other 2 project to project 3133 Armament Subsystems (new name, old name was Bombs & Fuzes). This is done to consolidate and simplify the program element.

(U) A. Mission Description and Budget Item Justification

The Armament Ordnance Development program provides for initial and continuing development of munition equipment for support and operational use.

Armament Subsystems: This project develops and improves conventional bombs and fuzes. It currently includes enhancing and improving the reliability of the Joint Programmable Fuze (JPF), integration of the JPF on legacy weapons, other fuze development, and Insensitive Munitions (IM), the use of an insensitive explosive fill and bomb case modifications for MK-80 series bombs to make these weapons insensitive to unplanned stimuli. In FY08 and beyond, this project also performs the activities described in the two projects below.

Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.

This program is in Budget Activity 5 - System Development and Demonstration because the projects support the SDD phase of several munitions related items and functions.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	7.675	5.039	1.991	2.120
(U) Current PBR/President's Budget	7.613	5.020	1.985	2.120
(U) Total Adjustments	-0.062	-0.019		
(U) Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	-0.001	-0.019		
Congressional Increases	0.000	0.000		
Reprogrammings	-0.039	0.000		
SBIR/STTR Transfer	-0.022	0.000		
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development			PROJECT NUMBER AND TITLE 3133 Armament Subsystems			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3133 Armament Subsystems	6.197	3.781	1.985	2.120	2.136	2.111	2.145	2.183	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY08, the other 2 projects in this program element merge with this project. This will then be the only project in this program element. The name of this project is also changed (from Bombs & Fuzes) to encompass the activities of the 2 projects moving here.

(U) A. Mission Description and Budget Item Justification

There are the following two subprojects are in the Armament Subsystems project (to FY07): (1) Fuzes: Joint Programmable Fuze (JPF) was developed primarily for JDAM and funded by the JDAM program. This project funds the integration of JPF on other AF legacy weapons and improvements to the JPF program, including reliability enhancements and producibility improvements. This project also supports other fuze development activity and AF participation in the DOD Fuze Integrated Product Team (IPT) (2) Insensitive Munitions (IM) develops an explosive fill and bomb case modification to make conventional weapons insensitive to unplanned stimuli.

Starting in FY08, this project will also include the other 2 projects in this program element. The description of these 2 projects, 4696 Armament Standardization and 5613 Containers, is given in the next 2 sections.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Insensitive Munitions (IM) development effort. Conduct lab level performance tests, environmental tests, bomb case development performance tests, and prototype booster reliability tests	0.450	0.246	0.000	0.000
(U) Formulate IM explosive development fill and integrate the fuze on IM filled bombs, and qualify MK-82/MK-84 bombs with the new IM fill	0.485	1.300	0.000	0.000
(U) Conduct bomb case study and comparative testing	3.607	1.317	0.000	0.000
(U) JPF legacy weapons integration and other fuze activity	1.655	0.918	0.683	0.760
(U) Design, prototype, test and develop various Munitions Material Handling Equipment (MMHE) projects for AF use	0.000	0.000	1.144	1.187
(U) Provide container design expertise and technical support to AF munitions/weapons containers developers. Manage and operate the Tri-Service Container Design Retrieval System (CDRS) database.	0.000	0.000	0.158	0.173
(U) Total Cost	6.197	3.781	1.985	2.120

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**

Fuzes (including JPF) is a continuing effort with most activities performed in-house or through contracted services (small contracts). MMHE and container project activities performed in-house with limited technical and analysis contract support.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)													0604602F Armament/Ordnance Development		3133 Armament Subsystems	
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract		
(U) Product Development																
AAC/YCB (Program Office - MMHE)	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.000	N/A	0.794	N/A	0.837	N/A	Continuing	TBD	TBD		
Kaman/Dayron (JPF)	FPIF	Orlando, FL	8.655	0.044	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.699	8.699		
Air Force Research Lab (Fuze)	In-house	Eglin AFB, FL	0.000	0.158	N/A	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD		
Air Force Research Lab/MN (IM)	In-house	Eglin AFB, FL	5.634	0.550	N/A	0.628	N/A	0.000	N/A	0.000	N/A	0.000	6.812	6.812		
General Dynamics OTS (IM)	CPFF	Niceville, FL	2.681	0.404	Jan-06	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.085	3.086		
McAAP	Army	McAllester, OK	1.189	0.400	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.589	1.589		
96 LRS	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.000	N/A	0.150	N/A	0.150	N/A	Continuing	TBD	TBD		
Phototype Fabrication Shop	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.000	N/A	0.100	N/A	0.100	N/A	Continuing	TBD	TBD		
Subtotal Product Development			18.159	1.556		0.628		1.044		1.087		Continuing	TBD	TBD		
Remarks:	CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee															
(U) Support																
AAC/XR (IM)	In-house	Eglin AFB, FL	0.981	0.300	N/A	0.480	N/A	0.000	N/A	0.000	N/A	0.000	1.761	1.761		
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	1.642	0.365	Oct-05	0.477	Oct-06	0.000	N/A	0.000	N/A	0.000	2.484	2.484		
AAC/YBC (Program Office - MMHE)	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.000	N/A	0.100	N/A	0.100	N/A	Continuing	TBD	TBD		
AAC/YBC (Program Office - Containers)	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.000	N/A	0.158	N/A	0.173	N/A	Continuing	TBD	TBD		
Subtotal Support			2.623	0.665		0.957		0.258		0.273		Continuing	TBD	TBD		
Remarks:	TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. FFP = Firm Fixed Price															
(U) Test & Evaluation																
46 Test Wing (Fuze)	In-house	Various	6.563	1.463	N/A	0.918	N/A	0.683	N/A	0.760	N/A	Continuing	TBD	TBD		
46th Test Wing (IM)	In-house	Eglin AFB, FL	2.520	0.346	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.866	2.866		
Navy, China Lake (IM)	Navy	China Lake, CA	1.387	2.167	N/A	1.278	N/A	0.000	N/A	0.000	N/A	0.000	4.832	4.826		
Subtotal Test & Evaluation			10.470	3.976		2.196		0.683		0.760		Continuing	TBD	TBD		
Remarks:																
(U) Total Cost			31.252	6.197		3.781		1.985		2.120		Continuing	TBD	TBD		

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

The Fuze, Munitions Materiel Handling Equipment (MMHE) and the Munitions Container programs are continuing activities that supports fuze development, MMHE design and development, and container standardization activities throughout the year.

FY07 is the last year of the Insensitive Munitions (IM) project

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

(U) Schedule Profile

(U) FUZES: JPF Integration on Legacy Weapons & Other Fuze Activity

FY 2006

1-4Q

FY 2007

1-4Q

FY 2008

1-4Q

FY 2009

1-4Q

(U) INSENSITIVE MUNITIONS (IM): Follow-on IM Fill Development and MK-82
IM System Integration/Weapons Qual

1-4Q

1-4Q

(U) Study, design, and test MMHE

1-4Q

1-4Q

(U) Support CDRS Activities/Meetings

1-4Q

1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development			PROJECT NUMBER AND TITLE 4696 Armament Standardization Program			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4696 Armament Standardization Program	1.272	1.084	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.

(U) A. Mission Description and Budget Item Justification

Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE): These continuing projects develop and provide for acquisition of standardized, safe, and user-friendly munitions handling and armament equipment with common life cycle support. Projects will reduce proliferation and increase workload efficiencies while reducing mobility footprint. Project efforts are limited to study, design, test and development. Procurement will be performed and funded by the applicable weapons system project or air logistics center.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Design, prototype, test and develop various MMHE projects for AF use. Projects include 30 MM Gun Pod, Viper Strike Loading Adapter, F-22 Pylon Loading Adapter, JASSM Container Lid, F-15 and B-52 Pylon Loading Adapter, MK-83 JDAM Tool	1.272	1.084	0.000	0.000
(U) Total Cost	1.272	1.084	0.000	0.000

In FY08, this project merges with project 3133. FY08 and beyond funds given in new project

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) N/A										

(U) D. Acquisition Strategy

MMHE is a program of continuing efforts (projects) with activities performed in-house or through contracted services.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 4696 Armament Standardization Program
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Support</u> AAC/YBC (Program Office)	In-house	Eglin AFB, FL	0.938	0.000	N/A	0.097	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Support			0.938	0.000		0.097		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Product Development</u> AAC/YBC (Program Office)	In-house	Eglin AFB, FL	0.000	0.815	N/A	0.763	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
J.E. Sverdrup	FFP	Fort Walton Beach, FL	4.991	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
96 LRS	In-house	Eglin AFB, FL	1.163	0.115	N/A	0.138	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
EDSC	In-house	Eglin AFB, FL	0.098	0.006	N/A	0.006	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Phototype Fabrication Shop	In-house	Eglin AFB, FL	1.350	0.336	N/A	0.080	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Product Development			7.602	1.272		0.987		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u> In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.			8.540	1.272		1.084		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization
Program

The Armament Standardization Program consists of several continuing projects that support the SDD phase of several munitions-related items and functions.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 4696 Armament Standardization Program
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Study, Design, and Test MMHE	1-4Q	1-4Q		
In FY08, this project merges with project 3133. FY08 and beyond activities given in new project				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604602F Armament/Ordnance Development			PROJECT NUMBER AND TITLE 5613 Containers		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5613 Containers	0.144	0.155	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.

(U) A. Mission Description and Budget Item Justification

Containers: This project funds the operation of the Tri-Service Container Design Retrieval System (CDRS). The CDRS maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, development, and acquisition capabilities and the Joint Ordnance Commander's Working Group (JOCWG) for packaging, handling and loading. In addition, CDRS supports organic container design, acquisition transportation, prototyping and testing capabilities.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.006	0.006	0.000	0.000
(U) Provide container design expertise and technical support to programs (BLU-122, MAALD, JASSM, etc.)	0.006	0.006	0.000	0.000
(U) Manage and operate the CDRS database and support service	0.132	0.143	0.000	0.000
(U) Total Cost	0.144	0.155	0.000	0.000

In FY08, this project merges with project 3133. FY08 and beyond funds given in new project

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) N/A										

(U) D. Acquisition Strategy

Containers is a program of continuing effort throughout the year, mostly to support the Tri-Service Container Design and Retrieval System (CDRS). The purpose of this CDRS is to share ideas and standardize munitions containers throughout the Services.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 5613 Containers
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Support</u> AAC/YBC (Program Office)	In-house	Eglin AFB, FL	1.176	0.126	N/A	0.135	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Support			1.176	0.126		0.135		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Product Development</u> J.E.Sverdrup	FFP	Fort Walton Beach, FL	1.621	0.018	Feb-06	0.020	Feb-07	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Product Development			1.621	0.018		0.020		0.000		0.000		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u> In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.			2.797	0.144		0.155		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

5613 Containers

The Munitions Container Program is a continuing projects that supports container standardization activities/meetings throughout the year.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 5613 Containers
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Support CDRS Activities/Meetings	1-4Q	1-4Q		
In FY08, this project merges with project 3133. All activities in FY08 and beyond are covered in project 3133.				

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604604F Submunitions
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.368	8.327	1.988	1.750	1.854	1.716	1.745	1.779	Continuing	TBD
3166 Joint Smart Munitions Test and Evaluation	5.368	8.327	1.988	1.750	1.854	1.716	1.745	1.779	Continuing	TBD

The FY03 National Defense Authorization Act language directed Test & Evaluation (T&E) centers to charge only direct costs beginning in FY06. This resulted in a zero balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F. For this PE, the T&E funding alignment begins in FY08.

(U) A. Mission Description and Budget Item Justification

This program element provides support for smart munitions and related technologies test and evaluation (T&E) activities, including T&E support for programs in engineering and manufacturing development. Project 3166 provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 (project Chicken Little) evaluates developmental smart munitions and related emerging technology with applications against vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and other Services target signature collection and dissemination for development and exploitation purposes. The program provides best value test and evaluation support for submunition development and weaponization studies and modeling and simulation capabilities to augment a limited number of measurement and open air tests of smart weapons and related technologies.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	5.397	5.759	1.983	1.741
(U) Current PBR/President's Budget	5.368	8.327	1.988	1.750
(U) Total Adjustments	-0.029	2.568		
(U) Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	0.000	-0.320		
Congressional Increases	0.000	2.600		
Reprogrammings	-0.014	0.000		
SBIR/STTR Transfer	-0.015	0.000		

(U) Significant Program Changes:

Congress added \$2.6M in the FY07 Appn for "Virtual Teleoperation for Unmanned Aerial Vehicles."

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604604F Submunitions				3166 Joint Smart Munitions Test and Evaluation		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3166 Joint Smart Munitions Test and Evaluation	5.368	8.327	1.988	1.750	1.854	1.716	1.745	1.779	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program element provides support for smart munitions and related technologies test and evaluation (T&E) activities, including T&E support for programs in engineering and manufacturing development. Project 3166 provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 (project Chicken Little) evaluates developmental smart munitions and related emerging technology with applications against vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and other Services target signature collection and dissemination for development and exploitation purposes. The program provides best value test and evaluation support for submunition development and weaponization studies and modeling and simulation capabilities to augment a limited number of measurement and open air tests of smart weapons and related technologies.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue weapon effectiveness evaluation and weaponization studies	0.765	0.776	0.298	0.267
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies	0.342	0.358	0.123	0.108
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink	1.557	1.667	0.572	0.503
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development	1.300	1.390	0.477	0.418
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons	0.267	0.310	0.096	0.084
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)	1.137	1.226	0.422	0.370
(U) Virtual Teleoperation for Unmanned Aerial Vehicle	0.000	2.600	0.000	0.000
(U) Total Cost	5.368	8.327	1.988	1.750

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

PROJECT NUMBER AND TITLE

3166 Joint Smart Munitions Test and Evaluation

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None

(U) **D. Acquisition Strategy**

Funds are executed organically in support of test and evaluation activities including studies, analyses, flight tests, model building and simulation. Almost all of the work is performed in-house by the 46th Test Wing.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2007		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604604F Submunitions				PROJECT NUMBER AND TITLE 3166 Joint Smart Munitions Test and Evaluation				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Support</u> Macaulay Brown/ANSTEC	FFP	Technical Analysis and Test Support, Eglin AFB, FL	1.806	0.080	Apr-05	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.886	1.886
Eglin Range O&M Contract	CPIF	Maintenance, Western Test Range, NV	0.491	0.300	Jan-06	0.100	Jan-07	0.000	N/A	0.000	N/A	0.000	0.891	0.891
Subtotal Support			2.297	0.380		0.100		0.000		0.000		0.000	2.777	2.777
Remarks:	CPIF = Cost Plus Incentive Fee; FFP = Firm Fixed Price													
(U) <u>Test & Evaluation</u> Sverdrup	CPIF	Technical Analysis and Test Support, Eglin AFB, FL	11.316	0.433	Jun-01	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.749	11.749
46th Test Wing (46 OG and 46 TW)	N/A	Conducting Tests and Analysis, Eglin AFB, FL	80.530	4.306	N/A	5.384	N/A	1.692	N/A	1.486	N/A	Continuing	TBD	TBD
AFRL and University of Iowa (Virtual Teleoperation for Unmanned Aerial Vehicle)	N/A	AFRL, Wright Patterson AFB, OH (Most work performed by University of Iowa)	0.000	0.000	N/A	2.600	N/A	0.000	N/A	0.000	N/A	0.000	2.600	TBD
Subtotal Test & Evaluation			91.846	4.739		7.984		1.692		1.486		Continuing	TBD	TBD
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.													
(U) <u>Management</u> 46 Test Wing (46 OG)	N/A		6.950	0.249	N/A	0.243	N/A	0.296		0.264	N/A	Continuing	TBD	TBD
Subtotal Management			6.950	0.249		0.243		0.296		0.264		Continuing	TBD	TBD
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.													
(U) Total Cost			101.093	5.368		8.327		1.988		1.750		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

PROJECT NUMBER AND TITLE

3166 Joint Smart Munitions Test and Evaluation

SCHEDULE

Project 3166, Joint Smart Munition Test and Evaluation program (project Chicken Little) does not execute in accordance with established acquisition milestones. Chicken Little is a continuing test effort: Target/warhead evaluation/analysis, signature tests, and captive carry flight tests are ongoing throughout the year and continue through the FYDP. The type of activities is given in Section B. The timing, duration, and level of effort is decided at the annual Steering Committee meetings.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604604F Submunitions	PROJECT NUMBER AND TITLE 3166 Joint Smart Munitions Test and Evaluation
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests	1-4Q	1-4Q	1-4Q	1-4Q

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.045	10.056	10.623	9.358	9.653	9.870	10.056	10.254	Continuing	TBD
2895 CE Readiness	5.789	6.471	6.504	6.587	6.765	6.877	7.008	7.148	Continuing	TBD
4910 Aeromedical Readiness	5.256	3.585	4.119	2.771	2.888	2.993	3.048	3.106	Continuing	TBD

In FY08, Project 2895, Civil Engineering Readiness (CE), includes two new-start efforts.

(U) A. Mission Description and Budget Item Justification

This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations, command and control activities, and force protection to ensure readiness. In addition, this PE provides tactical and strategic aeromedical evacuation systems, automated information systems; and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. These activities are prerequisites to establishing air superiority. Development of Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids, aeromedical evacuation and treatment equipment; and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	11.211	10.095	10.904	9.610
(U) Current PBR/President's Budget	11.045	10.056	10.623	9.358
(U) Total Adjustments	-0.166	-0.039		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.039		
Congressional Increases				
Reprogrammings	-0.025			
SBIR/STTR Transfer	-0.141			

(U) Significant Program Changes:

In FY06, Project 4910 received one Congressional Add in the amount of \$1.2M for Biostatic Protective Clothing.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support			PROJECT NUMBER AND TITLE 2895 CE Readiness		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2895 CE Readiness	5.789	6.471	6.504	6.587	6.765	6.877	7.008	7.148	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project provides capabilities to rapidly deploy, defend and sustain airfield operations, command and control activities, and force protection to ensure readiness. These activities are prerequisites to establishing air superiority. The 688th Armament Systems Squadron (ARSS) (formerly Agile Combat Support Squadron (ACSSS)) systems provide beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids; and security and reconnaissance capabilities to support global aircraft deployment, employment, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The 688th Armament Systems Squadron program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue SDD for All-Purpose Remote Transport System (ARTS)/Attachments	0.761		0.500	
(U) Provide Joint Robotics Program (JRP) Support		0.100	0.100	0.100
(U) Support research of new technologies to meet CDD requirement for Rapid Parking Ramp Expansion (RPRE)	2.448	0.100	0.100	0.300
(U) Initiate SDD for Next Generation Robotics Program			2.200	2.300
(U) Continue(d) SDD for Multimedia Training Systems (MMTS)(Formerly MTS)	1.000	2.839	1.704	1.902
(U) Continue(d) Product Evaluation for Civil Engineer Sys & Equipment (CESEA)	1.380	2.932	0.400	0.485
(U) Support Man-Transportable Robotics System (MTRS) Testing	0.200			
(U) Initiat SDD Next Generation Emergency Airfield Lighting Sys (NEALS)		0.500	1.500	1.500
(U) Total Cost	5.789	6.471	6.504	6.587

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other Procurement, AF, Other Base and Maintenance Support, Mobility Equipment	44.838	25.913	36.932	27.537	33.601	50.111	31.459	32.079	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support	PROJECT NUMBER AND TITLE 2895 CE Readiness
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(WSC 845420)

(U) Other Procurement, AF,

Other Base and Maintenance Support, Air Base Operability (WSC 845100)	17.889	9.238	6.221	6.527	6.659	6.826	6.959	7.098	Continuing	TBD
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(U) **D. Acquisition Strategy**

A majority of projects funded in this PE employ a streamlined acquisition approach. Whenever practical, commercial items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification and qualification testing to ensure commercial off-the-shelf equipment is properly adapted for military purposes. ACC/A8M/A7X jointly develop/approve requirements supporting Civil Engineering Readiness and Capabilities Enhancement initiatives, such as Explosive Ordnance Disposal robotics programs. The 688th Armament Systems Squadron (ARSS) at Eglin AFB, FL initiates SDD following receipt of applicable Capabilities Development Documents from those agencies. The Basic Expeditionary Airfield Resource (BEAR) Systems Readiness Board (BSRB) evaluates laboratory and commercial technologies with application for modernization of BEAR assets, such as deployable shelters, power, waste treatment and airfield support systems. With ACC/A8M/A4X/A7X direction and BEAR Program Office approval, the 688th ARSS initiates SDD, and ACC/A4X aligns BEAR production funding within PE 0401135F to support modernization of assets. Initiation of SDD includes all 6.4 activities leading up to contract award and subsequent test and evaluation culminating in a Milestone C production decision.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support	PROJECT NUMBER AND TITLE 2895 CE Readiness
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ARTS/Attachments	FFP	Applied Research Associates, South Royalton, VT	8.855	0.761	Jan-06			0.500	Dec-07			0.000	10.116	9.955
Joint Robotics Program (JRP) support	FFP	688th ARSS, Eglin AFB FL				0.100	Jan-07	0.100	Jan-08	0.100	Jan-09	Continuing	TBD	TBD
Next Generation Robotics	TBD	TBD						2.200	Jan-08	2.300	Jan-09	7.500	12.000	13.000
Rapid Parking Ramp Expansion (RPRE)	TBD	TBD	0.100	2.448	Dec-05	0.100	Dec-06	0.100	Dec-07	0.300	Dec-08	0.700	3.748	4.700
Multimedia Training Systems (MMTS)(Formerly MTS)	FFP	Multiple	6.575	1.000	Feb-06	2.839	Dec-06	1.704	Dec-07	1.902	Dec-08	Continuing	TBD	TBD
Civil Engineer Systems & Equipment Analysis (CESEA)	FFP	Multiple	2.875	1.380	May-06	2.932	Jan-07	0.400	Jan-08	0.485	Jan-09	Continuing	TBD	TBD
Man-Transportable Robotics Sys (MTRS)	FFP	NAVEODTE CHDIV, Indian Head, MD		0.200	Mar-06							0.000	0.200	0.200
Next Generation Airfield Lighting System (NEALS)	TBD	TBD				0.500	Feb-07	1.500	Feb-08	1.500	Feb-09	2.500	6.000	6.000
Subtotal Product Development			18.405	5.789		6.471		6.504		6.587		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> None.													0.000	
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u> Various	Various											Continuing	TBD	
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
<u>(U) Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			18.405	5.789		6.471		6.504		6.587		Continuing	TBD	TBD

NOTE: This is a level of effort Program Element with 20+ years of projects. Prior years breakout not available.

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Project 2895

Exhibit R-3 (PE 0604617F)

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

2895 CE Readiness

CE Readiness Schedule

0604617F Agile Combat Support

	FY06	FY07	FY08	FY09
(U) Schedule Profile				
ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)				
• Complete ARTS Box Rake SDD	▲			
• Award ARTS Box Rake Procurement Contract		△	Production	△
• Complete Submunitions Clearance System (SCS) SDD Phase I				
• Begin SCS SDD Phase II			△	
• Complete Data Feedback System (DFS) Test & Evaluation				
• Award DFS Procurement Contract		▲	Production	△
RAPID PARKING RAMP EXPANSION (RPRE)				
• Complete FY05 RPRE Pre-SDD activities	▲			
• Conduct FY06 RPRE Pre-SDD activities	▲	▲		
• Conduct activities to define new RPRE technologies		▲		△
NEXT GENERATION ROBOTICS SYSTEM				
• Initiate SDD activities			△	
MULTIMEDIA TRAINING SYSTEMS (MMTS)				
• Conduct FY06 MMTS Projects	▲			
• Conduct FY07 MMTS Projects		▲	△	
• Conduct FY08 MMTS Projects			△	△
• Conduct FY09 MMTS Projects				△

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

2895 CE Readiness

CE Readiness Schedule

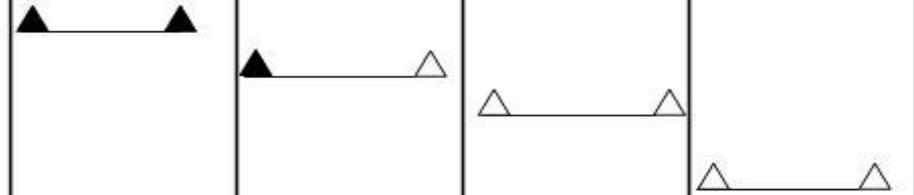
0604617F Agile Combat Support

FY06	FY07	FY08	FY09
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(U) Schedule Profile

CIVIL ENGINEER SYSTEMS AND EQUIPMENT ANALYSIS (CESEA)

- Conduct FY06 CESEA Product Evaluations
- Conduct FY07 CESEA Product Evaluations
- Conduct FY08 CESEA Product Evaluations
- Conduct FY09 CESEA Product Evaluations



MAN TRANSPORTABLE ROBOTICS SYSTEM (MTRS)

- Conduct MTRS Pre-Production Activities



NEXT-GENERATION EMERGENCY AIRFIELD LIGHTING SYSTEM (NEALS)

- Conduct NEALS SDD



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)	0604617F Agile Combat Support	2895 CE Readiness		
(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)				
(U) Complete ARTS Box Rake SDD	2Q			
(U) Award ARTS Box Rake Procurement Contract		2Q		
(U) Complete SDD Submunitions Clearance Sys (SCS) Phase I	3Q			
(U) Begin SDD Submunitions Clearance Sys (SCS) Phase II			1Q	
(U) Complete Data Feedback System (DFS) Test & Evaluation	3Q			
(U) Award DFS Procurement Contract	4Q			
(U) RAPID PARKING RAMP EXPANSION (RPRE)				
(U) Conduct FY05 RPRE Pre-SDD activities	1Q			
(U) Complete FY05 RPRE Pre-SDD activities	3Q			
(U) Support activities to define new technologies to meet ORD requirements		1Q		
(U) NEXT GENERATION ROBOTICS SYSTEM				
(U) Initiate SDD activities		2Q		
(U) MULTIMEDIA TRAINING SYSTEMS (MMTS)				
(U) Begin FY06 MTS Projects	1Q			
(U) Complete FY06 MTS Projects	3Q			
(U) Begin FY07 MTS Projects		1Q		
(U) Complete FY07 MTS Projects		3Q		
(U) Begin FY08 MTS Projects			1Q	
(U) Complete FY08 MTS Projects			3Q	
(U) Begin FY09 MTS Projects				1Q
(U) Complete FY09 MTS Projects				3Q
(U) CIVIL ENGINEERING SYSTEMS & EQUIPMENT ANALYSIS (CESEA)				
(U) Begin FY06 CESEA Product Evaluations	1Q			
(U) Complete FY06 CESEA Product Evaluations	3Q			
(U) Begin FY07 CESEA Product Evaluations		1Q		
(U) Complete FY07 CESEA Product Evaluations		4Q		
(U) Begin FY08 CESEA Product Evaluations			1Q	
(U) Complete FY08 CESEA Product Evaluations			4Q	
(U) Begin FY09 CESEA Product Evaluations				1Q
(U) Complete FY09 CESEA Product Evaluations				4Q
(U) MAN-TRANSPORTABLE ROBOTICS SYS (MTRS)				

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support	PROJECT NUMBER AND TITLE 2895 CE Readiness
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(U) Support MTRS Pre-Production Activities	2Q	
(U) Complete MTRS Pre-Production Activities	3Q	
(U) NEXT GENERATION EMERGENCY AIRFIELD LIGHTING SYSTEM (NEALS)		
(U) Conduct NEALS SDD activities		2Q

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support			PROJECT NUMBER AND TITLE 4910 Aeromedical Readiness		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4910 Aeromedical Readiness	5.256	3.585	4.119	2.771	2.888	2.993	3.048	3.106	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY06, Project 4910 received one Congressional Add in the amount of \$1.2M for Biostatic Protective Clothing, a follow on from the FY05 add.

(U) A. Mission Description and Budget Item Justification

This program provides tactical and strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued operation support, market research, and acquisition strategy for deployable oxygen systems	0.200	0.000	0.000	0.000
(U) Continue development of oxygen systems to meet deployable oxygen requirements	2.955	2.035	2.213	2.089
(U) Conduct analysis and begin SDD activities for Expeditionary Trauma Resuscitation	0.651	1.279	1.757	0.533
(U) Congressional add for Biostatic Protective Clothing for AFSOC	1.183	0.000	0.000	0.000
(U) Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs	0.267	0.271	0.149	0.149
(U) Total Cost	5.256	3.585	4.119	2.771

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF, Other Base Maintenance and Support, Medical/Dental Equipment (WSC 845060)	18.685	18.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.359

Under the lean initiative, procurement of Deployable Oxygen System and Expeditionary Trauma Resuscitation assets will be accomplished using O&M funds.

(U) D. Acquisition Strategy

All major projects are awarded under best-value competitive solicitation.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604617F Agile Combat Support	4910 Aeromedical Readiness

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Deployable Oxygen Systems	CPFF	SpecPro, Huntsville, AL	4.732	0.242									4.974	4.932
Deployable Oxygen Generation System - Medium gas generators and storage units	CPFF	Pacific Consolidated Industries LLC, Riverside, CA & Carleton Life Support Systems INC, Davenport, IA	0.877	2.547	Oct-05	1.635	Feb-07					0.000	5.059	5.117
Deployable Oxygen Generation System - Small gas generators and storage units	CPFF	TBD	0.000					1.402	Jan-08			0.000	1.402	1.402
Deployable Oxygen Generation System - Large gas generators and storage units	TBD	TBD						0.451	Jan-08	1.719	Jan-09	0.000	2.170	2.170
Expeditionary Trauma Resuscitation	CPFF	TBD		0.310		1.279	May-07	1.757	Jan-08	0.533	Jan-09	0.000	3.879	3.879
Congressional add for Biostatic Protective Clothing	TBD	THY, Alexandria, AL		1.183		0.000						0.000	1.183	1.183
Aeromedical Systems Analysis to include Analysis of Solutions for planned aeromedical and Surgeon General initiatives	N/A	N/A	0.181	0.267		0.271		0.149		0.149		Continuing	TBD	TBD
Subtotal Product Development			5.790	4.549		3.185		3.759		2.401		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> Technical Engineering And Management Support (TEAMS)	Delivery Order		0.320	0.330		0.200		0.210		0.220		Continuing	TBD	TBD
Program Management Support & Operations	Various	77 AESG, Brooks City-Base, TX	0.236	0.327		0.150		0.150		0.150		Continuing	TBD	TBD
None.													0.000	
Subtotal Support			0.556	0.657		0.350		0.360		0.370		Continuing	TBD	TBD
Remarks:														

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)			0604617F Agile Combat Support			4910 Aeromedical Readiness		
DOS Test and Evaluation	0.050	0.050	0.050			0.000	0.150	0.000
None.							0.000	
Subtotal Test & Evaluation	0.050	0.050	0.050	0.000	0.000	0.000	0.150	0.000
Remarks:								
(U) <u>Management</u>							0.000	
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	6.396	5.256	3.585	4.119	2.771	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

Aeromedical Readiness Schedule

PE 0604617F Agile Combat Support BPAC 654910 Aeromedical Readiness	FY06	FY07	FY08	FY09
(U) Schedule Profile				
DEPLOYABLE OXYGEN SYSTEM (DOS)				
• Small oxygen generator and storage unit		MS B	△ SDD	MS C △ Procurement
• Medium oxygen generator and storage unit	SDD	MS C	△ Procurement	
• Large oxygen generator and storage unit			MS B △	SDD
EXPEDITIONARY TRAUMA RESUSCITATION				
• Field Intravenous Resuscitation II (FIVR II)		MS B △	SDD	MS C △

Exhibit R-4a, RDT&E Schedule Detail

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support	PROJECT NUMBER AND TITLE 4910 Aeromedical Readiness
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(U) Schedule Profile	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) DEPLOYABLE OXYGEN SYSTEMS				
(U) -Conduct Milestone B for small oxygen generator and storage unit			1Q	
(U) -Conduct Milestone C for small oxygen generator and storage unit				4Q
(U) -Conduct Milestone C for medium oxygen generator and storage unit			1Q	
(U) -Conduct Milestone B for large oxygen generator and storage unit			4Q	
(U) -Conduct Milestone C for large oxygen generator and storage unit				4Q
(U) EXPEDITIONARY TRAUMA RESUSCITATION				
(U) -Conduct Milestone B decision for Field Intravenous Resuscitation (FIVR II)		2Q		
(U) -Conduct Milestone C decision for FIVR II				4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	15.392	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864
3890 Joint Direct Attack Munitions	0.000	15.392	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864

(U) **A. Mission Description and Budget Item Justification**

The Joint Direct Attack Munition (JDAM) program is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109/B, MK-82 and MK-83) by integrating the bombs with a guidance kit consisting of a global positioning system aided inertial navigation system (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-16C/D, F-14B/D, F-117, F/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the A/OA-10, MQ-9 and F-35 are in progress.

JDAM follows an Evolutionary Acquisition/Spiral Development approach, implementing operational enhancements such as new warhead integrations and improved accuracy and/or targeting technologies to meet emerging warfighter requirements. The Affordable Moving Surface Target Engagement (AMSTE) adds a datalink capability to JDAM to place moving maritime interdiction targets at risk in adverse weather using Joint Surveillance Target Attack Radar System (Joint STARS) tracking information to provide in-flight target updates for the weapon. The AMSTE effort will begin in FY07.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	15.450		
(U) Current PBR/President's Budget	0.000	15.392		
(U) Total Adjustments	0.000			
(U) Congressional Program Reductions				
Congressional Rescissions			0.058	
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
N/A				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition		PROJECT NUMBER AND TITLE 3890 Joint Direct Attack Munitions	
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3890 Joint Direct Attack Munitions	0.000	15.392	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Direct Attack Munition (JDAM) program is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109/B, MK-82 and MK-83) by integrating the bombs with a guidance kit consisting of a global positioning system aided inertial navigation system (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-16C/D, F-14B/D, F-117, F/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the A/OA-10, MQ-9 and F-35 are in progress.

JDAM follows an Evolutionary Acquisition/Spiral Development approach, implementing operational enhancements such as new warhead integrations and improved accuracy and/or targeting technologies to meet emerging warfighter requirements. The Affordable Moving Surface Target Engagement (AMSTE) adds a datalink capability to JDAM to place moving maritime interdiction targets at risk in adverse weather using Joint Surveillance Target Attack Radar System (Joint STARS) tracking information to provide in-flight target updates for the weapon. The AMSTE effort will begin in FY07.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform development and testing of the JDAM Affordable Moving Surface Target Engagement (AMSTE) capability utilizing datalink infrastructure to meet emerging warfighter requirements.	0.000	15.242		
(U) Investigation to include, but not limited to, analysis and testing of future JDAM operational enhancements including those to enhance accuracy, increase flexibility and increase versatility.	0.000	0.150		
(U) Total Cost	0.000	15.392	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) (U) Procurement of Ammunition, Air Force, JDAM, Appn. 3011, PE 0207583F	224.550	174.310	112.783	106.587	107.024	110.240	107.806	109.661	0.000	3,303.835
(U) (U) Procurement of Ammunition, Air Force, Seek	0.000	0.107	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.975

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack
Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

(U) C. Other Program Funding Summary (\$ in Millions)Eagle, Appn. 3011, PE
0207590F(U) D. Acquisition Strategy

The contract for the AMSTE effort is planned as a Cost Plus Fixed Fee (CPFF) contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition	PROJECT NUMBER AND TITLE 3890 Joint Direct Attack Munitions
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Prime Contractors Boeing and Lockheed Martin FY94/95 Only (Baseline JDAM, Mk-82, SAASM/Anti-Jam, Alternate Fuze)	C/CPAF/C PFF	Boeing (St Louis MO) and Lockheed Martin FY94/95 Only	253.552									0.000	253.552	253.552
Prime Contractor (Boeing) -- AMSTE Development	CPFF	Boeing St Louis				10.889	Feb-07						10.889	11.100
Joint Programmable Fuze/Misc	FPIF	Dayron/Kaman (Orlando, FL)	8.229										8.229	8.229
Conceptual Studies	Various		22.428			0.150	Feb-07						22.578	22.578
Subtotal Product Development			284.209	0.000		11.039		0.000		0.000		0.000	295.248	295.459
Remarks:		FY07 Funding begins AMSTE Development												
<u>(U) Support</u>														
Engineering Support	CPAF	Eglin AFB, FL	15.938										15.938	15.938
TAMS Contractor	CPAF	Eglin AFB, FL	5.190										5.190	5.190
Program Office	Various	Eglin AFB, FL	19.345			0.095							19.440	19.345
Subtotal Support			40.473	0.000		0.095		0.000		0.000		0.000	40.568	40.473
Remarks:		TAMS contractor provides management and financial support to the System Program Office (SPO).												
<u>(U) Test & Evaluation</u>														
Aircraft SPO Support	Various	Eglin AFB, FL	13.905			0.274	Feb-07						14.179	15.905
Flight Testing	Various	Eglin AFB, FL/Edwards AFB and China Lake, CA/Hill AFB, UT	49.189			3.984	Feb-07						53.173	51.389
Ground Testing	Various	Eglin AFB, FL/China Lake, CA	14.983										14.983	14.983
JPF Wind Tunnel Testing	TBD	Arnold	3.320										3.320	3.320

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Project 3890

Exhibit R-3 (PE 0604618F)

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604618F Joint Direct Attack Muniton	PROJECT NUMBER AND TITLE 3890 Joint Direct Attack Munitions
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		Engineering Development Center, TN									
Government Furnished Equipment (GFE)	Various	N/A	4.335							4.335	4.335
Subtotal Test & Evaluation			85.732	0.000	4.258	0.000	0.000	0.000	0.000	89.990	89.932
Remarks:											
(U) Total Cost			410.414	0.000	15.392	0.000	0.000	0.000	0.000	425.806	425.864

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack Muniton

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions



JDAM AMSTE Schedule

	FY06												FY07												FY08												FY09										
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
CONOPS/Rqmts/Test Plan	◆																																														
Direction/Funding/Rqmts													◆ FY07 BA																																		
NRE Boeing Contract													◆																																		
Qual/DT/OT																									QT DT DT/OT OT																						
JDAM Production Contract																																					◆										
																																					50/150/150/150										

NOTE: CONOPS/Rqmts/Test Plan is being funded under another R&D Program

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack
Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Development Contract Award

2Q

(U) Qual/DT/OT

4Q

1-2Q

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PE NUMBER: 0604706F
 PE TITLE: Life Support Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.047	14.216	12.649	13.628	14.802	15.353	15.644	15.958	Continuing	TBD
412A Life Support Systems	12.047	14.216	12.649	13.628	14.802	15.353	15.644	15.958	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**
 This program element provides for the development of aircrew life support equipment and subsystems to satisfy operational command requirements for improved/enhanced aircrew performance capabilities; aircrew life support systems consist of human centered programs that enable weapons systems to operate within their mission envelopes, maximize combat capabilities, and protect aircrews. This program element also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: flight helmets, oxygen breathing equipment for aviators, survival radios and beacon radios support equipment, night vision devices, active/passive noise reduction devices, aircraft seating, and parachutes. Program management support includes task to assess deficiencies of currently fielded equipment, provide for the transition of new technology into development program/projects, and support all current aircrew life support programs.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	13.373	12.370	12.907	13.822
(U) Current PBR/President's Budget	12.047	14.216	12.649	13.628
(U) Total Adjustments	-1.326	1.846		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.001	-0.054		
Congressional Increases		1.900		
Reprogrammings	-1.024			
SBIR/STTR Transfer	-0.301			

(U) **Significant Program Changes:**
 FY 2006 Congressional Adds: \$1.7M ACES II Ejection Seat Improvements, \$3.5M Enhanced Quick Donning Mask, and \$1.050M Joint Service Advanced Anti-Gravity Suit (JSAAGS) Lower Anti-G Garment
 FY 2007 Congressional Adds: \$1.9M ACES II Ejection Seat Improvements
 FY 2009 New Starts: ACES II Modular Seat, Adjustable/Swivel Bayonet Receiver, Tester Radios/Beacons, and Walk Around Oxygen Bottle

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604706F Life Support Systems				412A Life Support Systems		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
412A Life Support Systems	12.047	14.216	12.649	13.628	14.802	15.353	15.644	15.958	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program element provides for the development of aircrew life support equipment and subsystems to satisfy operational command requirements for improved/enhanced aircrew performance capabilities; aircrew life support systems consist of human centered programs that enable weapons systems to operate within their mission envelopes, maximize combat capabilities, and protect aircrews. This program element also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: flight helmets, oxygen breathing equipment for aviators, survival radios and beacon radios support equipment, night vision devices, active/passive noise reduction devices, aircraft seating, and parachutes. Program management support includes task to assess deficiencies of currently fielded equipment, provide for the transition of new technology into development program/projects, and support all current aircrew life support programs.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ACES II Ejection Seat Improvements (Congressional Add)	1.700	1.846		
(U) Enhanced Quick-Donning Oxygen Mask (Congressional Add)	3.433			
(U) Joint Service Advanced Anti-Gravity Suit (JSAAGS) Lower Anti-G Garment (Congressional Add)	1.050			
(U) Aircrew Helmet Noise Reduction (AHNR) SDD	0.319	2.471		
(U) Aircrew Laser Eye Protection (ALEP) Block 2 SDD	3.335	3.955		
(U) Improved Rescue Beacon	0.976	1.398	1.064	0.626
(U) Helicopter Aircrew Restraint		1.408		0.045
(U) Integrated Aircrew Ensemble		0.608	6.337	7.555
(U) Modular Aircrew Common Helmet (MACH) (Formerly Integrated Mission Helmet)		0.409	3.324	1.921
(U) Quick-Don Oxygen Mask		0.588	0.600	0.057
(U) ACES II Modular Seat				0.872
(U) Adjustable/Swivel Bayonet Receiver				0.400
(U) Tester Radios/Beacons				0.573
(U) Walk Around Oxygen Bottle				0.154
(U) Program Management Support/Travel/Technical Engineering & Acquisition Support	1.234	1.533	1.324	1.425
(U) Total Cost	12.047	14.216	12.649	13.628

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Project 412A

Exhibit R-2a (PE 0604706F)

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Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT NUMBER AND TITLE 412A Life Support Systems
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other Procurement, AF Items Less Than \$5M (Safety Equipment) WSC 842140: Night Vision Goggles	13.815	19.209	21.251	23.299	23.867	24.252	24.729	25.219		175.641
(U) Other Procurement, AF Items Less than \$5M (Personal Safety and Rescue Equipment) WSC 842990: Aircrew Mission Extender Device (Congressional Add)	2.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000		2.072
(U) Other Procurement, AF Items Less than \$5M (Base Safety Equipment) WSC 845990: ACES II & ALEP. FY07 Congressional Adds: Aircrew Mission Extender Device (\$1.3M), Self-Deploying Infrared Streamer (\$4.0M), Radio Test Sets (\$4.0M), & Virtual Reality Parachute Simulator (\$1.0M)	0.326	11.215	10.915	7.704	0.621	0.670	0.683	0.697		32.831

(U) D. Acquisition Strategy

Acquisition strategy is carried out at the project level.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT NUMBER AND TITLE 412A Life Support Systems
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
ACES II Ejection Seat Improvements (Congressional Add)	TBD	TBD		1.700		1.846							3.546	3.730
Enhanced Quick-Donning Oxygen Mask (Congressional Add)	FFP	BE Aerospace, KS/GENTE X, CA		3.433	Dec-06								3.433	3.500
Joint Service Advanced Anti-Gravity Suit (JSAAGS) Lower Anti-G Garment (Congressional Add)	TBD	TBD		1.050									1.050	1.150
Aircrew Helmet Noise Reduction (AHNR) SDD	TBD	AFRL		0.319		2.471						0.070	2.860	3.200
Aircrew Laser Eye Protection (ALEP) Block 2 SDD	FFP	Teledyne Imaging, CA	2.476	3.335	Jun-06	3.955							9.766	9.850
Improved Rescue Beacon	FFP	Digital Angel, NY/Signal Engineering, CA		0.976	Aug-06	1.398		1.064		0.626		0.150	4.214	4.300
Helicopter Aircrew Restraint	TBD	TBD				1.408				0.045			1.453	1.750
Integrated Aircrew Ensemble	TBD	TBD				0.608		6.337		7.555		13.440	27.940	28.250
Modular Aircrew Common Helmet (MACH) (Formerly Integrated Mission Helmet)	TBD	TBD				0.409		3.324		1.921		1.650	7.304	7.500
Quick-Don Oxygen Mask	TBD	TBD				0.588		0.600		0.057			1.245	1.500
ACES II Modular Seat	TBD	TBD								0.872		1.742	2.614	2.800
Adjustable/Swivel Bayonet Receiver	TBD	TBD								0.400		0.100	0.500	0.600
Tester Radios/Beacons	TBD	TBD								0.573		2.569	3.142	3.300
Walk Around Oxygen Bottle	TBD	TBD								0.154		1.103	1.257	1.400
Subtotal Product Development			2.476	10.813		12.683		11.325		12.203		20.824	70.324	72.830
Remarks:														
<u>(U) Support</u>														
Program Management Support	77 AESG, Brooks City-Base, TX			0.245		0.300		0.247		0.265		Continuing	TBD	
Travel				0.065		0.175		0.075		0.075		Continuing	TBD	
Technical Engineering & Acquisition Support				0.924		1.058		1.002		1.085		Continuing	TBD	
Subtotal Support			0.000	1.234		1.533		1.324		1.425		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
AFRL														0.000

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)	0604706F Life Support Systems				412A Life Support Systems			
Subtotal Test & Evaluation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>							0.000	
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	2.476	12.047	14.216	12.649	13.628	Continuing	TBD	72.830

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Life Support Systems Schedule

0604706F Life Support Systems

412A Life Support Systems

(U) Schedule Profile

JSAAGS (Congressional Add)

- Business Case Analysis

HELICOPTER AIRCREW RESTRAINT

INTEGRATED AIRCREW ENSEMBLE

- Conduct Pre-SDD activities
- SDD

**ENHANCED QUICK DONNING OXYGEN MASK
(Congressional Add)**

- Market Research
- P-Spec Development
- RFP Release
- Contract Award

QUICK DON MASK

- SDD

ACES II MODULAR SEAT

ADJUSTABLE/SWIVEL BAYONET RECEIVER

TESTER RADIOS/BEACONS

WALK AROUND OXYGEN BOTTLE

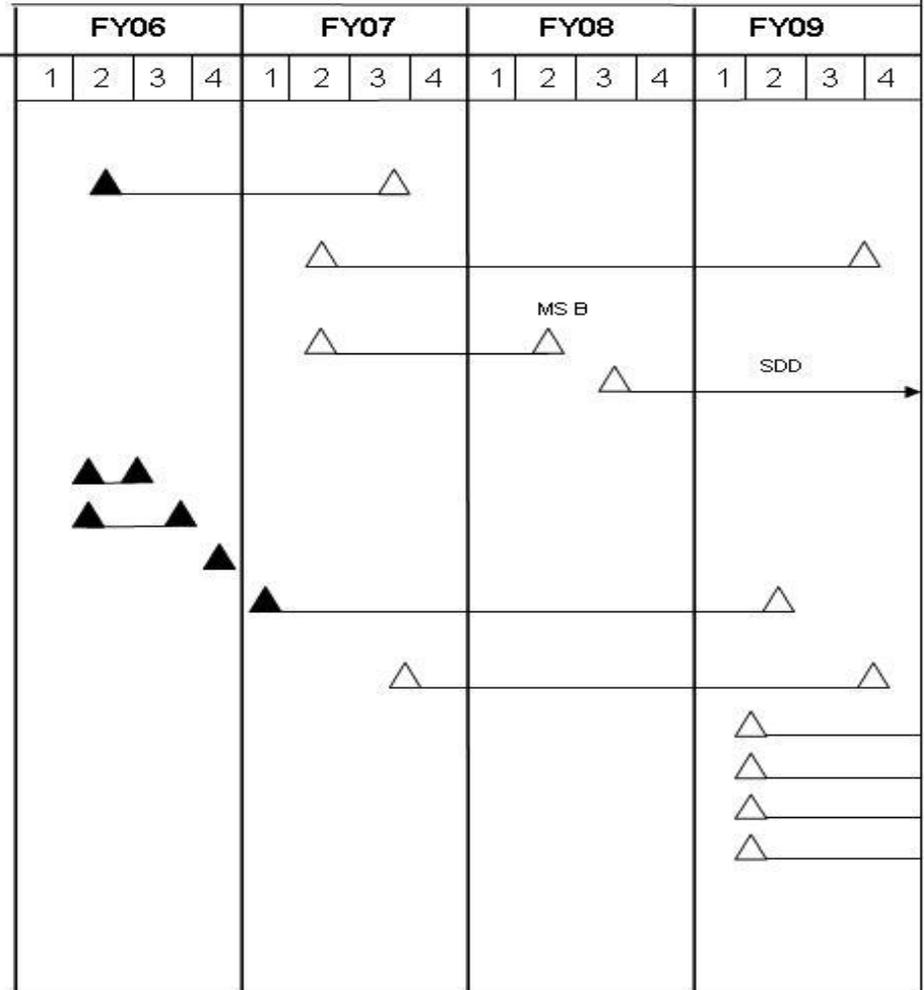


Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Life Support Systems Schedule

0604706F Life Support Systems

412A Life Support Systems

	FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Schedule Profile																
ACES II EJECTION SEAT IMPROVEMENTS (Congressional Add)																
• Phase I Modular Seat Development					▲	—	—	—	△							
• Phase I EMSTAPAC Development				▲	—	—	—	△								
AIRCREW HELMET NOISE REDUCTION (AHNR)																
• Aircraft Noise Profile Testing	▲	—	—	▲	▲	—	—	—								
• Market Research	▲	—	—	—	—	—	—	△								
• CDD Development								△								
• SDD Contract Award																
AIRCREW LASER EYE PROTECTION (ALEP)																
• Block I IOT&E	▲	▲										△				
• Block I FRP				▲												
• Block II SDD																
IMPROVED RESCUE BEACON																
• SDD Contract Award Phase I & II				▲				▲								△
MODULAR AIRCREW COMMON HELMET (MACH)																
• Testing				▲												
• Risk Management Plan				▲												
• Analysis of Alternatives								△								

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT NUMBER AND TITLE 412A Life Support Systems		
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) ACES II EMSTAPAC (Congressional Add)	1Q			
(U) ACES II Ejection Seat Improvement (Congressional Add)	4Q			
(U) ACES II PNVG Testing Complete (Congressional Add)	3Q			
(U) ACES II P3I Phase III (Congressional Add)	3Q			
(U) ACES II Modularity Phase II (Congressional Add)	4Q			
(U) Enhanced Quick-Donning Oxygen Mask (Congressional Add)		1Q		
(U) JSAAGS Lower Anti-G Garment Request for AFRL Support Issued (Congressional Add)	2Q			
(U) JSAAGS Lower Anti-G Garment Task Award/MIPR Funds (Congressional Add)	2Q			
(U) JSAAGS Lower Anti-G Garment Test Assets Received (Congressional Add)	3Q			
(U) JSAAGS Lower Anti-G Garment G-Protection Testing Protocol Approved (Congressional Add)	3Q			
(U) JSAAGS Lower Anti-G Garment G-Protection Testing Complete (Congressional Add)		3Q		
(U) JSAAGS Lower Anti-G Garment Performance Testing Protocol Approved (Congressional Add)	4Q			
(U) JSAAGS Lower Anti-G Garment Performance Testing Complete (Congressional Add)		3Q		
(U) AHNR Aircraft Noise Profile Testing Complete	4Q			
(U) AHNR Market Research Complete	3Q			
(U) AHNR CCD Development Complete	4Q			
(U) AHNR Milestone B Decision		1Q		
(U) AHNR SDD Contract Award		3Q		
(U) ALEP Block 1 IOT&E Completion	2Q			
(U) ALEP Block 1 FRP Decision Review	3Q			
(U) ALEP Block 1 FRP		1Q		
(U) ALEP Block 2 Milestone B Decision	3Q			
(U) ALEP Block 2 Award	3Q			
(U) Improved Rescue Beacon P-Spec Finalization	2Q			
(U) Improved Rescue Beacon CCB	2Q			
(U) Improved Rescue Beacon Release Draft RFP	2Q			
(U) Improved Rescue Beacon Release	2Q			

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604706F Life Support Systems	412A Life Support Systems
(U) Improved Rescue Beacon SDD Contract Award Phase I	3Q	
(U) Improved Rescue Beacon SDD Contract Award Phase II		2Q
(U) Helicopter Aircrew Restraint		1Q
(U) Integrated Aircrew Ensemble		4Q
(U) MACH Risk Management Plan Complete (Formerly Integrated Mission Helmet)	4Q	
(U) MACH User and Market Survey Complete (Formerly Integrated Mission Helmet)	1Q	
(U) MACH Final Test Plan Complete (Formerly Integrated Mission Helmet)	2Q	
(U) MACH Testing Complete (Formerly Integrated Mission Helmet)	3Q	
(U) MACH Analysis of Alternatives Complete (Formerly Integrated Mission Helmet)		1Q
(U) Quick-Don Oxygen Mask		2Q
(U) ACES II Modular Seat		2Q
(U) Adjustable/Swivel Bayonet Receiver		2Q
(U) Tester Radios/Beacons		2Q
(U) Walk Around Oxygen Bottle		2Q

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PE NUMBER: 0604735F

PE TITLE: Combat Training Ranges

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.336	16.700	17.657	17.583	17.816	17.794	18.093	18.440	Continuing	TBD
2286 Combat Training Range Equipment	8.336	16.700	17.657	17.583	17.816	17.794	18.093	18.440	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5CTS is a cooperative development between USAF and USN (Navy TCTS) to provide air combat training systems for both services. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards. GREEN FLAG provides close air combat support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises.

This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service's requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) and other Threat Emitter Systems to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604735F Combat Training Ranges

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	8.794	14.363	17.613	17.489
(U) Current PBR/President's Budget	8.336	16.700	17.657	17.583
(U) Total Adjustments	-0.458	2.337		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.063		
Congressional Increases		2.400		
Reprogrammings	-0.253			
SBIR/STTR Transfer	-0.205			
(U) <u>Significant Program Changes:</u>				
\$2.337M - Congressional add for Green Flag (formerly Air Warrior)				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604735F Combat Training Ranges				PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2286 Combat Training Range Equipment	8.336	16.700	17.657	17.583	17.816	17.794	18.093	18.440	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5CTS is a cooperative development between USAF and USN (Navy TCTS) to provide air combat training systems for both services. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards. GREEN FLAG provides close air combat support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises.

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This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

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Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development and testing of: P5 Combat Training Systems (P5CTS) including software/hardware upgrades, and Joint Tactical Radio System (JTRS) compliant data link; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, weapons simulations, and security improvements; Combat Training Range (CTR) programs basic operating support, system acquisition and engineering support; integration of GREEN FLAG capabilities (previously known as Air Warrior); and advanced range instrumentation standards and capabilities.	7.263	13.888	12.196	12.177
(U) Continue ACTS funding support for Range Threat Systems which includes the development and testing of the Joint Threat Emitter (JTE) System, the Threat Reaction Analysis Indicator System (TRAINS), and program operating, acquisition, and engineering support.	1.073	2.812	5.461	5.406
(U) Total Cost	8.336	16.700	17.657	17.583

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) Other Procurement, AF, Combat Training Ranges, 3080 BP83	30.359	36.797	19.854	20.235	20.684	20.985	21.396	21.819	Continuing	TBD
(U) Initial Spares, 3080 BP86	0.832	0.828	0.873	0.896	0.918	0.933	0.951	0.970	Continuing	TBD
(U) Total OPAF, PEC 0207429F	31.191	37.625	20.727	21.131	21.602	21.918	22.347	22.789	Continuing	TBD
(U) Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19	26.918	7.634	15.529	15.780	16.048	16.152	16.495	16.824	Continuing	TBD
(U) Initial Spares, 3010 BP16	1.409	1.168	1.592	1.639	1.678	1.700	1.733	1.768	Continuing	TBD
(U) Total APAF, PEC 0207429F	28.327	8.802	17.121	17.419	17.726	17.852	18.228	18.592	Continuing	TBD

(U) **D. Acquisition Strategy**
The acquisition strategy is competitive, with cost plus and fixed price contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)										0604735F Combat Training Ranges		2286 Combat Training Range Equipment			
(U) Cost Categories	Contract	Performing	Total	FY 2006	FY 2006	FY 2007	FY 2007	FY 2008	FY 2008	FY 2009	FY 2009	Cost to	Total Cost	Target	
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Method & Type</u>	<u>Activity & Location</u>	<u>Prior to FY 2006 Cost</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Complete</u>		<u>Value of Contract</u>	
(U) <u>Product Development</u>															
Sverdrup (P5CTS)	CPAF			0.122	Mar-06	1.361	Nov-06	1.600	Nov-07	1.817	Nov-09	Continuing	TBD		
Colsa/BTAS Corp (P5CTS)	CPAF			0.329	Oct-05	0.506	Oct-06	0.900	Nov-07	1.028	Nov-09	Continuing	TBD		
Cubic Defense Applications (P5CTS)	CPIF/FFP			1.604	Feb-06	3.838	Feb-07	3.878	Feb-08	2.032	Feb-09	Continuing	TBD		
Standard Research International (P5CTS)	FFP			0.257	Dec-05	0.100	Aug-07	0.160	Feb-08	0.170	Apr-09	Continuing	TBD		
Modern Technologies Corp (JTE)	CPAF			0.051	May-06	2.079	Apr-07	4.643	Mar-08	4.639	Mar-09	Continuing	TBD		
E W Systems (TRAINS)	FFP			0.617	Aug-06	0.352	Jun-07	0.360	Mar-08	0.362	Mar-09	Continuing	TBD		
Rockwell-Collins (P5CTS)	FFP			0.200	Feb-06	2.000	Feb-07	1.300	Feb-08	1.500	Feb-09	Continuing	TBD		
Army JTRS-Cluster 5 (P5CTS)	FFP			0.725	Jan-06	0.700	Feb-07	1.500	Feb-08	1.500	Feb-09	Continuing	TBD		
Navy (P5CTS)	FFP			0.000		0.000						Continuing	TBD		
National Security Agency (NSA)	FFP			0.000		0.245	Feb-07	0.250	Feb-08	0.250	Feb-09	Continuing	TBD		
Quint Networking Tech	FFP					0.100	Mar-07						0.100		
GREEN FLAG (Formerly Air Warrior)	T&M			2.696	Apr-06	2.337	Apr-07						5.033		
Boeing - F15 SPO OFP (P5CTS)	FFP			0.200	Apr-06	0.407	Apr-07	0.450	Apr-08	0.270	Apr-09	Continuing	TBD		
Lockheed - F16 SPO OFP (P5CTS)	FFP			0.000		0.100	Apr-07	0.120	Apr-08	0.360	Apr-09	Continuing	TBD		
Subtotal Product Development			0.000	6.801		14.125		15.161		13.928		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
SAF/AQX	Various			0.052		0.800		0.800		0.800		Continuing	TBD		
OO/ALC/LH, Hill AFB, UT	Various			0.353		0.381		0.458		0.405		Continuing	TBD		
AAC/689 ARSS, Eglin AFB, FL	Various			0.881		1.294		1.138		1.450		Continuing	TBD		
Subtotal Support			0.000	1.286		2.475		2.396		2.655		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
46 Test Wing, Eglin AFB FL	Various			0.249		0.100		0.100		1.000		Continuing	TBD		
Subtotal Test & Evaluation			0.000	0.249		0.100		0.100		1.000		Continuing	TBD	0.000	
Remarks:															
(U)															
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	8.336		16.700		17.657		17.583		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE
2286 Combat Training Range Equipment

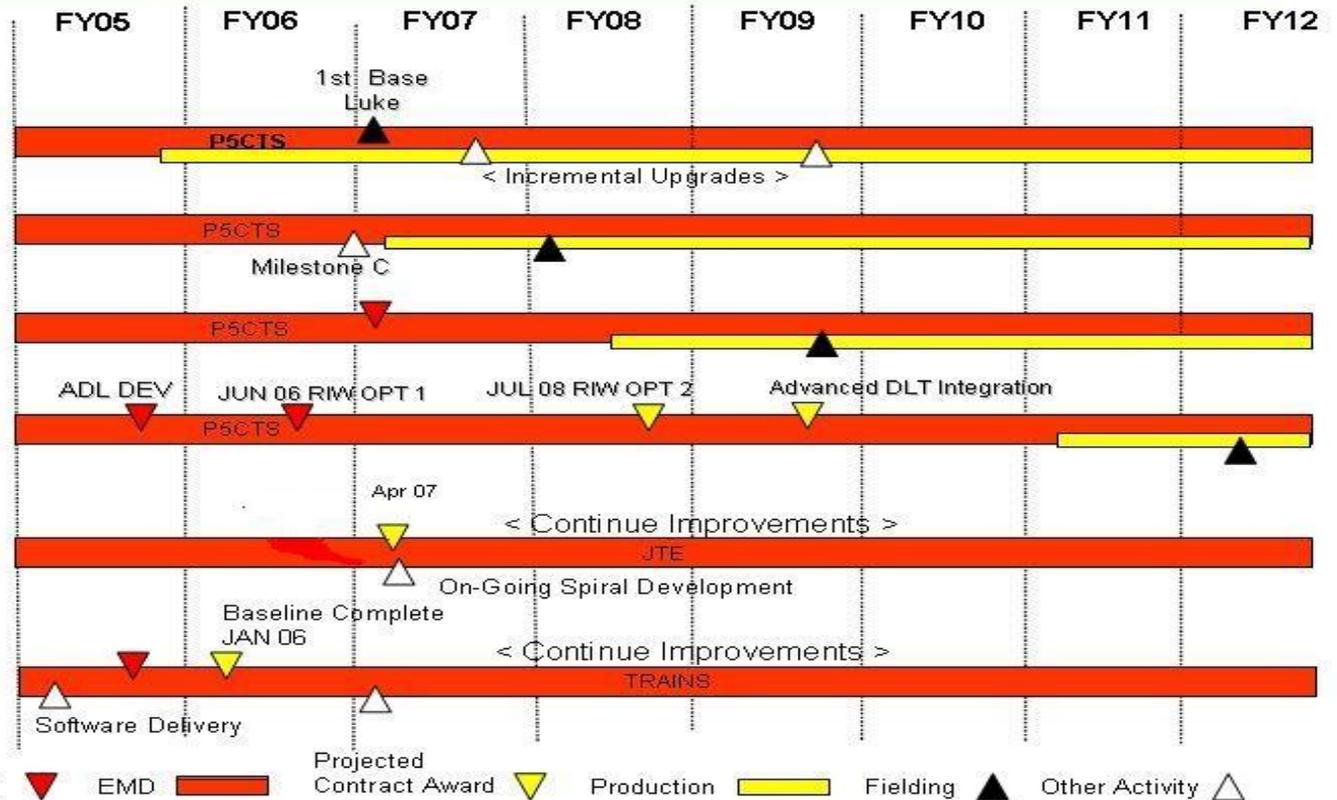


U.S. AIR FORCE

CTR Schedule

P5CTS

P5 Combat Training System
Spiral 1 – NDI System with Incremental Software Updates
Spiral 2 – Internal Subsystem Development
Spiral 3 – Rack Mounted Subsystem
Spiral 4 – Advanced Data Link



JTE

Joint Threat Emitter Program

TRAINS

Threat Reaction Analysis Indicator System

Requirements Definition █ Actual Contract Award ▲ EMD █ Projected Contract Award ▼ Production █ Fielding ▲ Other Activity △

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) P5CTS Development				
(U) - Spiral I (Non-Developmental Item System w/Software Incremental Updates)	1-4Q	1-4Q	1-4Q	1-4Q
(U) - Spiral II (Internal Subsystem Development)	1-4Q	1-4Q	1-4Q	1-4Q
(U) - Spiral III (Rack Mounted Subsystem)		1-4Q	1-4Q	1-4Q
(U) - Spiral IV (Advanced Data Link)	1-4Q	1-4Q	1-4Q	1-4Q
(U) JTE Development				
(U) -- Initial Developmental Contract Award	3Q			
(U) -- Spiral Development and Continue Improvements		3Q	1-4Q	1-4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)				
(U) -- Contract Award	4Q	3Q		
(U) Software Delivery				
(U) -- Continue Improvements	1-4Q	1-4Q		

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PE NUMBER: 0604740F

PE TITLE: Integrated Command & Control Applications

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	27.976	23.664	0.189	0.179	0.184	0.207	0.211	0.215	Continuing	TBD
2523 Product Lines	0.161	0.166	0.189	0.179	0.184	0.207	0.211	0.215	Continuing	TBD
2524 Reuse and Component Support	27.815	23.498	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The goal of the Integrated Command & Control Applications (IC2A) program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented Command & Control (C2) capability by defining a reference architecture to enhance a common application use and reuse.

Project 2523, Product Lines, minimizes development cost and time by defining a C2 architecture approach consistent with net-centric principles and guidance to ensure compliance and interoperability using standards based service oriented architecture components. The use of web services as a common product line on a C2 reference architecture improves software quality, interoperability and reliability while reducing fielding times and overall life cycle costs.

Project 2524, Reuse and Component Support (RCS), identifies, develops, tests and provides re-useable software components and products to the IC2A program and to other programmed Systems of Record. The RCS project is developing re-useable software components based current on Service Oriented Architectures and Web Services that will allow the AF to achieve a net-centric operations and warfare capability.

The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers for programs using product line concepts based on a C2 reference architecture.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	18.872	0.167	0.188	0.178
(U) Current PBR/President's Budget	27.976	23.664	0.189	0.179
(U) Total Adjustments	9.104	23.497		
(U) Congressional Program Reductions		-0.013		
Congressional Rescissions		-0.090		
Congressional Increases	9.855	23.600		
Reprogrammings				
SBIR/STTR Transfer	-0.751			

(U) Significant Program Changes:

In FY06 and FY07, the increases between the previous and current President's budgets for project 2524 were due to Congressional adds.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT NUMBER AND TITLE 2523 Product Lines		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2523 Product Lines	0.161	0.166	0.189	0.179	0.184	0.207	0.211	0.215	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability. Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on net-centric principles, service oriented architecture and Core Enterprise Services to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Qualify components for product lines/program management support	0.161	0.166	0.189	0.179
(U) Total Cost	0.161	0.166	0.189	0.179

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not applicable										

(U) D. Acquisition Strategy

All major contracts within PE 0604740F were awarded after full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)			0604740F Integrated Command & Control Applications								2523 Product Lines			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Program Office Support	ITSP	ESC Hanscom AFB, MA		0.161	Oct-05	0.166	Oct-06	0.189	Oct-07	0.179	Oct-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.161		0.166		0.189		0.179		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	0.161		0.166		0.189		0.179		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

IC2A Schedule – Product Lines

As of: 2 JAN 07

	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
PROGRAM MANAGEMENT SUPPORT								
	➔							

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Qualify components for product lines/program management support

1-4Q

1-4Q

1-4Q

1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT NUMBER AND TITLE 2524 Reuse and Component Support		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2524 Reuse and Component Support	27.815	23.498	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Reuse and Component Support (RCS) identifies, develops, tests and provides reuseable software components and products to the IC2A program and to other programmed Systems of Record. The RCS project is developing reuseable software components based on Service Oriented Architectures and Web Services that will allow the AF to achieve a netcentric operations and warfare capability.

The President's budget for FY08 has no requirements for this project.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D)

(U) B. Accomplishments/Planned Program (\$ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009
(U) NPLACE	2.395	0.000	0.000	0.000
(U) Distributed Mission Interoperability Toolkit (DMIT)	4.796	2.292	0.000	0.000
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	1.727	1.517	0.000	0.000
(U) Data Fusion and Integration of the Net-centric Force Protection Enterprise Services (DFFP)	1.631	1.420	0.000	0.000
(U) Airborne Web Services (AWS) Spiral 3	1.631	1.421	0.000	0.000
(U) Net-Centric Information Visualization Services (NVIS) aka SALVO	0.959	0.000	0.000	0.000
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	0.959	1.033	0.000	0.000
(U) Asset/eWing	4.125	3.937	0.000	0.000
(U) Applied Research in Computing Enterprise Services (ARCES)	2.877	0.000	0.000	0.000
(U) Command and Control Service Level Management (C2SLM)	6.715	6.357	0.000	0.000
(U) Defense Energy Awareness and Management Center (DEAMC)	0.000	1.614	0.000	0.000
(U) Program Engineering Interoperability Framework (PEIF)	0.000	1.614	0.000	0.000
(U) Medical Data Storage and Retrieval System (MEDSTARS)	0.000	2.293	0.000	0.000
(U) Total Cost	27.815	23.498	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not applicable										

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

(U) D. Acquisition Strategy

All major contracts for Reuse and Component Support development will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications	PROJECT NUMBER AND TITLE 2524 Reuse and Component Support
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> NPLACE	C/FFP	West Virginia High Technology Center, West Virginia		2.106	Feb-06							0.000	2.106	TBD
DMIT	C/FFP	Gestalt, Pennsylvania		4.509	Mar-06	2.228	Mar-07					0.000	6.737	TBD
Enterprise Services for Reach Back Capabilities	C/FFP	Gestalt, Pennsylvania		1.624	Mar-06	1.453	Mar-07					0.000	3.077	TBD
Integration of Force Protection Enterprise Services (DFFP)	C/FFP	Fenwick Tech Inc. West Virginia		4.102	Apr-06	1.356	Apr-07					0.000	5.458	TBD
JSTARS/Airborne Web Services (AWS) Spiral 3	C/FFP	SAIC West Virginia		2.844	Mar-06	1.357	Mar-07					0.000	4.201	TBD
Net-Centric Info Visualization Services (NVIS) aka SALVO	C/FFP	ProLogic, West Virginia		0.912	Mar-06							0.000	0.912	TBD
Global Awareness Presentation System for USSTRATCOM	C/FFP	ProLogic, West Virginia		0.912	Mar-06	0.969	Mar-07					0.000	1.881	TBD
Asset/eWing	C/FFP	SAIC West Virginia				3.873	Mar-07					0.000	3.873	TBD
ARCES	C/FFP	Gestalt, Pennsylvania		2.734	Apr-06							0.000	2.734	TBD
C2SLM	C/FFP	Villanova Univ, Pennsylvania		6.313	May-06	6.293	May-07					0.000	12.606	TBD
Defense Energy Awareness and Management Center (DEAMC)	C/FFP	Gestalt, Pennsylvania				1.550	Mar-07					0.000	1.550	TBD
Program Engineering Interoperability Framework (PEIF)	TBD	TBD				1.550	Feb-07					0.000	1.550	TBD
MEDSTARS	C/FFP	ProLogic, West Virginia				2.228	Mar-07					0.000	2.228	TBD

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Project 2524

Exhibit R-3 (PE 0604740F)

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2007						
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE					
05 System Development and Demonstration (SDD)				0604740F Integrated Command & Control Applications				2524 Reuse and Component Support					
Subtotal Product Development			0.000	26.056		22.857		0.000	0.000	0.000	48.913	TBD	
Remarks:	Congressional budget line for ASSET/eWing was split between Airborne Web Services (AWS) and Integration of Force Protection Enterprise (Data Fusion and Net Centric Force Protection).												
(U) <u>Support</u>													
Contractor Support	T&M	ESC			1.759	May-06	0.641	Feb-07			0.000	2.400	TBD
		Hanscom											
		AFB, MA											
Subtotal Support			0.000	1.759		0.641		0.000	0.000		0.000	2.400	TBD
Remarks:													
(U) <u>Test & Evaluation</u>													
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000	0.000		0.000	0.000	0.000
Remarks:													
(U) <u>Management</u>													
Program Management Support											0.000	0.000	TBD
Subtotal Management			0.000	0.000		0.000		0.000	0.000		0.000	0.000	TBD
Remarks:													
(U) <u>Not applicable.</u>													
(U) Total Cost			0.000	27.815		23.498		0.000	0.000		0.000	51.313	TBD
Remarks:													

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

As of: 2 JAN 07

<i>IC2A Schedule</i>	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
AWS	▲ ▲	▲ ▲						
DMIT	▲ ▲	▲ ▲						
ESRBC	▲ ▲	▲ ▲						
NVIS/SALVO	▲							
GAPS	▲ ▲	▲ ▲						
NPLACE	→							
ARCES	▲ ▲							
DFFP	▲ ▲	▲ ▲						
ASSET/eWing	▲ ▲	▲ ▲						
C2SLM	▲	▲						
DEAMC		▲ ▲						
PEIF		TBD						
MEDSTARS		▲ ▲						

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

(U) **Schedule Profile**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JSTARS/AWS Spiral 3	2-4Q	2-4Q		
(U) DMIT	2-4Q	2-4Q		
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	2-4Q	2-4Q		
(U) Net Centric Info Visualization Services (NVIS)	2Q			
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	2-4Q	2-4Q		
(U) NPLACE	1Q			
(U) Integration of Force Protection Enterprise Services (DFFP)	2-4Q	2-4Q		
(U) ARCES	2-4Q			
(U) C2SLM	4Q	4Q		
(U) Defense Energy Awareness and Mgmt Center (DEAMC)		2-4Q		
(U) Program Engineering Interoperability Framework (PEIF)		2-4Q		
(U) MEDSTARS		2-4Q		

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.728	4.907	1.469	1.500	1.536	1.558	1.588	1.620	Continuing	TBD
2053 National Air Intel Center	2.728	4.907	1.469	1.500	1.536	1.558	1.588	1.620	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information analysis techniques (i.e., Information Superiority) to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical threat assessment intelligence information from the National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH and the Air Force Information Operations Center (AFIOC, formerly AF Information Warfare Center, AFIWC), Lackland AFB, San Antonio, TX.

IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policy making. IE both accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces via Reachback. IE also provides clients with accurate, predictive, relevant, timely, and actionable intelligence that will support client processes, operational planning, and mission execution. Both NASIC and AFIOC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIOC customers' requirements have become more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE develops and provides NASIC and AFIOC with the tools necessary to produce timely intelligence regarding performance and characteristics of foreign weapon systems and also develops the tools to model and assess foreign air and space systems operations.

This is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. IE directs the engineering and development of specialized software to conduct Information Operations with systems which process, integrate, display, and distribute intelligence data for the Air Intelligence Agency (AIA). In general, each of the development projects within the overall IE program portfolio transition technologies to the operational communities through the spin off of incremental upgrade versions to their end-users over a period of several years as the individual development projects progress towards their final complete full-up configuration. IE may reallocate existing resources to support out-of-cycle new/updated warfighter requirements for development of intelligence tools.

This effort is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technology into existing systems and models to keep existing systems current.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2.730	1.426	1.453	1.480
(U) Current PBR/President's Budget	2.728	4.907	1.469	1.500
(U) Total Adjustments	-0.002	3.500		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.019		
Congressional Increases	-0.002	3.500		
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY07 Congressional Adds for Electronic Warfare Modelling and Simulation (\$2.2M) and for Hard and Deeply Buried Targets (\$1.3M).

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604750F Intelligence Equipment				PROJECT NUMBER AND TITLE 2053 National Air Intel Center		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2053 National Air Intel Center	2.728	4.907	1.469	1.500	1.536	1.558	1.588	1.620	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information analysis techniques (i.e., Information Superiority) to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical threat assessment intelligence information from the National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH and the Air Force Information Operations Center (AFIOC, formerly AF Information Warfare Center, AFIWC), Lackland AFB, San Antonio, TX.

IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policy making. IE both accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces via Reachback. IE also provides clients with accurate, predictive, relevant, timely, and actionable intelligence that will support client processes, operational planning, and mission execution. Both NASIC and AFIOC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIOC customers' requirements have become more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE develops and provides NASIC and AFIOC with the tools necessary to produce timely intelligence regarding performance and characteristics of foreign weapon systems and also develops the tools to model and assess foreign air and space systems operations.

This is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. IE directs the engineering and development of specialized software to conduct Information Operations with systems which process, integrate, display, and distribute intelligence data for the Air Intelligence Agency (AIA). In general, each of the development projects within the overall IE program portfolio transition technologies to the operational communities through the spin off of incremental upgrade versions to their end-users over a period of several years as the individual development projects progress towards their final complete full-up configuration. IE may reallocate existing resources to support out-of-cycle new/updated warfighter requirements for development of intelligence tools.

This effort is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technology into existing systems and models to keep existing systems current.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue / Complete Terrain Map Comparison Tools for Hard and Deeply Buried Target-Detection (HDBT-D) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.481	0.430		
(U) Continued / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test	0.681	0.393		
(U) Continued / Complete Upgrade of TEL-SCOPE Tool with Expanded Operational Capability (EOC)	0.335	0.290	0.290	0.290

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT NUMBER AND TITLE 2053 National Air Intel Center
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.480	0.430		
(U) Continued / Complete Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.481	0.430		
(U) Initiate / Complete Electronic Warfare Modelling & Simulation (FY07 Congressional Add for Idaho National Laboratory)		2.192		
(U) Initiated / Continue / Complete Integrated Air Defense System (IADS) -- TEL-SCOPE / Air Defense Net (ADNet) Machine-to-Machine (M2M) Integration	0.270	0.290	0.256	
(U) Initiate / Continue Radio Frequency (RF) Detection & Analysis Capabilities		0.452	0.340	0.340
(U) Initiate / Continue Electronic Warfare (EW) Flagging			0.483	0.575
(U) Initiate / Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)			0.100	0.295
(U) Total Cost	2.728	4.907	1.469	1.500

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not Applicable										

(U) **D. Acquisition Strategy**
 Requirements for new / upgraded intelligence analysis tools for NASIC and AFIOC are gathered and prioritized by the Air Intelligence Agency (AIA). Development of capabilities to meet those requirements is managed by the AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT NUMBER AND TITLE 2053 National Air Intel Center
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
(U) <u>Product Development</u>														
Terrain Map Comparison Tools for HDBT / UGF) Detection (HDBT / UGF - D) (Including parts of FY06 / 07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.336	0.481	Mar-06	0.430	Mar-07	0.000		0.000		0.000	1.247	1.247
MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test	C/CPFF	Alion Science and Technology, Albuquerque, NM and Rome, NY	0.270	0.681	Mar-06	0.393	Nov-06	0.000		0.000		0.000	1.344	1.344
TEL-SCOPE Expanded Operational Capability (EOC)	C/CPFF & C/FFP	Prediction Systems, Inc., Spring Lake, NJ & Northrop Grumman Mission Systems, Fairborn, OH	0.100	0.335	Dec-05	0.290	Dec-06	0.290	Dec-07	0.290	Dec-08	0.000	1.305	1.305
Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Including parts of FY06 / 07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.450	0.480	Mar-06	0.430	Mar-07	0.000		0.000		0.000	1.360	1.360
Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Including parts of FY06 / FY07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.450	0.481	Mar-06	0.430	Mar-07	0.000		0.000		0.000	1.361	1.361
Electronic Warfare Modelling & Simulation (FY07 Congressional Add for Idaho National Laboratory)	MIPR	Idaho National Laboratory, Idaho Falls, ID	0.000	0.000		2.192	Feb-07	0.000		0.000		0.000	2.192	TBD
Integrated Air Defense System (IADS) Model / ADNet TEL-SCOPE M2M Integration	C/CPFF & C/FFP	Prediction Systems Inc, Spring Lake, NJ & BAE Systems, Burlington, MA &	0.000	0.270	Mar-06	0.290	Nov-06	0.256	Nov-07	0.000		0.000	0.816	0.816

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Project 2053

Exhibit R-3 (PE 0604750F)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604750F Intelligence Equipment	2053 National Air Intel Center

			Northrop Grumman Mission Systems, Fairborn, OH										
Radio Frequency Detection & Analysis Capabilities	C/TBD	TBD	0.000	0.000	0.452	Mar-07	0.340	Nov-07	0.340	Nov-08	0.182	1.314	TBD
Electronic Warfare Flagging	C/TBD	TBD	0.000	0.000	0.000		0.483	Jan-08	0.575	Nov-08	2.766	3.824	TBD
Project Theo (Automated Text Retrieval, Analysis & Exploitation Capability)	C/TBD	TBD	0.000	0.000			0.100	Jan-08	0.295	Nov-08	1.323	1.718	TBD
Subtotal Product Development			1.606	2.728	4.907		1.469		1.500		4.271	16.481	TBD
Remarks:													
(U) Total Cost			1.606	2.728	4.907		1.469		1.500		4.271	16.481	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

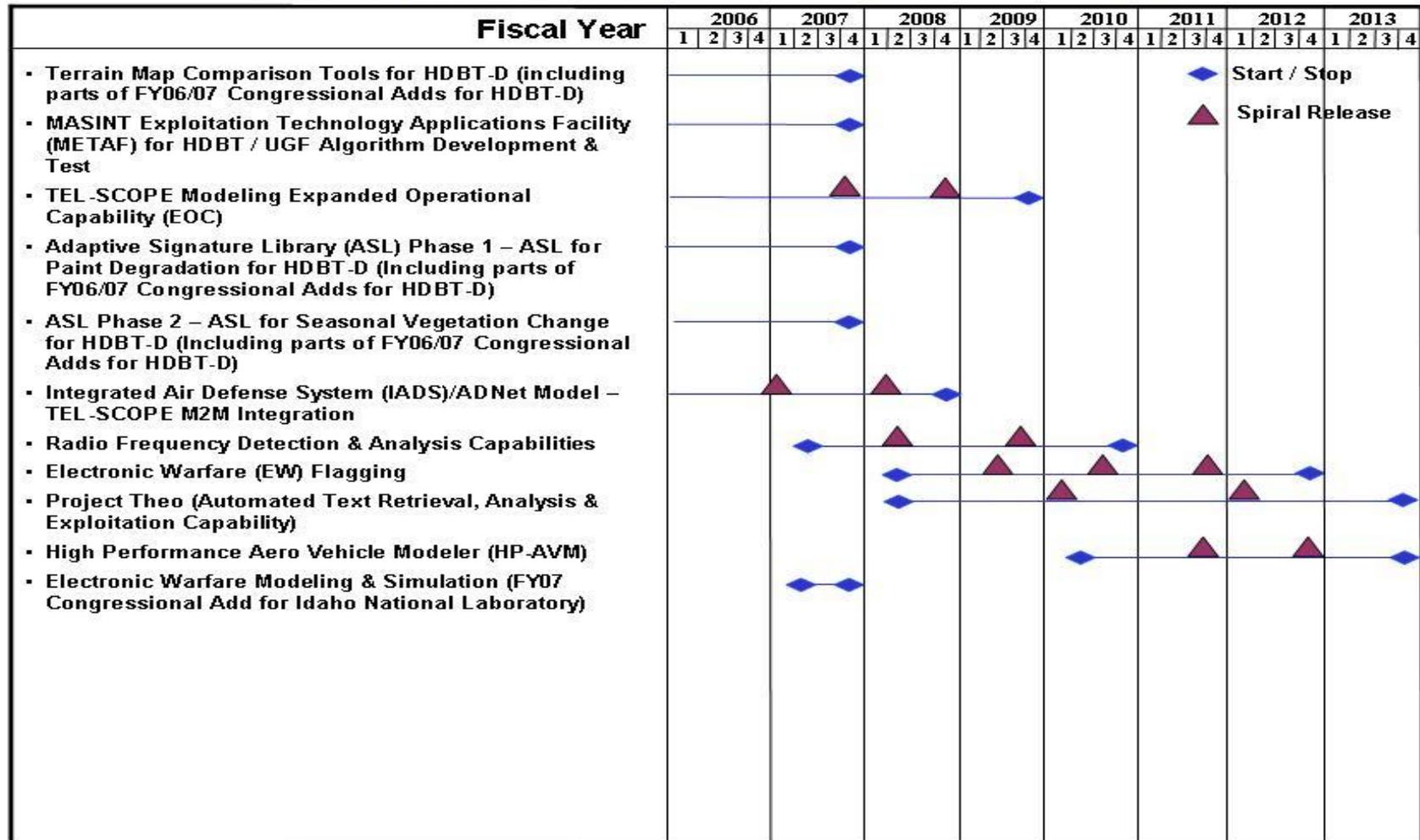
PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

Intelligence Equipment Program Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT NUMBER AND TITLE 2053 National Air Intel Center
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Continued / Complete Terrain Map Comparison Tools for HDBT-D (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)	1-4Q	1-4Q		
(U) Continued / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test	1-4Q	1-4Q		
(U) Continued / Complete TEL-SCOPE Expanded Operational Capability (EOC)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continued / Complete Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)	1-4Q	1-4Q		
(U) Continued / Complete Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)	1-4Q	1-4Q		
(U) Initiate / Complete Electronic Warfare Modelling & Simulation (FY07 Congressional Add for Idaho National Laboratory)		2-4Q		
(U) Initiated / Continue / Complete Integrated Air Defense System (IADS) Model--TEL-SCOPE / ADNET M2M Integration	2-4Q	1-4Q	1-4Q	
(U) Initiate / Continue Radio Frequency (RF) Detection & Analysis Capabilities		2-4Q	1-4Q	1-4Q
(U) Initiate / Continue Electronic Warfare (EW) Flagging			2-4Q	1-4Q
(U) Initiate / Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)			2-4Q	1-4Q

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PE NUMBER: 0604762F

PE TITLE: Common Low Observable Verification Sys

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.737	4.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641
4683 Common Low Observable Verification System	12.737	4.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641

(U) A. Mission Description and Budget Item Justification

The Common Low Observable Verification System (CLOVerS) is a deployable flight line maintenance inspection tool capable of evaluating radar cross-section (RCS) defects on low observable aircraft. The system performs zone and whole body aircraft measurements to detect, locate, and assess RCS defects and potential defects. Following repair of the defect, CLOVerS measures the area surrounding the defect to verify that the maintenance action corrected the defect. CLOVerS can provide a common RCS assessment system to support operations and maintenance of F-117, B-2 and F-22 aircraft. CLOVerS will provide RCS assessment support at both main operating base and forward operating locations. Key capabilities required include the ability to detect and locate RCS defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint.

The CLOVerS program began experiencing delays in system development during FY05 when contractor testing revealed issues in the design of the motion control software and the vertical/ horizontal mast structure. In FY06, the Air Force decided the increased costs to complete development and produce the required number of units were prohibitive. As a result, the program office re scoped the current RDT&E effort to capture the hardware and software developed under the CLOVerS program that are transferable to other LO diagnostic tools.

This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	8.568			
(U) Current PBR/President's Budget	12.737	4.483		
(U) Total Adjustments	4.169			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	4.400			
SBIR/STTR Transfer	-0.231			

(U) Significant Program Changes:

The Air Force has terminated production funding in the FY08 POM. The RDTE program will complete current development efforts and transfer technologies to other low

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604762F Common Low Observable Verification Sys

observable platforms.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys			PROJECT NUMBER AND TITLE 4683 Common Low Observable Verification System		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4683 Common Low Observable Verification System	12.737	4.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Common Low Observable Verification System (CLOVerS) is a deployable flight line maintenance inspection tool capable of evaluating radar cross-section (RCS) defects on low observable aircraft. The system performs zone and whole body aircraft measurements to detect, locate, and assess RCS defects and potential defects. Following repair of the defect, CLOVerS measures the area surrounding the defect to verify that the maintenance action corrected the defect. CLOVerS can provide a common RCS assessment system to support operations and maintenance of F-117, B-2 and F-22 aircraft. CLOVerS will provide RCS assessment support at both main operating base and forward operating locations. Key capabilities required include the ability to detect and locate RCS defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint.

The CLOVerS program began experiencing delays in system development during FY05 when contractor testing revealed issues in the design of the motion control software and the vertical/ horizontal mast structure. In FY06, the Air Force decided the increased costs to complete development and produce the required number of units were prohibitive. As a result, the program office re scoped the current RDT&E effort to capture the hardware and software developed under the CLOVerS program that are transferable to other LO diagnostic tools.

This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Complete Cart 4/5 development and continue ancillary equipment development.	8.698	4.383		
(U) Field Testing	3.415			
(U) Program Office Support	0.624	0.100		
(U) Total Cost	12.737	4.483	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) BP12 - PE207145F:Appn: Aircraft Procurement, AF (APAF) Budget Activity: Aircraft (A/C)	0.000	20.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.228

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys	PROJECT NUMBER AND TITLE 4683 Common Low Observable Verification System
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(U) C. Other Program Funding Summary (\$ in Millions)

Procurement/Common
Support Equipment, Program
Title: Common Low
Observable Verification
System (CLOVerS)

(U) BP16 - PE207145F: Appn:

Spares for Common Low Observable Verification System (CLOVerS)	0.000	0.978	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.978
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(U) Operational & Support

Funding (3400) for Common Low Observable Verification System (CLOVerS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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(U) D. Acquisition Strategy

The contract was awarded May 99 using full and open competition as a Cost Plus Award Fee. Contract was modified in Jul 02 to convert to Cost Plus Fixed Fee and to stretch the period of performance.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604762F Common Low Observable Verification Sys						4683 Common Low Observable Verification System				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Develop CLOVerS EMD Unit	CPFF	Boeing Co., St Louis		11.770	Oct-05	4.383						0.000	16.153	53.301
Subtotal Product Development			0.000	11.770		4.383		0.000		0.000		0.000	16.153	53.301
Remarks:														
(U) <u>Support</u>														
Electromagnetic Licensing and Misc Support	Various	Joint Spectrum Center, 88 CG, AFRL		0.147	Jan-06								0.147	3.636
Independant Logistics Assessment	Fixed	LOGTEC, Fairborn, OH		0.099	Nov-05								0.099	0.171
Subtotal Support			0.000	0.246		0.000		0.000		0.000		0.000	0.246	3.807
Remarks:														
(U) <u>Program Office Support</u>														
PMA	Various	Various		0.721	Oct-05	0.100							0.821	2.653
Subtotal Program Office Support			0.000	0.721		0.100		0.000		0.000		0.000	0.821	2.653
Remarks:														
(U) Total Cost			0.000	12.737		4.483		0.000		0.000		0.000	17.220	59.761

Exhibit R-4, RDT&E Schedule Profile

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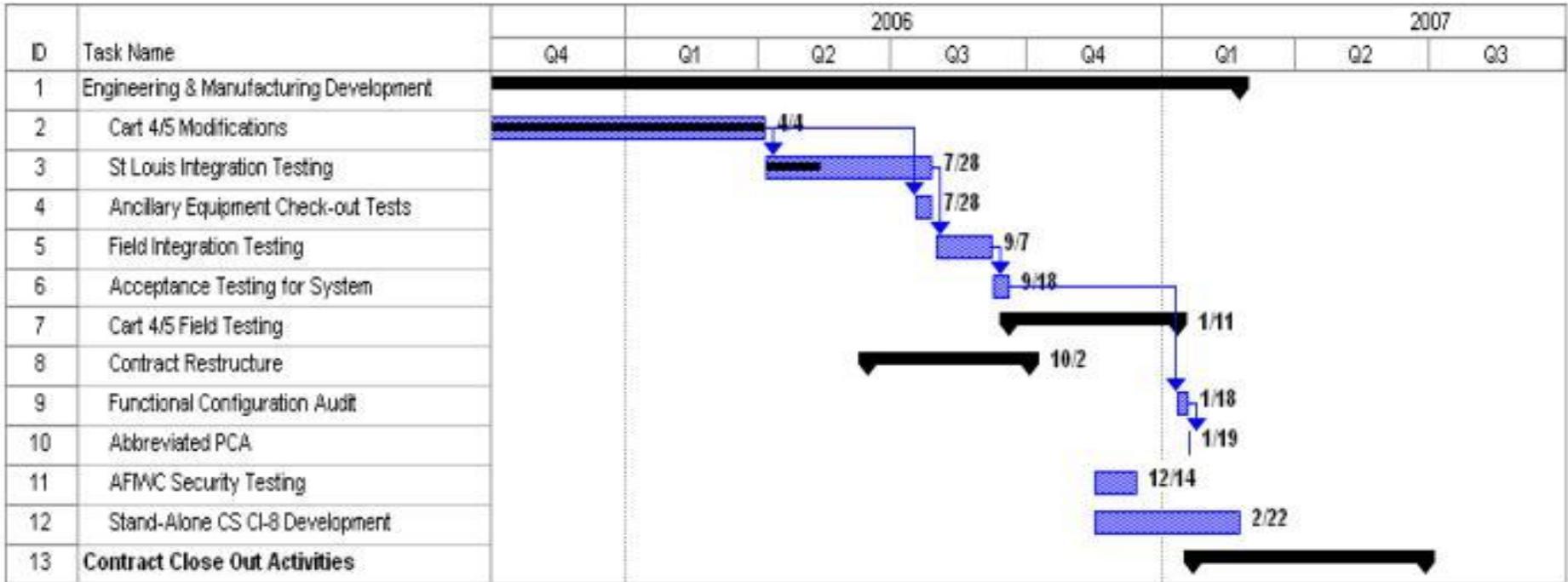
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604762F Common Low Observable
Verification Sys

PROJECT NUMBER AND TITLE
4683 Common Low Observable
Verification System



CLOVerS Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys	PROJECT NUMBER AND TITLE 4683 Common Low Observable Verification System
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Cart 4/5 Engineering & Manufacturing Development	1-4Q			
(U) Cart 4/5 Field Testing	4Q			
(U) Contract Close-out		3Q		

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PE NUMBER: 0604800F
 PE TITLE: Joint Strike Fighter EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2,264.836	2,132.924	1,780.874	1,541.202	1,145.968	789.053	975.178	734.894	Continuing	TBD
3831 Joint Strike Fighter	2,264.836	2,132.924	1,780.874	1,541.202	1,145.968	789.053	975.178	734.894	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common , affordable next generation, stealthy, multi-role strike fighter aircraft that meets the operational needs of the USAF, USN, USMC and Allies. 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. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other International countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 15 AF and DoN RDT&E articles (1 in FY 2007, 4 in FY 2008, 8 in FY 2009, and 2 in FY 2010) reflects flight test articles; 7 ground test articles are also budgeted in SDD.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2,333.009	1,999.068	1,708.903	1,393.280
(U) Current PBR/President's Budget	2,264.836	2,132.924	1,780.874	1,541.202
(U) Total Adjustments	-68.173	133.856		
(U) Congressional Program Reductions	-0.800	-31.706		
Congressional Rescissions	-0.068	-5.438		
Congressional Increases		171.000		
Reprogrammings	-5.681			
SBIR/STTR Transfer	-61.624			

(U) Significant Program Changes:

NOTE: PB07 eliminated funding for the F136 Alternate Engine Program. The program change summary reflects Congressional increases for F136 development and second source tire research in the FY07 National Defense Appropriations Act (NDAA). The program change summary also reflects JSF RDT&E increases in FY08 and FY09 to fund Small Diameter Bomb (SDB)-1 integration, Joint Reprogramming Center (JRC) development, and Net Ready Key Performance Parameter (KPP).

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD			PROJECT NUMBER AND TITLE 3831 Joint Strike Fighter		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	2,264.836	2,132.924	1,780.874	1,541.202	1,145.968	789.053	975.178	734.894	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common , affordable next generation, stealthy, multi-role strike fighter aircraft that meets the operational needs of the USAF, USN, USMC and Allies. 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. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other International countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 15 AF and DoN RDT&E articles (1 in FY 2007, 4 in FY 2008, 8 in FY 2009, and 2 in FY 2010) reflects flight test articles; 7 ground test articles are also budgeted in SDD.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) System Development and Demonstration (SDD) for Air System with Lockheed Martin including International Commonality Effort (ICE) commenced in FY02. Critical Design Reviews (CDR) were completed for both the Conventional Take Off and Landing (CTOL) and Short Take Off and Vertical Landing (STOVL) variants in 2Q FY06. CDR for the Carrier Variant (CV) is planned for 3Q FY07. CTOL first flight was successfully completed on 15 Dec 06 signifying the start of SDD Flight Test. FY08 and FY09 continue SDD execution of the Air System, including airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.	3,896.145	3,612.282	2,818.707	2,201.846
(U) SDD for the F135 Propulsion System with Pratt & Whitney including International Commonality Effort (ICE) commenced in FY02. The F135 engine has completed over 6900 test hours (13000 total hours planned in the SDD phase) with 9 ground test and 3 flight test engines. FY08 and FY09 continue SDD execution of the F135 Propulsion System, including engine testing, autonomic logistics, integration and performing technology maturation efforts.	741.955	718.995	623.395	386.545
(U) SDD for the F136 Propulsion System with the Fighter Engine Team (General Electric/Rolls Royce) commenced in 4Q FY05 for a second, interchangeable JSF engine to compete in production with F135 starting in FY12. Efforts include technology maturation, engine testing, autonomic logistics and integration. The F136 has completed over 240 test hours with 2 engines. PB08 does not fund the F136 Alternate Engine Program.	344.420	340.000	0.000	0.000
(U) SDD Systems Engineering (SE) and mission support activities, including Modeling, Simulation and	271.898	326.688	519.104	692.456

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD	PROJECT NUMBER AND TITLE 3831 Joint Strike Fighter
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Analysis (MS&A) efforts, risk reduction activities and program office functions commenced in FY02. FY08 and FY09 continue SE and Mission Support activities, including MS&A, risk reduction, Government verification and test, non-test systems engineering and technical support and program office functions.				
(U) Total Cost	5,254.418	4,997.965	3,961.206	3,280.847
Note: Total cost includes USN and International partner contributions in addition to USAF funding. Exhibit R-2 data reflects USAF funding only.				

(U) C. Other Program Funding Summary (\$ in Millions)										
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) USN RDT&E	2187.090	2163.931	1701.832	1518.670	1016.454	1030.304	724.859	650.701	Continuing	TBD
(U) USN RDT&E - JRC			5.540	30.233	28.830	35.645	20.696	13.033	Continuing	TBD
(U) Int'l Partner Funding	802.492	701.110	478.500	220.975	166.230	136.530	6.500		Continuing	TBD
(U) USN PROCUREMENT		124.498	1232.162	1768.529	3375.113	3237.579	5422.725	5288.927	Continuing	TBD
(U) USAF PROCUREMENT	117.447	648.491	1461.713	1906.291	2457.303	3544.111	4914.085	5222.638	Continuing	TBD
(U) USN Initial Spares and Repair Parts		0.000	84.981	40.499	232.852	185.114	252.942	358.306	Continuing	TBD
(U) USAF Initial Spares and Repair Parts		77.011	40.007	109.696	122.635	228.821	358.581	376.115	Continuing	TBD
(U) USN MILCON										
(U) USAF MILCON 0207142F	0.000	0.000	74.300	64.458	98.400	128.902	33.998	77.930	Continuing	TBD
(U) USAF MILCON 91211F										

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 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 PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

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. UK \$201,221; Multi-Lateral \$32,100; Canada \$10,600; and Italy \$10,000 for a total of \$4,229,896.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

(U) **D. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. A primary objective of the block approach is to demonstrate incremental Air System maturity to transition to Low Rate Initial Production (LRIP) and ultimately Full Rate Production (FRP). The JSF Acquisition Strategy and updated program schedule were approved following the May 05 DAB. The program entered SDD with the Fighter Engine Team (General Electric/Rolls-Royce) on 22 August 2005 for development, production qualification, delivery, and flight test support of the F136 Alternate Engine.

USAF procurement is planned to begin in FY 2007 with advance procurement in FY 2006. DoN procurement is planned to begin in FY 2008 with advance procurement in FY 2007.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD	PROJECT NUMBER AND TITLE 3831 Joint Strike Fighter
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Lockheed Martin	C/CPAF	Ft. Worth, TX	10,297.578	3,894.000	Oct-05	3,612.282	Oct-06	2,818.707	Oct-07	2,201.846	Oct-08	Continuing	TBD	25,704.015
Lockheed Martin	SS/BOA	Ft. Worth, TX	5.630	0.000		0.000							5.630	3.200
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	8.910	2.144	Dec-05	0.000							11.054	6.188
Pratt & Whitney	SS/CPAF	Hartford, CT	3,364.879	737.789	Oct-05	718.995	Oct-06	623.395	Oct-07	386.545	Oct-08	Continuing	TBD	5,878.004
Pratt & Whitney	SS/BOA/IDIQ	Hartford, CT	46.503	4.166	Feb-06								50.669	50.624
General Electric	SS/CPAF	Cincinnati, OH	486.026	2.314	Jun-06	0.000							488.340	546.624
General Electric	SS/BOA	Cincinnati, OH	5.239	0.309	Jun-06								5.548	7.219
General Electric	SS/IDIQ	Cincinnati, OH	4.262	0.000		0.000							4.262	4.884
General Electric	SS/CPAF	Cincinnati, OH	101.930	341.798	Oct-05	340.000							783.728	435.072
Systems Engineering		Various	98.094	56.329	Oct-05	64.522	Oct-06	47.417	Oct-07	36.685	Oct-08	Continuing	TBD	214.196
Subtotal Product Development			14,419.051	5,038.849		4,735.799		3,489.519		2,625.076		Continuing	TBD	32,850.026
Remarks:														
<u>(U) Support</u>														
NAWC Lakehurst	Various	NAWC Lakehurst	1.652	0.653	Oct-05	0.689	Oct-06	1.520	Oct-07	2.062	Oct-08	Continuing	TBD	TBD
NAWC Patuxent River	Various	Patuxent River, VA	108.704	31.490	Oct-05	33.506	Oct-06	60.055	Oct-07	100.245	Oct-08	Continuing	TBD	TBD
NAWC China Lake ASC/AFRL	Various	Various	30.325	10.330	Oct-05	9.546	Oct-06	21.054	Oct-07	28.560	Oct-08	Continuing	TBD	TBD
	Various	Wright Patterson AFB	19.089	3.170	Oct-05	4.996	Oct-06	2.980	Oct-07	14.948	Oct-08	Continuing	TBD	TBD
AFFTC	Various	Various	23.602	7.363	Oct-05	9.389	Oct-06	20.708	Oct-07	28.090	Oct-08	Continuing	TBD	
ESC	Various	Hanscom AFB	4.749	0.749	Oct-05	1.789	Oct-06	3.947	Oct-07	5.354	Oct-08	Continuing	TBD	
Fuel	Various	Various	4.595	6.249	Oct-05	0.000							10.844	
Miscellaneous	Various	Various	124.416	42.121	Oct-05	36.981	Dec-06	178.372	Oct-07	166.774	Oct-08	Continuing	TBD	
Anteon/Sverdrup	C/CPAF	Arlington, VA	13.104	6.447	Dec-05	3.306	Dec-06	1.129	Dec-07	9.892	Dec-08	Continuing	TBD	
Wyle/AI-ES, Arlington, VA	SS/CPFF	Arlington, VA	15.619	6.681	Dec-05	4.735	Dec-06	3.597	Dec-07	14.168	Dec-08	Continuing	TBD	
Subtotal Support			345.855	115.253		104.937		293.362		370.093		Continuing	TBD	TBD

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Project 3831

Exhibit R-3 (PE 0604800F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY						PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)						0604800F Joint Strike Fighter EMD				3831 Joint Strike Fighter			
Remarks:													
(U) <u>Test & Evaluation</u>													
NAWC Patuxent	Various	NAWC Patuxent	52.961	16.819	Oct-05	46.302	Oct-06	50.973	Oct-07	96.690	Oct-08	Continuing	TBD
Edwards AFB	Various	Edwards AFB	43.828	23.654	Oct-05	38.317	Oct-06	35.751	Oct-07	48.620	Oct-08	Continuing	TBD
Other (including Classified PIDs)	Various	Various	22.101	4.317	Oct-05	19.322	Oct-06	6.409	Oct-07	30.470	Oct-08		82.619
NAWC China Lake	Various	NAWC China Lake	16.461	3.688	Oct-05	14.391	Oct-06	4.406	Oct-07	5.060	Oct-08	Continuing	TBD
WEPS	Various	Eglin AFB	2.336	27.522	Oct-05	2.043	Oct-06	43.261	Oct-07	66.550	Oct-08	Continuing	TBD
OT	Various	Various	0.000	4.400	Oct-05	8.300	Oct-06	8.400	Oct-07	8.580	Oct-08	Continuing	TBD
Subtotal Test & Evaluation			137.687	80.400		128.675		149.200		255.970		Continuing	TBD 0.000
Remarks:													
(U) <u>Management</u>													
Stanley	SS/CPFF	Arlington, VA	42.330	11.994	Oct-05	10.163	Oct-06	10.366	Oct-07	10.574	Oct-08	Continuing	TBD TBD
Mantech	SS/CPFF	Arlington, VA	9.881	3.982	Dec-05	6.429	Dec-06	6.558	Dec-07	6.689	Dec-08	Continuing	TBD TBD
Program Management Support			4.157	3.940	Oct-05	11.962	Oct-06	12.201	Oct-07	12.445	Oct-08	Continuing	TBD
Subtotal Management			56.368	19.916		28.554		29.125		29.708		Continuing	TBD TBD
Remarks:													
(U) Total Cost			14,958.961	5,254.418		4,997.965		3,961.206		3,280.847		Continuing	TBD TBD
Remarks: Prior Years reflect \$6,423,001 USAF/\$6,527,380 USN/2,008,579 International/Total \$14,958,960													
FY 2006 reflects \$2,264,836 USAF/\$2,187,090. USN/\$802,492 International/Total \$5,254,418													
FY 2007 reflects \$2,132,924 USAF/\$2,163,931 USN/\$701,110 International/Total \$4,997,965													
FY 2008 reflects \$1,780,874 USAF/\$1,701,832 USN/\$478,500 International/Total \$3,961,206													
FY 2009 reflects \$1,541,202 USAF/\$1,518,670 USN/\$220,975 International/Total \$3,280,847													

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

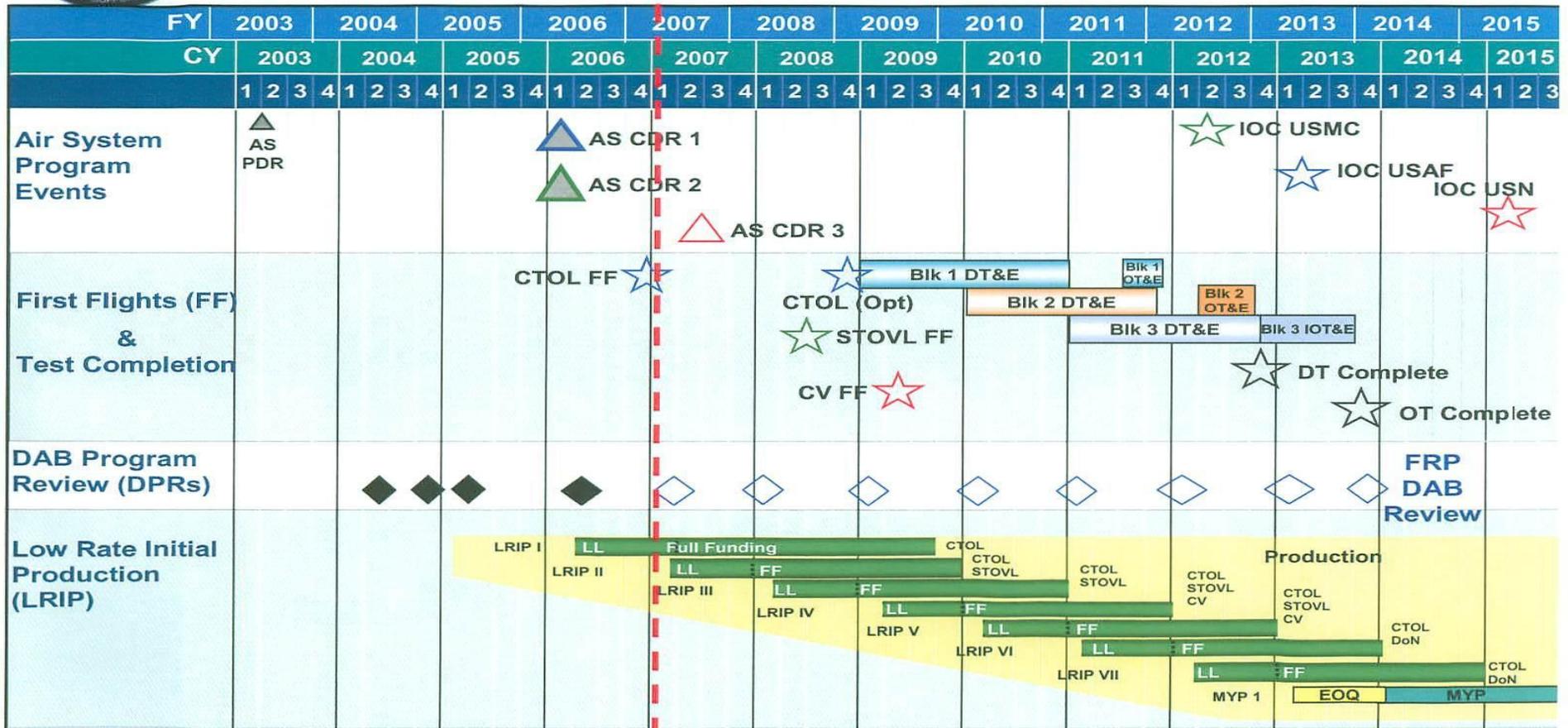
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE
3831 Joint Strike Fighter



JSF Top-Level SDD Program Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD	PROJECT NUMBER AND TITLE 3831 Joint Strike Fighter
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) DAB Program Review (DPR)	2Q	2Q	2Q	2Q
(U) Critical Design Reviews (CDR 1&2 FY06, CDR 3 FY07)	2Q	3Q		
(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight		1Q		
(U) F-35B Short Take Off and Vertical Landing (STOVL) First Flight			3Q	
(U) F-35A CTOL (Optimized Design) First Flight				1Q
(U) F-35C Carrier Variant (CV) First Flight				3Q

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PE NUMBER: 0604851F
 PE TITLE: ICBM - EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604851F ICBM - EMD
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	30.952	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	262.338
4371 Safety Enhanced Reentry Vehicle (SERV) Program	23.696	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	227.803
5080 ICBM Security	7.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.535

(U) A. Mission Description and Budget Item Justification

ICBM modernization efforts will ensure the extension of the operational life of the Minuteman III Intercontinental Ballistic Missile (ICBM) weapon system through 2020.

The Safety Enhanced Reentry Vehicle (SERV) Program designs, develops, and tests the modifications necessary to adapt the Minuteman III Reentry System to accommodate the Mk21 Reentry Vehicle.

The ICBM Security Program designs and develops the components necessary to counter emerging threats and vulnerabilities identified in the Security Review Document.

These modernization programs are designed to keep the Minuteman III weapon system at its required availability and reliability levels through 2020.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	31.948	0.000	0.000	0.000
(U) Current PBR/President's Budget	30.952	0.000	0.000	0.000
(U) Total Adjustments	-0.996			
(U) Congressional Program Reductions				
Congressional Rescissions	0.001			
Congressional Increases				
Reprogrammings	-0.143			
SBIR/STTR Transfer	-0.854			
(U) <u>Significant Program Changes:</u>				
None in FY06				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT NUMBER AND TITLE 4371 Safety Enhanced Reentry Vehicle (SERV) Program			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4371 Safety Enhanced Reentry Vehicle (SERV) Program	23.696	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	227.803
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The SERV program modifies the Minuteman III (MMIII) Reentry System (RS) to accept the Peacekeeper MK21 warhead, thus keeping the newest and safest warhead in the inventory. The MK21 will be deployed on MM III prior to the phase out of the MK12 warhead which is being driven by the pending decertification of this warhead by the Department of Energy (DOE). The SERV will modify the RS to accommodate differences in electrical and mechanical interfaces, system software, support equipment, and trainers along with nuclear surety and human intent certification. Test articles will be developed to support development and qualification testing, flight testing, systems integration, and weapon system-level testing. This document is for the RDT&E phase of SERV. The production phase is budgeted under Modification # 5911, PE 0101213F. The first SERV modification of an operational ICBM was accomplished in October 2006.

FY06 was the last year for development funding. Flight testing has been successfully completed.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Completed design of the MM III airborne vehicle equipment (AVE) hardware and software needed for the MK21 RV	5.926	0.000	0.000	0.000
(U) Completed development of the MM III command and launch equipment software needed for the MK21 RV	0.000	0.000	0.000	0.000
(U) Completed system test and evaluation for all newly designed/developed hardware/software	5.220	0.000	0.000	0.000
(U) Completed development of trainers/training needed for employing the MK21 RV on the MM III	1.451	0.000	0.000	0.000
(U) Completed flight testing	10.799	0.000	0.000	0.000
(U) Provided other government support	0.300	0.000	0.000	0.000
(U) Total Cost	23.696	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										
(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Safety	56.473	67.304	64.882	48.300	0.000	0.000	0.000	0.000	0.000	312.380

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4371 Safety Enhanced Reentry
Vehicle (SERV) Program(U) C. Other Program Funding Summary (\$ in Millions)

Enhanced Reentry Vehicle,
Mod #5911) (BA-03, P-012)

(U) D. Acquisition Strategy

A Cost Plus Incentive Fee with Award Fee (CPIF/AF) contract addendum was added to the ICBM Prime Integration Contractor (IPIC) for everything but the Nuclear Safety Cross Check Analysis (NSCCA) effort which was contracted for separately under a CPAF contract.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604851F ICBM - EMD	PROJECT NUMBER AND TITLE 4371 Safety Enhanced Reentry Vehicle (SERV) Program
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ICBM Prime Integration Contract	CPIF/AF	Northrop Grumman, Clearfield, UT	171.127	17.032	Jan-06	0.000	N/A	0.000	N/A	0.000	N/A	0.000	188.159	
Subtotal Product Development			171.127	17.032		0.000		0.000		0.000		0.000	188.159	0.000
Remarks:														
<u>(U) Support</u> NSCCA	CPAF	Logicon, San Pedro, CA	21.725	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	21.725	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	2.050	0.300	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.350	
Subtotal Support			23.775	0.300		0.000		0.000		0.000		0.000	24.075	0.000
Remarks:														
<u>(U) Test & Evaluation</u> Vandenberg AFB	Project Order	Air Force test team at Vandenberg AFB CA (AFOTEC, A FSPC, 576th Flight Test Sq, DOE)	9.205	6.364	N/A	0.000		0.000	N/A	0.000	N/A	0.000	15.569	
Subtotal Test & Evaluation			9.205	6.364		0.000		0.000		0.000		0.000	15.569	0.000
Remarks:														
<u>(U) Management</u>						0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			204.107	23.696		0.000		0.000		0.000		0.000	227.803	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4371 Safety Enhanced Reentry Vehicle (SERV) Program

Safety Enhanced Reentry Vehicle	FY 06				FY 07				FY 08				FY 09			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Development	██████████															
SERV Flight Test #3		◆														
Flight Hardware Physical Configuration Audit			◆													
Initial Operating Capability						▲										

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604851F ICBM - EMD	PROJECT NUMBER AND TITLE 4371 Safety Enhanced Reentry Vehicle (SERV) Program
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) SERV Flight Test #3	2Q			
(U) Flight Hardware Physical Configuration Audit	3Q			
(U) Initial Operating Capability		2Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604851F ICBM - EMD				PROJECT NUMBER AND TITLE 5080 ICBM Security			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
5080 ICBM Security	7.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.535	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The ICBM Security program will design and develop the features necessary to modernize launch facility (LF) security systems. Modernized ICBM security systems will mitigate emerging threat technologies and methods, and will address the potential vulnerabilities identified in Air Force security reviews.

This document is for the RDT&E phase of ICBM Security and is in Budget Activity 05. The Production portion of the program is under PE 0101213F.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Component design, development and evaluation	7.096	0.000	0.000	0.000
(U) Provide other government support	0.160	0.000	0.000	0.000
(U) Total Cost	7.256	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Missile Procurement AF, PE 0101213F, Minuteman Squadrons, MMIII Modifications, ICBM Security, Mod 5914 (BA-03)	36.128	76.078	88.408	93.685	81.790	27.997	24.460	19.175	Continuing	TBD

(U) D. Acquisition Strategy

The Security effort will be managed under a CPAF contract with the ICBM Prime Integration Contractor (IPIC).

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604851F ICBM - EMD						5080 ICBM Security				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	26.942	7.096	Jan-06	0.000	N/A	0.000	N/A		N/A	0.000	34.038	
Subtotal Product Development			26.942	7.096		0.000		0.000		0.000		0.000	34.038	0.000
Remarks:														
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.337	0.160	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.497	
Subtotal Support			0.337	0.160		0.000		0.000		0.000		0.000	0.497	0.000
Remarks:														
(U) <u>Test & Evaluation</u>			0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A		0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>			0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A		0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			27.279	7.256		0.000		0.000		0.000		0.000	34.535	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5080 ICBM Security

ICBM Security	FY06				FY07				FY08				FY09			
	Q1	Q2	Q3	Q4												
B Plug																
RVA Development																

Acronyms: FCA/PCA = Functional Configuration Audit/Physical Configuration Audit
 RVA = Remote Visual Assessment

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5080 ICBM Security

(U) **Schedule Profile**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Functional Configuration Audit B Plug

2-Q

(U) Remote Visual Assessment Development

1-4Q

1-3Q

UNCLASSIFIED

PE NUMBER: 0604853F

PE TITLE: Evolved Expendable Launch Vehicle - EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.050	19.738	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,411.269
0004 Evolved Expendable Launch Vehicle	19.050	19.738	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,411.269

(U) A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25%.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: assured access (RL-10 producibility, etc.); a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; special studies, and other related support activities.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	25.721	18.513		
(U) Current PBR/President's Budget	19.050	19.738	0.000	0.000
(U) Total Adjustments	-6.671	1.225		
(U) Congressional Program Reductions		-0.075		
Congressional Rescissions				
Congressional Increases		1.300		
Reprogrammings	-5.145			
SBIR/STTR Transfer	-1.526			

(U) Significant Program Changes:

FY06: Reprogrammed for higher AF priorities.

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Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD				PROJECT NUMBER AND TITLE 0004 Evolved Expendable Launch Vehicle		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
0004 Evolved Expendable Launch Vehicle	19.050	19.738	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,411.269
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25%.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: assured access (RL-10 producibility, etc.); a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; special studies, and other related support activities.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue GPS Metric Tracking Booster Capability Integration	3.142	8.458		
(U) SPO Support	1.908	1.280		
(U) Assured Access initiatives	14.000	10.000		
(U) Total Cost	19.050	19.738	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										
(U) MPAF (BA 05, PE 0305953F, P-28)*	613.173	852.055	1166.591	1066.874	1012.319	1029.275	1458.348	1286.336	14,175.686	24,222.226

* The Cost To Complete value is an estimate based on 95 AF launches in the current manifest, FY 2002-2020.

In June 2006, the Department of Justice (DOJ) reached a global settlement with Boeing for improprieties regarding NASA contracts for Delta II rockets, Procurement Integrity Act (PIA) violations in the Delta IV program, and hiring misconducts. A portion of the Settlement was credited against the EELV program, freeing up FY06

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

**0604853F Evolved Expendable
Launch Vehicle - EMD**

PROJECT NUMBER AND TITLE

**0004 Evolved Expendable Launch
Vehicle****(U) C. Other Program Funding Summary (\$ in Millions)**

appropriated dollars for other Air Force priorities. Although the budget documents now show a lesser amount due to the PIA adjustments, the EELV FY06 requirement remains at \$613M (post-FY07 rescissions and FY07 Omnibus sourcing).

(U) D. Acquisition Strategy

The EELV concept of families of launch vehicles emphasizes commonality of hardware and infrastructure to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - The Boeing Company (TBC) and Lockheed Martin (LM) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. On 16 Oct 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LM for the development effort. The contractors have contributed additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor has invested in excess of \$1.5B. At the same time as the award of the development effort, Initial Launch Services (ILS) contracts were awarded to Boeing for \$1.38B (19 missions) and to Lockheed Martin for \$649M (9 missions).

On 18 Sep 2000, a revised acquisition strategy was reviewed by the DEPSECDEF and signed by the Under Secretary of Defense (Acquisition, Technology & Logistics). Under the revised strategy, only TBC would develop a Vandenberg AFB launch facility. LM transferred two West Coast Defense Meteorological Satellite Program (DMSP) missions to TBC and provided the government additional consideration. Furthermore, the program restructure included the procurement of a SECAF-directed heavy lift demonstration launch to increase confidence in the Delta IV Heavy Lift Vehicle (HLV) prior to the first operational government HLV launch.

On 24 Jul 2003, the investigation into Procurement Integrity Act violations by TBC resulted in transferring seven ILS missions from TBC to LM. In addition, TBC's exclusive right to west coast missions was rescinded. LM has developed a Vandenberg AFB launch facility that was completed in CY05.

All of the ILS (Buy 1/awarded) launch services are firm-fixed price contracts. Due to the decrease in the commercial market, the projected costs of the unawarded EELV launches have increased. The new acquisition strategy, implemented in FY06, separates the launch service price from the infrastructure costs. Follow-on (Buy 3) Launch Service procurements will include launch service costs on a fixed-price contract. EELV Launch Capability infrastructure costs, includes launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc., are funded on an annual basis. The 2005 Space System Acquisition Strategy (SSAS) for EELV documents this modified approach to provide assured access to space with two viable launch vehicle families.

The acquisition approach supports the 2004 National Space Transportation Policy, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over legacy systems. The EELV system will launch the majority of the government portion of the NLF through 2020 and the government will continue to work to partner with industry to continuously improve products and processes to enhance reliability and reduce both the contractors' and government's total costs.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)			0604853F Evolved Expendable Launch Vehicle - EMD								0004 Evolved Expendable Launch Vehicle			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Prime Contractor Boeing	OTA/ILS		688.412	8.571	Nov-05	9.229	Nov-06						706.212	
Prime Contractor Lockheed Martin	OTA/ILS		561.282	8.571	Nov-05	9.229	Nov-06						579.082	
Subtotal Product Development			1,249.694	17.142		18.458		0.000		0.000		0.000	1,285.294	0.000
Remarks:														
(U) <u>Support</u>														
SPO/CTF Range Mission Spt	Various		40.429	1.908		1.280							43.617	
FFRDC	SS/CPAF		67.214										67.214	
Other Cntr Spt	Various		15.144										15.144	
Subtotal Support			122.787	1.908		1.280		0.000		0.000		0.000	125.975	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			1,372.481	19.050		19.738		0.000		0.000		0.000	1,411.269	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

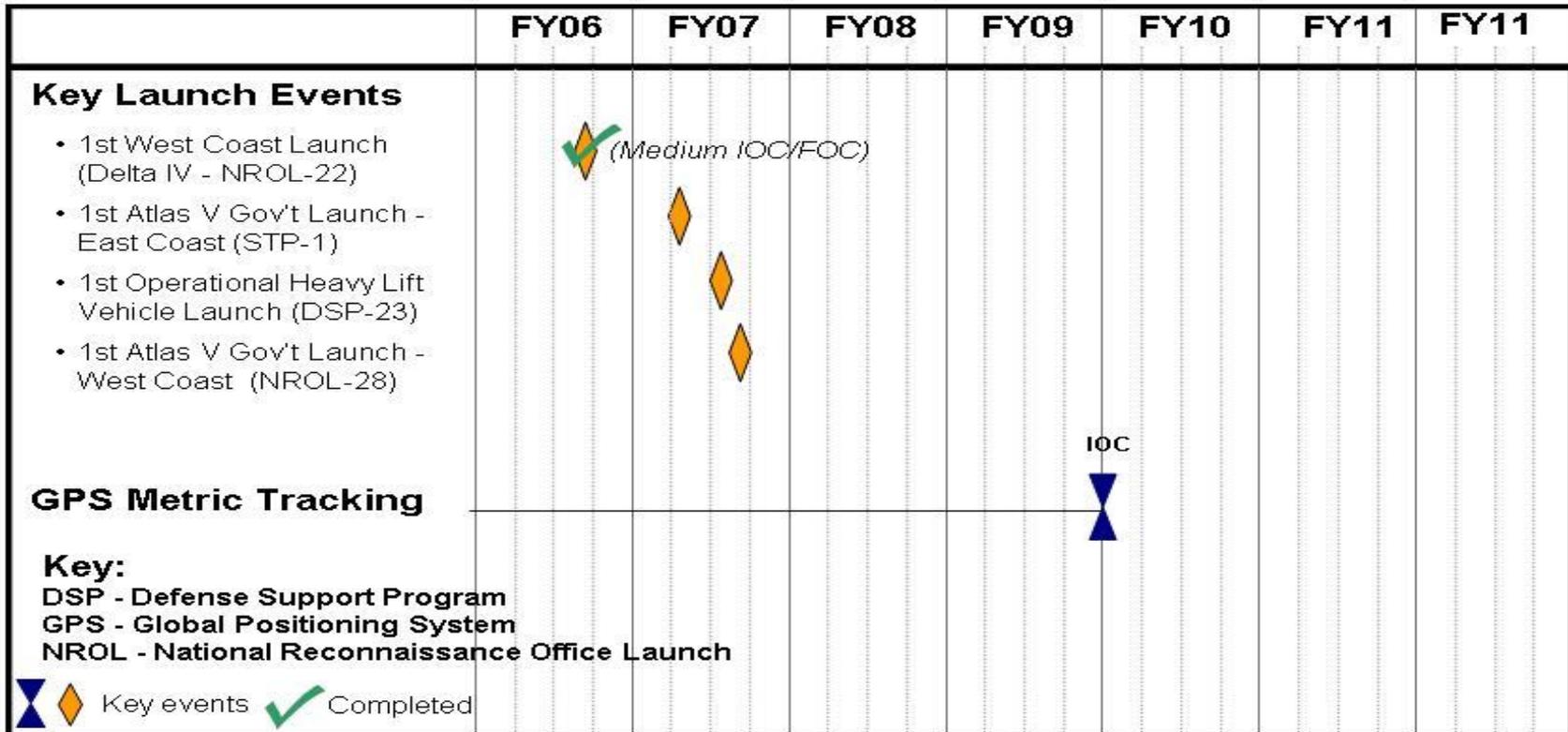
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE
0004 Evolved Expendable Launch
Vehicle

EELV Program - Key Events



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD	PROJECT NUMBER AND TITLE 0004 Evolved Expendable Launch Vehicle
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) GPS Metric Tracking Project Planning & Requirements Integration	1-4Q	1-4Q	1-4Q	1-3Q
(U) GPS Metric Tracking Initial Operational Capability				4Q
(U) 1st West Coast Launch of Delta IV (NROL-22)	3Q			
(U) 1st Government East Coast Launch of Atlas V (STP-1)		2Q		
(U) 1st Government Operational HLV Launch (DSP-23)		3Q		
(U) 1st West Coast Launch of Atlas V (NROL-28)		3Q		

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PE NUMBER: 0605011F
 PE TITLE: RDT&E For Aging Aircraft

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2007	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft					
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD
4685 Aging Aircraft	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses that demonstrate a reduction in total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, acquisition organizations, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2007, Congress added \$1.1 million for the Aging Landing Gear Life Extension (ALGLE) Program. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	41.090	25.490	26.039	26.335
(U) Current PBR/President's Budget	37.404	26.490	17.021	26.691
(U) Total Adjustments	-3.686			
(U) Congressional Program Reductions				
Congressional Rescissions	0.035	-0.100		
Congressional Increases		1.100		
Reprogrammings	-2.733			
SBIR/STTR Transfer	-0.988			

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft			PROJECT NUMBER AND TITLE 4685 Aging Aircraft		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4685 Aging Aircraft	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses that demonstrate a reduction in total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, acquisition organizations, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2007, Congress added \$1.1 million for the Aging Landing Gear Life Extension (ALGLE) Program. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Structures. Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and Air Logistics Center engineers and managers to ensure continued airworthiness, control sustainment cost growth, and improve aircraft availability.	5.490	2.451	1.000	1.000
(U) In FY 2006: Identified common requirements and developed implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focused on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Improved fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhanced structural analysis and developed advanced software code for structural assessments, damage rate calculations, and predictions. Continued to transition advanced non-destructive inspection capabilities and provide hidden corrosion and sub-layer crack detection, damage quantification, structural degradation monitoring, and data management for predictive analyses. Developed enhanced capability to inspect for delaminations in metal and composite structures. Developed additional technologies to upgrade repair and replacement methodologies. Continued to provide new or improved repair methodologies, material processes, and design and repair selection software. Enhanced fatigue and corrosion prevention and control techniques.				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft			
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
(U) In FY 2007: Identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focus on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Further improve fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhance structural analysis and develop advanced software code for structural assessments, damage rate calculations, and predictions. Develop non-destructive inspection capabilities, damage quantification, structural degradation, and data management for composites. Provide repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.					
(U) In FY 2008: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost.					
(U) In FY 2009: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost.					
(U) MAJOR THRUST: Avionics. Establishes enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Institutionalize Viable Combat Avionics (VCA), the use of affordable tools and techniques, including change management roadmaps, to manage avionics upgrades while keeping pace with technology and prevailing threat conditions in a dynamic environment. Tools range from a Best Value Methodology for evaluation of competitive source selections to a web-based Integrated Change Roadmap process that enables the acquisition organizations to baseline the fielded platforms and merge the upgrades into the program's life cycle planning. Planned investments will establish enabling cross-cutting solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat superiority. Note: Increase in funding in FY 2009 is due to increased focus on Avionics-related efforts.	14.411	21.289	15.021	24.691	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2006FY 2007FY 2008FY 2009

(U) In FY 2006: Established enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Worked to develop an affordable F-15 Heads Up Display (HUD) cathode ray tube (CRT) replacement item that can be transparently inserted into fielded assets as part of the normal repair cycle. Planned CRT advancements will eliminate an inherent F-15 failure mode, increasing the incurred CRT mean time between failure rate from under 400 hours to over 3,000 hours, and will be transferable to alternate platforms experiencing marginal HUD CRT reliability performance. Worked to establish an upgraded 1553 chipset, possessing 200 times increased bandwidth capabilities over current 1553 aircraft/munitions interface capabilities. Continued MIL-STD 1553B update activity to define capabilities of 1553 chipset, as well as how to validate and test those capabilities. Effort included release of MIL-STD 1553B Notice 5. Emphasis placed on identifying opportunities to accelerate capability deployment to the warfighter. Maintained the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Planned efforts linked functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure.

(U) In FY 2007: Establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Validate MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.

(U) In FY 2008: Continue to establish enabling avionics capabilities that can be affordably inserted into the

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft			
(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
<p>legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continue validation of MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.</p>					
<p>(U) In FY 2009: Continue to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continue Validation of MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the Viable Combat Avionics toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.</p>					
<p>(U) MAJOR THRUST: Subsystems. Extends the service life, controls the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet through aircraft subsystems</p>	3.286	1.654	1.000	1.000	

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Exhibit R-2a, RDT&E Project Justification		DATE February 2007			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)	0605011F RDT&E For Aging Aircraft	4685 Aging Aircraft			
(U) B. Accomplishments/Planned Program (\$ in Millions)		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
improvement. Cross-cutting opportunities which will reduce total ownership costs are identified using business case analyses.					
(U) In FY 2006: Extended the service life, controlled the rapidly rising sustainment costs, and retained the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Continued demonstration and development of wiring diagnostic equipment and data collection effort. Performed initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.					
(U) In FY 2007: Extend the service life, control the rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Develop and demonstrate wiring diagnostic equipment and data collection effort. Continue initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.					
(U) In FY 2008: Continue to extend service life, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement.					
(U) In FY 2009: Continue to extend service life, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement.					
(U) CONGRESSIONAL ADD: Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.		0.961	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U) CONGRESSIONAL ADD: Advanced Avionics Insertion for Legacy Aircraft.		0.480	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Advanced Avionics Insertion for Legacy Aircraft.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U) CONGRESSIONAL ADD: Aging Aircraft Structural Repair Facility Study.		0.961	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Aging Aircraft Structural Repair Facility Study.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) In FY 2009: Not Applicable.				
(U) CONGRESSIONAL ADD: Improved Fleet Readiness and 3-D Modeling.	2.402	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Improved Fleet Readiness and 3-D Modeling.				
(U) In FY 2007: Not Applicable.				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) CONGRESSIONAL ADD: Productivity Improvements for Landing Gear Overhaul Technologies.	4.034	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally -directed effort for Productivity Improvements for Landing Gear Overhaul Technologies.				
(U) In FY 2007: Not Applicable.				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) CONGRESSIONAL ADD: Smart Weapons Triple Ejection Rack Development.	1.345	0.000	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Smart Weapons Triple Ejection Rack Development.				
(U) In FY 2007: Not Applicable.				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) CONGRESSIONAL ADD: Aging Landing Gear Life Extension.	4.034	1.096	0.000	0.000
(U) In FY 2006: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).				
(U) In FY 2007: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) Total Cost	37.404	26.490	17.021	26.691

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Activities:										

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05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) **D. Acquisition Strategy**

Funding may be executed internally within the 77th Aeronautical Systems Wing via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design and Engineering Support Program (DESP) contract or full and open competition, to accomplish the project.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0605011F RDT&E For Aging Aircraft						4685 Aging Aircraft				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
S&K Technologies, Inc.	IDIQ			1.185									1.185	
Edgewater	IDIQ			7.660		7.000		10.000		15.000			39.660	
Anteon	Cost Plus			0.374									0.374	
Raytheon/Northrop	CPFF			4.939		8.000		5.021		9.691			27.651	
Grumman/Boeing/Lockheed													0.000	
Raytheon	CPFF					5.000							5.000	
United States Air Force Academy	N/A			2.500		1.300		1.000		1.000			5.800	
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ			2.401									2.401	
General Atomics	T&M			3.746									3.746	
Dynamics Research Corporation	T&M			3.745									3.745	
Dynamics Research Corporation	CPFF			0.624									0.624	
Raytheon	CPFF			0.558									0.558	
Alion Science & Tech	FFP			0.670									0.670	
Numerous	Various			9.002		5.190		1.000		1.000			16.192	
Subtotal Product Development			0.000	37.404		26.490		17.021		26.691		0.000	107.606	0.000
Remarks:														
(U) <u>Support</u>														
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	37.404		26.490		17.021		26.691		0.000	107.606	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

Aging Aircraft Schedule Summary

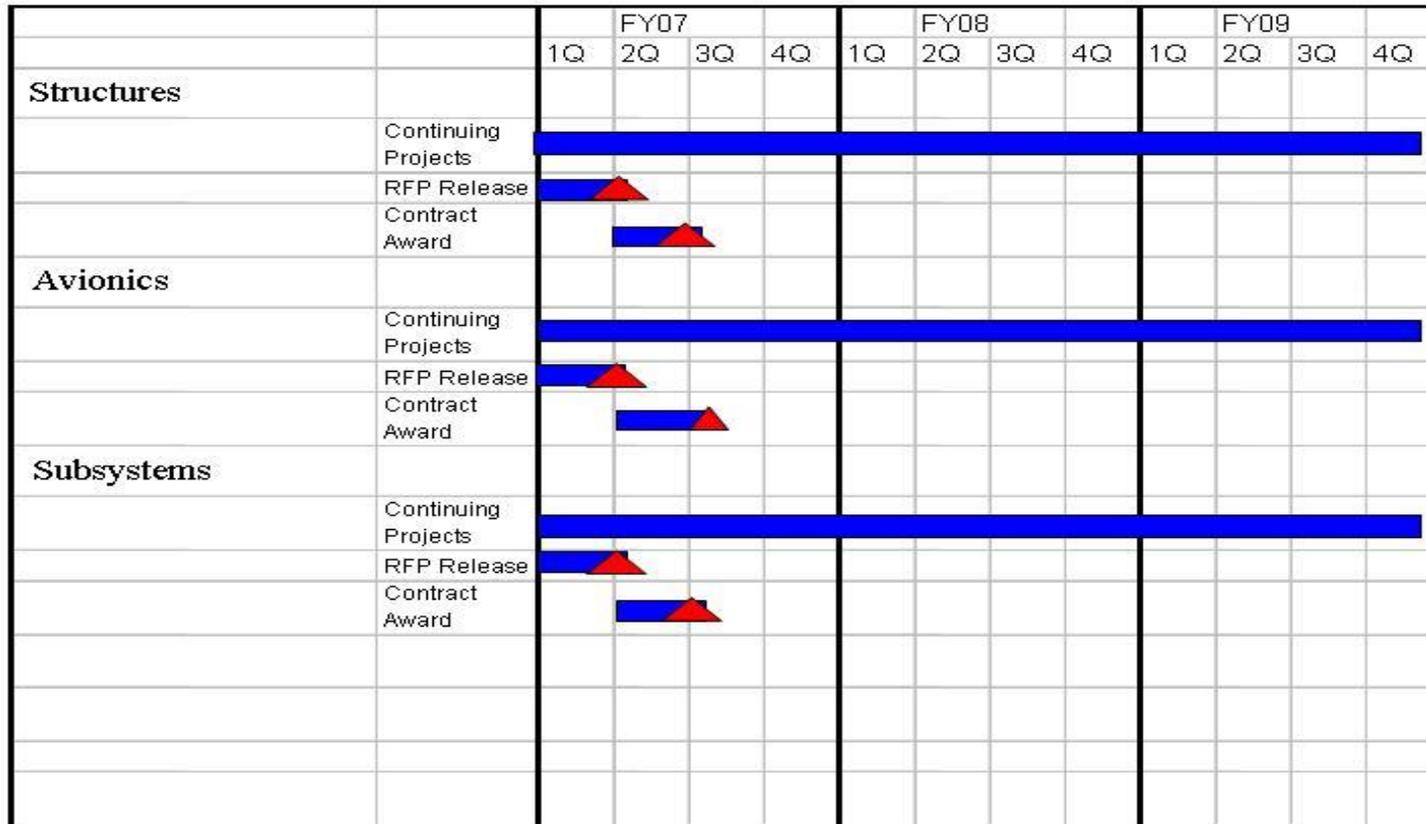


Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	156.851	173.216	199.363	207.268	166.987	184.448	201.611	193.745	Continuing	TBD
5050 TDL System Integration	156.851	173.216	49.969	60.654	58.437	62.727	64.854	65.793	Continuing	TBD
5262 Family of Gateways	0.000	0.000	149.394	146.614	108.550	121.721	136.757	127.952	0.000	0.000

In FY08, Project 655262 was established to consolidate gateway efforts within the Link 16 Support & Sustainment program element. FY07 and prior funding for gateways is in Project 655050, Tactical Data Link (TDL) System Integration.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDLs) 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 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), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

Utilization of TDLs in a joint environment requires the integration of terminals [e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)] into host platforms, and designing interoperability of data link networks across all deployed joint and allied platforms. The 640th Electronic Systems Squadron (640th ELSS) performs several cross-platform activities to ensure proper integration of TDL capabilities and interoperability of TDL networks. TDL efforts include incorporating changes and additions to the Link 16 message standard (MIL-STD-6016C) and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This program participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, and/or space-based C4ISR networks to produce operational effects not possible within individual networks. The AF continues to enhance the interoperability and capabilities of fielded gateways such as the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality, Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). The Objective Gateway (OG) program is developing a family of advanced gateway capabilities to enable a transition from legacy gateways with niche requirements and narrow user-sets. OG will be modular and scalable, with internet protocol (IP)-based networking capabilities that service theater-wide operational and tactical users. The OG program also includes an Interim OG, which is an initial, incremental deployment of gateway capability through rapid transition of Air Force and joint technology demonstrations/prototypes and off the shelf hardware and software applications. Common Link Integration Processing (CLIP) is an Air Force/Navy program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne maritime, and fixed-site systems.

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

This program is in budget activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	161.345	172.625	142.449	152.320
(U) Current PBR/President's Budget	156.851	173.216	199.363	207.268
(U) Total Adjustments	-4.494			
(U) Congressional Program Reductions		-0.351		
Congressional Rescissions	-0.005	-0.658		
Congressional Increases		1.600		
Reprogrammings				
SBIR/STTR Transfer	-4.489			

(U) **Significant Program Changes:**

In FY08/09, funding was added to expand the Objective Gateway program to provide an Interim Objective Gateway capability.

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0207434F Link 16 Support and Sustainment						5050 TDL System Integration		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5050 TDL System Integration	156.851	173.216	49.969	60.654	58.437	62.727	64.854	65.793	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY07, funding for the Single Integrated Air Picture program (SIAP) moved from PE 0207434F and PE 0207443F to PE 0207451F.

Beginning in FY08, all TDL funding for gateway programs moved from Project 655050 to new Project 655262, Family of Gateways.

(U) **A. Mission Description and Budget Item Justification**

TDLs are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and mission assignments. TDLs provide interoperable data exchange, local and global connectivity, and situational awareness to the tactical user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons and sensor platforms. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

The number of Air Force platforms hosting TDLs is expanding from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, ISR, tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Network Centric Transformation activities performed by the 640th Electronic Systems Squadron (previously the Tactical Data Networks (TDN) Squadron) include, but are not limited to: enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development (moved to new Project 655262 beginning in FY08), Network Enabled Weapons (previously Weapons Data Link), analysis and integration efforts encompassing hardware, software, operational Link 16 enhancements, and training and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of service-wide network management procedures and operations, system wide enhancements and test.

In addition, this project funds the development and integration of the Joint Interface Control Officer (JICO) - Support System (JSS). JSS is an AF-led joint program to develop a TDL management toolkit to enable JICOs to plan multi-TDL architectures, manage data exchange requirements, execute and monitor a multi-TDL network, and respond to correct network deficiencies.

Prior to FY08, this project also funded development of TDL gateways such as the Objective Gateway, the Joint Air Defense System Integrator (JADSI), the family of Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, Enhanced Tactical Data Link and Data Display [previously called Link 16 Alaska (LAK)], and Beyond Line of Sight (BLOS) capabilities such as the Roll-on BLOS Enhancement (ROBE). Funding for all the gateway programs above moved to Project 655262 beginning in FY08.

JINTACCS is a Joint Staff-directed program providing Air Force activities responsible for ensuring the interoperability of AF TDLs [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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interoperability assessments and interoperability certification testing. The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., Air Tasking Order and Air Control Order). This budget activity also includes TDL Roadmap configuration management, Interoperable System Management and Requirements Transformation (iSMART) implementation. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, and development of special projects.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) TDN MANAGEMENT AND INITIAL FIELDING: - Joint Interface Control Officer Support System (JSS): Complete production representative development and system testing (DT&E, OT&E) required for FY08 Milestone C decision. - TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a data link capability. This support consists of organic and contractor teams that provide Tactics, Techniques & Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL operations and field installations. Develops TDL architectures for implementation at AF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports AF and Joint TDL experiments.	21.042	39.569	12.788	11.402
(U) NETWORK CENTRIC TRANSFORMATION: - Network Centric Transformation activities including, but not limited to: enabling and supporting the transformation to network centric operations, Network Enabled Weapons (previously Weapons Data Link), Network Centric Capability Assessment, Link 16 network centric enhancements, Tactical Targeting Network Technology (TTNT), and Common Link Integration Processing (CLIP) software development. Beginning in FY08, CLIP funding moved to Project 655262. - Maintain developmental equipment; test support; fielding/non-recurring training; network support; crypto support; spectrum support; gateway support; data link tool support; and support operational working groups.	41.825	49.568	15.301	25.276
(U) GATEWAYS: - Efforts associated with data link network management and network capability improvements, including, but not limited to: Link 16 and other TDL gateways and interfaces; existing gateways such as JRE, JTEP, TMPG, JADSI; and Objective Gateway development. Beginning in FY08, all gateway funding moved to Project 655262.	48.566	53.290		
(U) ROLL-ON BEYOND-LINE-OF-SIGHT ENHANCEMENT (ROBE): - Spiral 2 effort applied to the 40 ROBE-Spiral 1 equipped KC-135s (Group A and Group B kits). This	2.810	0.600		

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
effort will add capabilities such as, but not limited to: a Situational Awareness Data Link (SADL) gateway, Built in Test (BIT), Remote Control, and additional Satellite Communications (SATCOM) capability. Funding ends for ROBE in FY07.				
(U) TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT:	16.545	18.381	18.122	18.737
- JINTACCS Tactical Data Link management, architecture development and certification testing.				
- Implementation and interoperability scheduling with the A-10, F-15, F-16, B-52, B-1, B-2, and other weapon systems				
- Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center/Control and Reporting Element (CRC/CRE), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems.				
- Tactical Data Link Roadmap Requirements, Configuration Management, and Air Force Participating Test Unit activities (AFPTU).				
(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT: Includes the 640th ELSS on-line collaboration tool [Integrated Digital Environment (IDE)], coalition interoperability management, contractor support and MITRE support.	9.263	10.208	3.758	5.239
(U) CONGRESSIONAL ADDS:	6.000	1.600		
- Enhanced TDL and Data Display (previously Link-16 Alaska)				
- Pocket J: A deployable Link 16 capability for temporary, austere, or remote locations. Beginning in FY08, Pocket J funding moved to Project 655262.				
(U) SINGLE INTEGRATED AIR PICTURE:	10.800			
- AF system engineering and infrastructure cost to execute SIAP initiatives. Beginning in FY07, SIAP funding moved to PE 0207451F.				
(U) Total Cost	156.851	173.216	49.969	60.654

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E (3600)										
(U) 0207445F (Fighter TDL)	115.818	112.755	39.545	74.312	91.577	0.000	0.000	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	133.836	100.744	37.130	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 0207448F (C2ISR TDL)	14.219	4.322	1.809	1.741	1.711	1.643	1.675	1.709		28.829
(U) 0401839F (Airlift TDL)	0.000	22.000	0.000	0.000	0.000	0.000	0.000	0.000		22.000

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) Other APPN

(U) Aircraft Procurement, AF (3010)

(U) 0207434F (Link 16 Sup & Sus)	2.996	2.773	0.001	9.708	46.296	99.938	104.173	75.826	Continuing	TBD
(U) 0207445F (Fighter TDL)	89.222	61.399	35.676	5.865	9.879	0.785	0.783	0.000		203.609
(U) 0207446F (Bomber TDL)	21.940	11.775	4.518	0.000	0.000	0.000	0.000	0.000		38.233
(U) 0401839F (Airlift TDL)	24.118	11.497	14.818	12.744	26.521	26.853	27.384	27.929	Continuing	TBD
(U) O&M, AF (3400)										
(U) 0207434F (Link 16 Sup & Sus)	8.341	9.895	13.203	4.760	13.054	14.986	17.550	18.923	Continuing	TBD
(U) 0207445F (Fighter TDL)	0.000	0.000	0.289	0.287	0.286	0.283	0.288	0.293		
(U) 0401839F (Airlift TDL)	3.220	5.445	5.726	6.603	17.381	17.460	17.815	18.177	Continuing	TBD
(U) Other Procurement, AF (3080)										
(U) 0207434F (Link 16 Sup & Sus)	41.362	36.886	21.933	28.301	41.932	43.948	56.337	39.173	Continuing	TBD

(U) D. Acquisition Strategy

The Air Force 640th Electronic Systems Squadron provides common enterprise management for development, integration, and interoperability across all Air Force platforms. It ensures tactical data links are procured and maintained as a joint, end-to-end, command and control system using evolutionary acquisition approaches and a combination of competitive and sole source contracts.

Exhibit R-3, RDT&E Project Cost Analysis

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5050 TDL System Integration

Remarks:									
(U) Total Cost	0.000	156.851	173.216	49.969	60.654	Continuing	TBD	TBD	

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Exhibit R-4a, RDT&E Schedule Detail		DATE		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)		February 2007		
PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment		PROJECT NUMBER AND TITLE 5050 TDL System Integration		
(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JSS Contract Award	1Q			
(U) JSS Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) JSS Test & Certification	1-4Q	1-4Q	2-4Q	1-4Q
(U) TDL Integration & Fielding Support	1-4Q	1-4Q	1-4Q	1-4Q
(U) CLIP Contract Award	3Q			
(U) CLIP Development	1-4Q	1-4Q		
(U) CLIP Test & Certification	2-4Q	1-4Q		
(U) Network Enabled Weapons Contract Award	2Q	3Q		
(U) Network Enabled Weapons Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) Network Enabled Weapons Test & Certification				2-4Q
(U) JADSI Contract Award	3Q			
(U) JADSI Development	1-4Q	1-4Q		
(U) JADSI Test & Certification		1-4Q		
(U) JADSI Product Delivery		1Q		
(U) JADSI Product Delivery		4Q		
(U) ROBE Contract Award	2Q			
(U) ROBE Development	2-4Q	1-4Q		
(U) ROBE Test & Certification	3-4Q	1-4Q		
(U) Objective Gateway Contract Award	3Q	3Q		
(U) Objective Gateway Development	1-4Q	1-4Q		
(U) JRE/JTEP Contract Award		2Q		
(U) JRE/JTEP Development	1-4Q	1-4Q		
(U) JRE/JTEP Test & Certification	1-3Q	1-3Q		
(U) JRE/JTEP Product Delivery	4Q	4Q		
(U) JINTACCS	1-4Q	1-4Q	1-4Q	1-4Q
(U) Platform S/W Upgrade Interoperability Testing	1-4Q	1-4Q	1-4Q	1-4Q
(U) Platform Interoperability Certification Testing	1-4Q	1-4Q	1-4Q	1-4Q
(U) E-TDL Contract Award	2Q			
(U) E-TDL Development	1-4Q	1-4Q		
(U) E-TDL Test & Certification	3-4Q	1-2Q		
(U) POCKET J Contract Award	2Q	2Q		

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5050 TDL System Integration

(U) POCKET J Development

1-4Q

1-4Q

(U) POCKET J Test & Certification

3-4Q

2-3Q

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0207434F Link 16 Support and Sustainment				5262 Family of Gateways		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5262 Family of Gateways	0.000	0.000	149.394	146.614	108.550	121.721	136.757	127.952	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This project was established in FY08 to consolidate gateway efforts within the Link 16 Support & Sustainment program element. The Air Force has identified these gateway efforts as the Family of Gateways program. FY07 and prior funding for gateways is in Project 655050, TDL System Integration.

(U) **A. Mission Description and Budget Item Justification**

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks to produce operational effects not possible within individual networks. Gateway functions include: 1) enabling interoperability among otherwise incompatible systems by translating between data formats, protocols, and communication mediums, 2) extending the range of Line-of-Sight constrained systems through relay functions or by routing through Beyond-Line-of-Sight links, 3) consolidating data from multiple networks into high capacity links for transmission to key C2ISR nodes, 4) routing information to and from communications disadvantaged users, 5) correlating data from multiple sources to increase utility and improve accuracy, and 6) providing application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/management. A primary benefit is that gateways provide cost-effective modernization and achieve network-centric warfighting effects without modification of individual platforms.

Existing gateways include the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). These legacy gateways, which are fielded in multiple Joint and Service C2 centers and platforms, primarily provide tactical data link range extension and interoperability. The AF continues to enhance the interoperability and capabilities of fielded gateways through processing capability upgrades, operating system updates, display/graphical user interface upgrades, incorporation of additional messaging standards and protocols, and completion of gateway architecture fielding.

The Objective Gateway (OG) program is developing a family of advanced gateway capabilities to enable a transition from legacy gateways with niche requirements and narrow user-sets. OG will be modular and scalable, with internet protocol (IP)-based networking capabilities that service theater-wide operational and tactical users. Beginning in FY08, the Objective Gateway program includes an Interim Objective Gateway (I-OG) capability. I-OG is an initial, incremental deployment of OG capability through rapid transition of Air Force and joint technology demonstrations/prototypes (e.g., Battle Field Airborne Communications Node (BACN), Adaptive Joint C4ISR Node (AJCN), JFCOM-sponsored Joint Based Expeditionary Connectivity Center (JBECC), JFCOM-sponsored Rapid Attack Information Dissemination Execution Relay (RAIDER), etc.) and off the shelf combinations of hardware and software applications.

Common Link Integration Processor (CLIP) is a Navy-led program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne, maritime, and fixed-site systems, with initial fielding on B-1, MH-60, and Objective Gateway. The AF and Navy make equitable contributions to CLIP RDT&E funding. CLIP is a software-only, weapon system-independent middleware application that provides gateway services among diverse message sets and waveforms. CLIP effectively isolates the host platform system software from changes in data link message format and processing. Because message processing is no longer embedded in mission software, message standard updates can be incorporated without costly mission software changes. The result is enhanced

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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interoperability and significantly reduced integration and life-cycle sustainment costs.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) CLIP development			29.824	29.391
(U) Objective Gateway development, including BACN and RAIDER demonstrations and Interim Objective Gateway			101.429	96.845
(U) Development, integration, and testing of JADSI capability enhancements			4.319	4.513
(U) Development, integration, and testing of JRE/JTEP capability enhancements			3.171	3.670
(U) Development, integration, and testing of TMPG capability enhancements			2.301	2.473
(U) Development, integration, and testing of Pocket J capability enhancements			0.800	0.832
(U) Tactical Data Link Acquisition Management: Includes the 640th ELSS on-line collaboration tool [Integrated Digital Environment (IDE)], contractor support and MITRE support.			7.550	8.890
(U) Total Cost	0.000	0.000	149.394	146.614

(U) C. Other Program Funding Summary (\$ in Millions)										
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E (3600)										
(U) 0207445F (Fighter TDL)	115.818	112.755	39.545	74.312	91.577	0.000	0.000	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	133.836	100.744	37.130	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 0207448F (C2ISR TDL)	14.219	4.322	1.809	1.741	1.711	1.643	1.675	1.709	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	22.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	2.996	2.773	0.001	9.708	46.296	99.938	104.173	75.826	Continuing	TBD
(U) 0207445F (Fighter TDL)	89.222	61.399	35.676	5.865	9.879	0.785	0.783	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	21.940	11.775	4.518	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 0401839F (Airlift TDL)	24.118	11.497	14.818	12.744	26.521	26.853	27.384	27.929	Continuing	TBD
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	41.362	36.886	21.933	28.301	41.932	43.948	56.337	39.173	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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(U) **C. Other Program Funding Summary (\$ in Millions)**

Sus)											
(U) O&M (3400)											
(U) 0207434F (Link 16 Sup & Sus)	8.341	9.895	13.203	4.760	13.054	14.986	17.550	18.923	Continuing	TBD	
(U) 0207445F (Fighter TDL)	0.000	0.000	0.289	0.287	0.286	0.283	0.288	0.293	Continuing	TBD	
(U) 0401839F (Airlift TDL)	3.220	5.445	5.726	6.603	17.381	17.460	17.815	18.177	Continuing	TBD	

(U) **D. Acquisition Strategy**

The Air Force 640th Electronic Systems Squadron provides common enterprise management for development, integration, and interoperability across all Air Force platforms. It ensures tactical data links are procured and maintained as a joint, end-to-end, command and control system using evolutionary acquisition approaches and a combination of competitive and sole source contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> CLIP	MIPR	SPAWAR, San Diego, CA						25.086	Dec-07	24.638	Dec-08	Continuing	TBD	TBD
Objective Gateway (including BACN and RAIDER demonstration efforts)	TBD	TBD						101.429	Dec-07	96.845	Dec-08	Continuing	TBD	TBD
JADSI enhancements	T&M/FFP	Ultra Electronics, Austin, TX						4.319	Dec-07	4.513	Dec-08	Continuing	TBD	TBD
JRE/JTEP enhancements	T&M/FFP	Centech, Arlington, VA						3.171	Dec-07	3.670	Dec-08	Continuing	TBD	TBD
TMPG enhancements	T&M/FFP	Raytheon, Fullerton, CA						2.301	Dec-07	2.473	Dec-08	Continuing	TBD	TBD
Pocket J enhancements	TBD	ProLogic, WV						0.800	Jan-08	0.832	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		137.106		132.971		Continuing	TBD	TBD
Remarks:														
														FY07 and prior funding is in Project 655050.
(U) <u>Support</u>													0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u> 46th Test Squadron	Project Order/MIP R	Eglin AFB, FL						4.738	Nov-07	4.753	Nov-08	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		4.738		4.753		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u> Program Office and Contractor Support	C/FFP							7.550	Nov-07	8.890	Nov-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		7.550		8.890		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		149.394		146.614		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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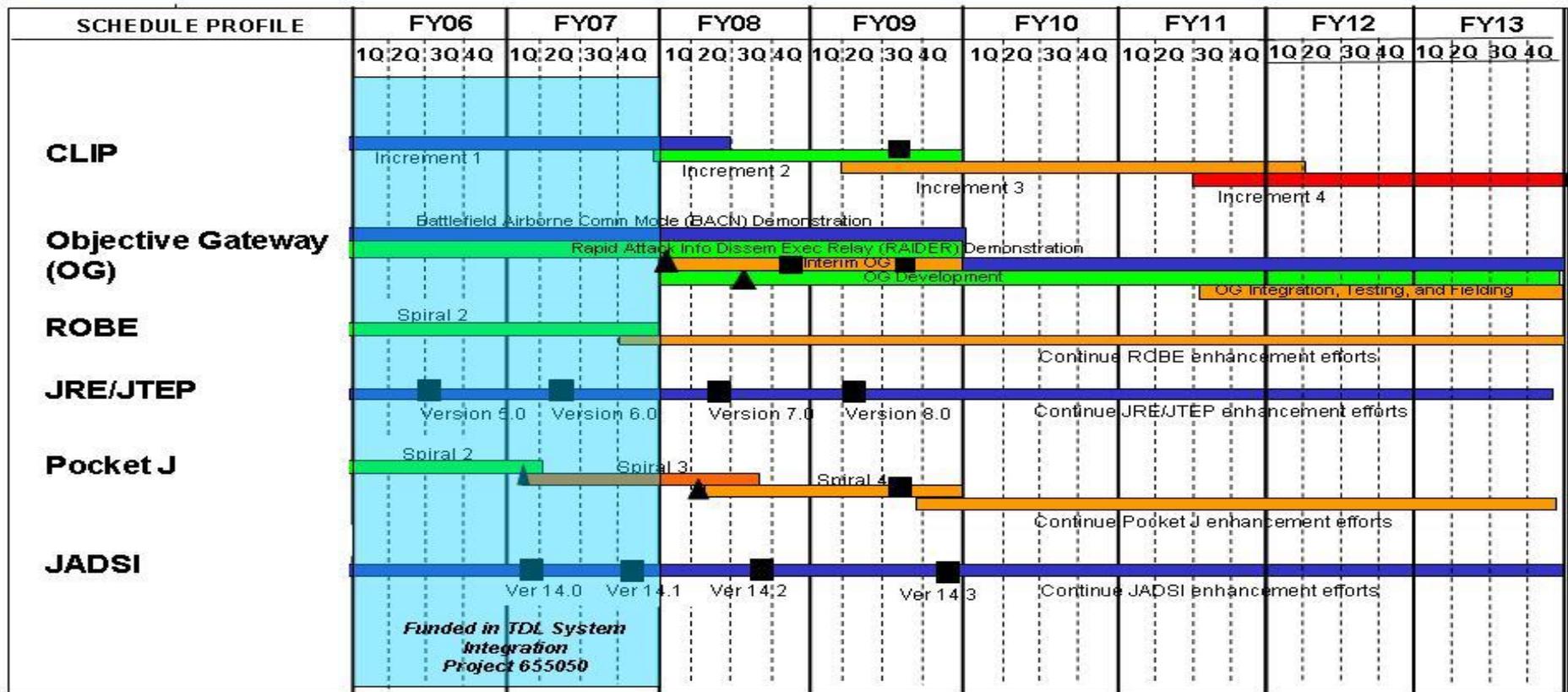
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE
5262 Family of Gateways



Link 16 Support & Sustainment Family of Gateways



As of 8 Jan 07

▲ Contract Awards ■ Delivery Milestones

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JADSI Development			1-4Q	1-4Q
(U) JADSI Product Delivery			3Q	4Q
(U) CLIP Development			1-4Q	1-4Q
(U) CLIP Product Delivery				3Q
(U) JRE/JTEP Development			1-4Q	1-4Q
(U) JRE/JTEP Product Delivery			2Q	2Q
(U) Pocket J Contract Award			2Q	
(U) Pocket J Development			1-4Q	1-4Q
(U) Pocket J Product Delivery				3Q
(U) ROBE Enhancements			1-4Q	1-4Q
(U) Objective Gateway Contract Award			1Q	
(U) Objective Gateway Development			1-4Q	1-4Q
(U) Objective Gateway Product Delivery			4Q	3Q
(U) Objective Gateway Contract Award			3Q	

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PE NUMBER: 0207443F

PE TITLE: FAMILY OF INTEROP OPERATIONAL PIC (FIOP)

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	35.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5187 Single Integrated Air Picture (SIAP)	35.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In FY06, Project 5137, Family of Interoperable Operational Pictures (FIOP) was terminated by an OSD budget decision. OSD directed the Under Secretary of Defense (AT&L) with the Chairman of the Joint Chiefs of Staff to leverage the Single Integrated Air Picture (SIAP) systems engineering process and the Joint Capabilities Integration and Development System (JCIDS) process to determine and implement the Common Operational Picture (COP) standard to inform the next development milestone for the Joint Command and Control program of record. Project 5187, Single Integrated Air Picture (SIAP) FY07 funding was transferred to PE 0207451F.

(U) A. Mission Description and Budget Item Justification

The Family of Interoperable Operational Pictures (FIOP) is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational and Tactical Pictures, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare. The FIOP program focus includes the following areas:

- Joint Blue Force Situational Awareness (JBFS)
- Situational Awareness Data Interoperability (SADI)
- Tactical Data Link Integration
- Precision Fires Support
- Network Based Services
- Web Enabled Execution Management
- Red Force Situational Awareness Picture
- Ground Moving Target Indicators (GMTI)
- Meteorology Oceanography (METOC)
- Targeting Interoperability

The air portion of the Common Tactical Picture (CTP), the Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real time and near real time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)

support activities, and special projects.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	28.880	0.000	0.000	0.000
(U) Current PBR/President's Budget	35.067	0.000	0.000	0.000
(U) Total Adjustments	6.187			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases	7.000			
Reprogrammings				
SBIR/STTR Transfer	-0.813			

(U) **Significant Program Changes:**

In FY06, Project 5137, Family of Interoperable Operational Pictures (FIOP) was terminated by an OSD budget decision. OSD directed the Under Secretary of Defense (AT&L) with the Chairman of the Joint Chiefs of Staff to leverage the Single Integrated Air Picture (SIAP) systems engineering process and the Joint Capabilities Integration and Development System (JCIDS) process to determine and implement the Common Operational Picture (COP) standard to inform the next development milestone for the Joint Command and Control program of record. Project #655187, Single Integrated Air Picture (SIAP) FY07 funding was transferred to PE 0207451F. In FY06 funds were increased to support required systems engineering work.

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BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)		0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)					5187 Single Integrated Air Picture (SIAP)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5187 Single Integrated Air Picture (SIAP)	35.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Project 5187, Single Integrated Air Picture (SIAP) FY07 funding was transferred to PE 0207451F.

(U) **A. Mission Description and Budget Item Justification**

The Family of Interoperable Operational Pictures (FIOP) is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational and Tactical Pictures, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare. The FIOP program focus includes the following areas:

- Joint Blue Force Situational Awareness (JBFS)
- Situational Awareness Data Interoperability (SADI)
- Tactical Data Link Integration
- Precision Fires Support
- Network Based Services
- Web Enabled Execution Management
- Red Force Situational Awareness Picture
- Ground Moving Target Indicators (GMTI)
- Meteorology Oceanography (METOC)
- Targeting Interoperability

The air portion of the Common Tactical Picture (CTP), the Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real time and near real time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)	PROJECT NUMBER AND TITLE 5187 Single Integrated Air Picture (SIAP)
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) BLOCK 0	6.200			
(U) MDA Integrating and Implementation	28.867			
(U) Total Cost	35.067	0.000	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E										
(U) 0207434F Link 16 Support & Sustainment	10.800	0.000	0.000	0.000	0.000	0.000			Continuing	TBD

(U) **D. Acquisition Strategy**
The Air Force SIAP Program Office (SPO) provides for common development and integration across multiple Air Force platforms via existing contract mechanisms.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)	PROJECT NUMBER AND TITLE 5187 Single Integrated Air Picture (SIAP)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>									
(U) <u>Product Development</u>														
AWACS Block 30/35 Block 0 Corr/Decorr	CPIF	Boeing Seattle, WA		6.200	Nov-05								6.200	
Integration Resource Center	CPFF	Alphatech Burlington, MA		3.500	Nov-05							0.000	3.500	
MDA Integration and Implementation	CPIF	Thales-Raytheon Systems, Fullerton CA		20.367	Nov-05							0.000	20.367	
Subtotal Product Development			0.000	30.067		0.000		0.000		0.000		0.000	30.067	0.000
Remarks:														
(U) <u>Support</u>														
ESC	C/FFP	Titan Corp, Odyssey Consulting Group, BTAS, Inc, MITRE		5.000	Oct-05							0.000	5.000	
Subtotal Support			0.000	5.000		0.000		0.000		0.000		0.000	5.000	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)														
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	35.067		0.000		0.000		0.000		0.000	35.067	0.000

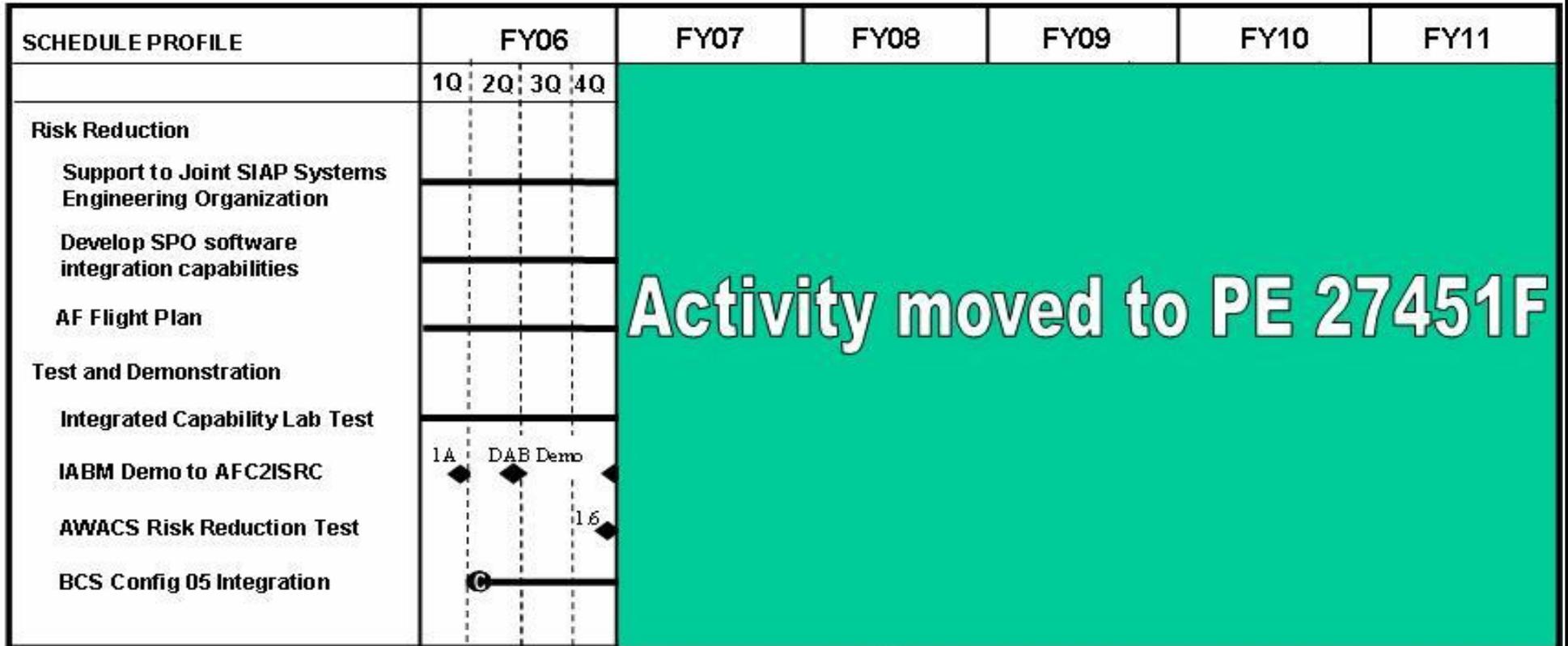
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207443F FAMILY OF INTEROP
OPERATIONAL PIC (FIOP)

PROJECT NUMBER AND TITLE
5187 Single Integrated Air Picture
(SIAP)



Legend

Contract Award ● Development — End Date ◆

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)	PROJECT NUMBER AND TITLE 5187 Single Integrated Air Picture (SIAP)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Support to Joint SIAP Systems Engineering Support Office	1-4Q			
(U) Develop SPO software integration capabilities	1-4Q			
(U) AF SIAP Flight Plan	1-4Q			
(U) Integrated Capability Lab Test	1-4Q			
(U) E-10/SIAP Prototype Lab Demo	1-3Q			
(U) AWACS Risk Reduction Test	1-4Q			
(U) BCS Config 05 Integration	1-3Q			

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	378.871	366.012	39.703	42.568	0.000	0.000	0.000	0.000	Continuing	TBD
5131 Airframe	247.140	181.429	0.371	0.000	0.000	0.000	0.000	0.000	0.000	478.675
5132 Sensors	131.731	184.583	39.332	42.568	0.000	0.000	0.000	0.000	Continuing	TBD

(U) Remark: Direction to terminate the E-10 program (Project 5131 - Airframe), as well as the E-10 portion of the MP-RTIP radar development (part of Project 5132 - Sensors), is expected during FY07. FY08 PBR includes funding to complete the Global Hawk MP-RTIP Development Units (DU).

(U) A. Mission Description and Budget Item Justification

The E-10 was intended to be a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide-band communications systems. The E-10 aircraft series would have employed both on-board and off-board sensors, communications, data links, and battle management integration software to execute the full range of military operations. The E-10 would have interfaced with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 would have enabled the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result would have been weapons-quality target cueing for joint and coalition shooters to engage time sensitive cruise missiles and other fleeting high-priority targets.

The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic Battle Management, Command & Control (BMC2) with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions. The initial spiral of E-10A Increment 1 would have delivered the core capability to perform the focused AMTI and GMTI missions to include data processing and advanced communications links. Future spirals within E-10A Increment 1 were envisioned to incorporate sensor fusion, advanced battle management functions, UAV control, space radar integration and laser communications, while future E-10 increments were envisioned to incorporate advanced sensors for air surveillance operations.

The MP-RTIP program will continue to provide a radar for a robust Global Hawk reconnaissance capability. The MP-RTIP equipped Global Hawk defines the Global Hawk Block 40 configuration which provides persistent ISR, including GMTI, SAR imaging, and limited AMTI capabilities. Global Hawk Block 40 will not provide a CMD capability. MP-RTIP will continue to support NATO Alliance Ground Surveillance (AGS) radar conceptual design and early decision analysis activities to support OSD's strategy for the United States' involvement in the NATO AGS program.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). MP-RTIP entered SDD in FY04; the E-10A program is in Pre-SDD, or Technology Development, with the testbed aircraft supporting flight test for the MP-RTIP SDD program.

Exhibit R-2, RDT&E Budget Item Justification

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February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	391.006	390.896	593.319	453.212
(U) Current PBR/President's Budget	378.871	366.012	39.703	42.568
(U) Total Adjustments	-12.135	-24.884		
(U) Congressional Program Reductions		-0.708		
Congressional Rescissions		-1.476		
Congressional Increases				
Reprogrammings	-1.368	-22.700		
SBIR/STTR Transfer	-10.767			

(U) **Significant Program Changes:**

- (1) The E-10 program was restructured as a Technology Development (pre-SDD) Program during FY06.
- (2) Direction to terminate the E-10 program and the E-10 MP-RTIP radar development is expected during FY07. FY08 PB includes funding to complete the Global Hawk MP-RTIP Development Units (DU).

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0207450F E-10 Squadrons				5131 Airframe		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5131 Airframe	247.140	181.429	0.371	0.000	0.000	0.000	0.000	0.000	0.000	478.675
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) Remarks:

1. Direction to terminate the E-10 program (Project 5131 - Airframe) is expected during FY07.
2. FYDP RDT&E Article Deliveries:
FY 2008: 1 E-10A Testbed Aircraft (Commercial 767-400ER delivered in FY 2008)

(U) **A. Mission Description and Budget Item Justification**

This project was established to design, develop, and integrate modifications to a wide-body aircraft to host multiple sensor configurations with integrated Battle Management Command & Control (BMC2). The E-10 would have been a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10 aircraft series would have employed both on-board and off-board sensors, communications, data links, and battle management integration software to execute the full range of military operations. The E-10 would have interfaced with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 would have enabled the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result would have been weapons-quality target cueing for joint and coalition shooters to engage time sensitive cruise missiles and other fleeting high-priority targets.

The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic BMC2 with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions. The initial spiral of E-10A's Increment 1 would have delivered the core capability to perform the focused AMTI and GMTI missions to include data processing and advanced communications links. Future spirals within E-10A Increment 1 were envisioned to incorporate sensor fusion, advanced battle management functions, UAV control, space radar integration and laser communications, while future E-10 increments were envisioned to incorporate advanced sensors for air surveillance operations.

The E-10 technology development program's primary objectives were to conduct developmental flight test and verification of the MP-RTIP Wide Area Surveillance (WAS) radar capability and demonstrate the end-to-end cruise missile defense capabilities of the MP-RTIP WAS radar and associated BMC2. Direction to terminate the E-10A Program is expected in FY07.

Funds in this project have been used to: (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the wide-area surveillance "large-sized" variant of the MP-RTIP radar system, (2) design and develop the technology testbed modifications, (3) support Weapon System Integration activities to include development of key BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance

Exhibit R-2a, RDT&E Project Justification

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February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons	PROJECT NUMBER AND TITLE 5131 Airframe
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(C2ISR) capabilities including leveraging BMC2 development for other enterprise applications.

This program is categorized as Budget Activity (BA) 5 to reflect a program in Technology Development (Pre-System Development and Demonstration (Pre-SDD)), with the testbed aircraft supporting flight test for the MP-RTIP SDD program.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Weapon System Integration (WSI) efforts (including BMC2 efforts)--beginning with a demonstration aircraft and necessary BMC2 to prove the Key Performance Parameters (KPPs) and basic radar requirements associated with the WAS/MP-RTIP sensor until termination decision, then terminate.	166.270	105.213	0.000	0.000
(U) Incremental funding of a 767-400ER testbed.	30.000	59.600	0.000	0.000
(U) Purchase MP-RTIP Lab/Test Hardware (Development Unit) materials.	36.586	0.000	0.000	0.000
(U) Systems engineering and design activities until termination decision, then terminate.	13.174	13.655	0.000	0.000
(U) Test & Evaluation Efforts (examples include Joint Test Force (JTF), Air Force Operational Test and Evaluation Center (AFOTEC), Operator-In-The-Loop (OITL), Joint Interoperability Test Center (JITC)) until termination decision, then terminate.	0.495	1.895	0.000	0.000
(U) Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction (including BMC2 efforts), technology insertion/development, and spiral development efforts supporting continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and cruise missile defense architecture, joint decisive operations and the AEF Task Force CONOPS until termination decision, then terminate.	0.000	0.150	0.000	0.000
(U) Program office operations effort until termination decision, then terminate.	0.615	0.916	0.371	0.000
(U) Total Cost	247.140	181.429	0.371	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) PE 0207450F Project 5132 (Sensors)	131.731	184.583	39.332	42.568	0.000	0.000	0.000	0.000	Continuing	TBD

(U) Remark: Direction to terminate the E-10 portion of the MP-RTIP radar development is expected during FY07. FY08 PBR includes funding to complete the Global Hawk MP-RTIP Development Units (DU).

(U) D. Acquisition Strategy

On 30 May 2006, OSD(AT&L) approved the acquisition strategy focusing on technology development/risk reduction, with emphasis on demonstrating a Cruise Missile Defense capability coupled with interleaved Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) capabilities. This would have

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

allowed entry into a low-risk SDD phase for the E-10 Weapon System. A decision to terminate the E-10A Program and associated E-10A MP-RTIP Wide Area Surveillance radar development is expected in FY07.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2007		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0207450F E-10 Squadrons					PROJECT NUMBER AND TITLE 5131 Airframe			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Weapon System Integration (WSI) and Battle Management Command & Control (BMC2)	SS/CPAF	Northrop Grumman Corporation; Melbourne, FL	375.685	166.270	Oct-05	105.213	Oct-06	0.000		0.000		0.000	647.168	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	34.999	30.000	Oct-05	59.600	Oct-06	0.000		0.000		0.000	124.599	TBD
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA	35.314	36.586	Feb-06	0.000		0.000		0.000		0.000	71.900	TBD
Systems Engineering	Various	Various	21.887	3.362	Jan-06	4.579	Oct-06	0.000		0.000		0.000	29.828	TBD
Future Studies/Spiral Development	Various	Various	37.405	0.000		0.150	Dec-06	0.000		0.000		0.000	37.555	TBD
Subtotal Product Development			505.290	236.218		169.542		0.000		0.000		0.000	911.050	TBD
Remarks:														
(U) <u>Test & Evaluation</u>														
AFOTEC	AF Form 616	Various	0.309	0.000		0.000		0.000		0.000		0.000	0.309	TBD
Joint Test Force (JTF)	Various	Various	1.947	0.495	Feb-06	1.659	Oct-06	0.000		0.000		0.000	4.101	TBD
Operator-In-The-Loop (OITL)	MIPR	Hanscom AFB, MA	0.217	0.000		0.217	Jan-07	0.000		0.000		0.000	0.434	TBD
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA	0.058	0.000		0.019	Dec-06	0.000		0.000		0.000	0.077	TBD
Subtotal Test & Evaluation			2.531	0.495		1.895		0.000		0.000		0.000	4.921	TBD
Remarks:														
(U) <u>Management</u>														
Program Office Support	Various	Various	2.661	0.615	Oct-05	0.916	Oct-06	0.371	Oct-07	0.000		0.000	4.563	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA	27.000	9.812	Nov-05	9.076	Oct-06	0.000		0.000		0.000	45.888	TBD
Subtotal Management			29.661	10.427		9.992		0.371		0.000		0.000	50.451	TBD
Remarks:														
(U) Total Cost			537.482	247.140		181.429		0.371		0.000		0.000	966.422	TBD
Remarks:														
FY2003 and FY2004 reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe).														
FY08 767-400ER Testbed payment of \$34.6M is anticipated to be made in FY08 using FY07 funds recouped from the WSI/BMC2 contract after termination decision.														

Exhibit R-4, RDT&E Schedule Profile

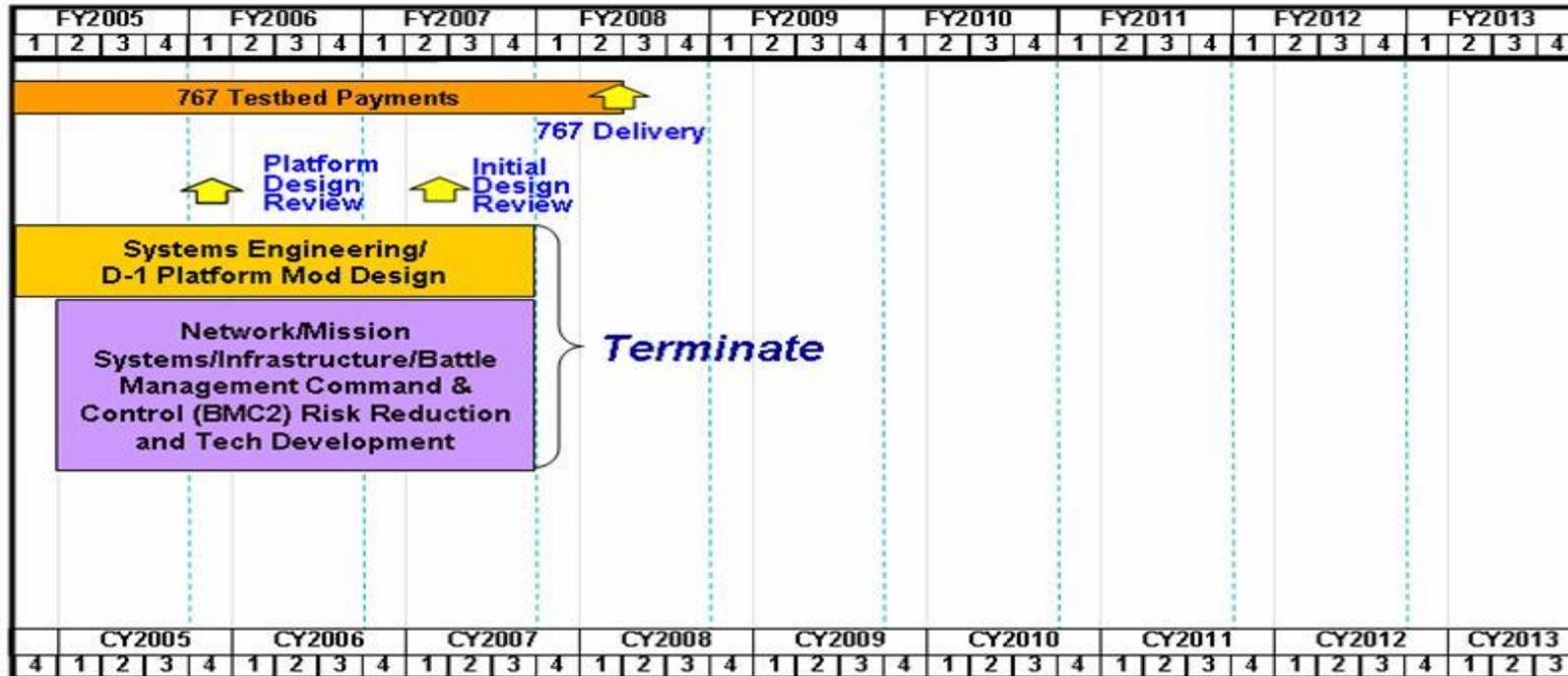
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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE
5131 Airframe

E-10A Program Pre-SDD – Technology Development



As of 9 Jan 07

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) System Engineering/D-1 Platform Modification Design	1-4Q	1-4Q		
(U) Network/Mission Systems/Infrastructure/BMC2 Risk Reduction and Technology Development	1-4Q	1-4Q		
(U) Platform Design Review	1Q			
(U) Testbed Initial Design Review (IDR)		2Q		
(U) 767-400ER Commercial Aircraft Delivery			2Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207450F E-10 Squadrons				PROJECT NUMBER AND TITLE 5132 Sensors		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5132 Sensors	131.731	184.583	39.332	42.568	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

- (U) Remarks:
- Direction to terminate the E-10 portion of the MP-RTIP radar development is expected during FY07. FY08 PBR includes funding to complete the Global Hawk MP-RTIP Development Units (DU).
 - FYDP RDT&E Article Deliveries:
 FY 2006: 1 Global Hawk (GH) Development Unit (DU) radar for integration
 FY 2007: 1 GH DU radar for integration
 FY 2007: 1 GH DU radar emulator to support RQ-4B platform system integration
 FY 2008: 1 GH DU radar for radar lab mode checkout and troubleshooting

(U) **A. Mission Description and Budget Item Justification**

This project was established to develop a family of modular, scalable next generation sensors for multiple platforms to support network centric operations with integrated intelligence, surveillance, and reconnaissance capability.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) is a family of modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radars. The Wide Area Surveillance (WAS), or larger sensor, is the sensor capability of the E-10A Increment 1 weapon system to provide cruise missile defense and improved ground moving target indicator (GMTI)/synthetic aperture radar (SAR) imaging. The Global Hawk variant is the smaller sensor providing the sensor capability for Global Hawk Block 40. Direction to terminate the E-10 portion of the MP-RTIP radar development is expected during FY07.

Funds in this project will be used for the development, fabrication, and test of MP-RTIP sensor capabilities. The project also continues to support NATO Alliance Ground Surveillance (AGS) conceptual design and early design development activities.

This project is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD).

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue MP-RTIP design and development of radars for integration on the E-10A and Global Hawk target platforms until termination decision, then terminate the E-10A MP-RTIP radar development. FY08 PB includes funding to complete the Global Hawk MP-RTIP Development Units (DU).	126.491	179.371	37.310	39.615
(U) Continue Future Studies/Spiral Development insertion-- includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts supporting continuous improvements and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.	0.850	0.416	0.350	1.350

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons	PROJECT NUMBER AND TITLE 5132 Sensors
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification & Validation [IV&V])	3.936	4.289	1.103	1.023
(U) Continue program office operations	0.454	0.507	0.569	0.580
(U) Total Cost	131.731	184.583	39.332	42.568

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) AF RDT&E										
(U) PE 0207450F Project 5131 (E-10 Airframe)	247.140	181.429	0.371	0.000	0.000	0.000	0.000	0.000	0.000	428.940
(U) PE0305220F Project 5144 (Global Hawk MP-RTIP Sensor)	17.613	7.684	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.297

(U) D. Acquisition Strategy
The existing MP-RTIP program supported the evolutionary acquisition of the E-10A and Global Hawk by providing sensors for Increment 1 of the E-10A and Block 40 of the Global Hawk. Post E-10 termination, the MP-RTIP program plans to provide 3 GH RDT&E sensors. The Global Hawk program will fund MP-RTIP production sensors for the operational Global Hawk Block 40 platforms.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0207450F E-10 Squadrons	5132 Sensors

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop-Grumman Corporation; El Segundo, CA	648.535	122.163	Jan-06	175.052	Oct-06	33.398	Oct-07	35.566	Oct-08	0.000	1,014.714	TBD
Future Studies/Spiral Development	Various	Various	8.074	0.850	Jul-06	0.416	May-07	0.350	Nov-07	1.350	Nov-08	0.000	11.040	TBD
Subtotal Product Development			656.609	123.013		175.468		33.748		36.916		0.000	1,025.754	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Test & Evaluation	Various	Various	4.645	3.936	Dec-05	4.289	Dec-06	1.103	Dec-07	1.023	Dec-08	0.000	14.996	TBD
Subtotal Test & Evaluation			4.645	3.936		4.289		1.103		1.023		0.000	14.996	TBD
Remarks:														
(U) <u>Management</u> Program Office Support Systems Engineering/IV&V (FFRDC)	Various SS/CPFF	Various MITRE Corporation; Hanscom AFB, MA	2.307	0.454	Oct-05	0.507	Oct-06	0.569	Oct-07	0.580	Oct-08	0.000	4.417	TBD
			4.847	4.328	Nov-05	4.319	Oct-06	3.912	Oct-07	4.049		0.000	21.455	TBD
Subtotal Management			7.154	4.782		4.826		4.481		4.629		0.000	25.872	TBD
Remarks:														
(U) Total Cost			668.408	131.731		184.583		39.332		42.568		0.000	1,066.622	TBD
Remark: FY 2002 and prior reflected in PE 0207581F, Joint STARS FY 2003 and FY 2004 reflected in PE 0207449F C2 Constellation, Project 5065 (Sensors)														

Exhibit R-4, RDT&E Schedule Profile

DATE

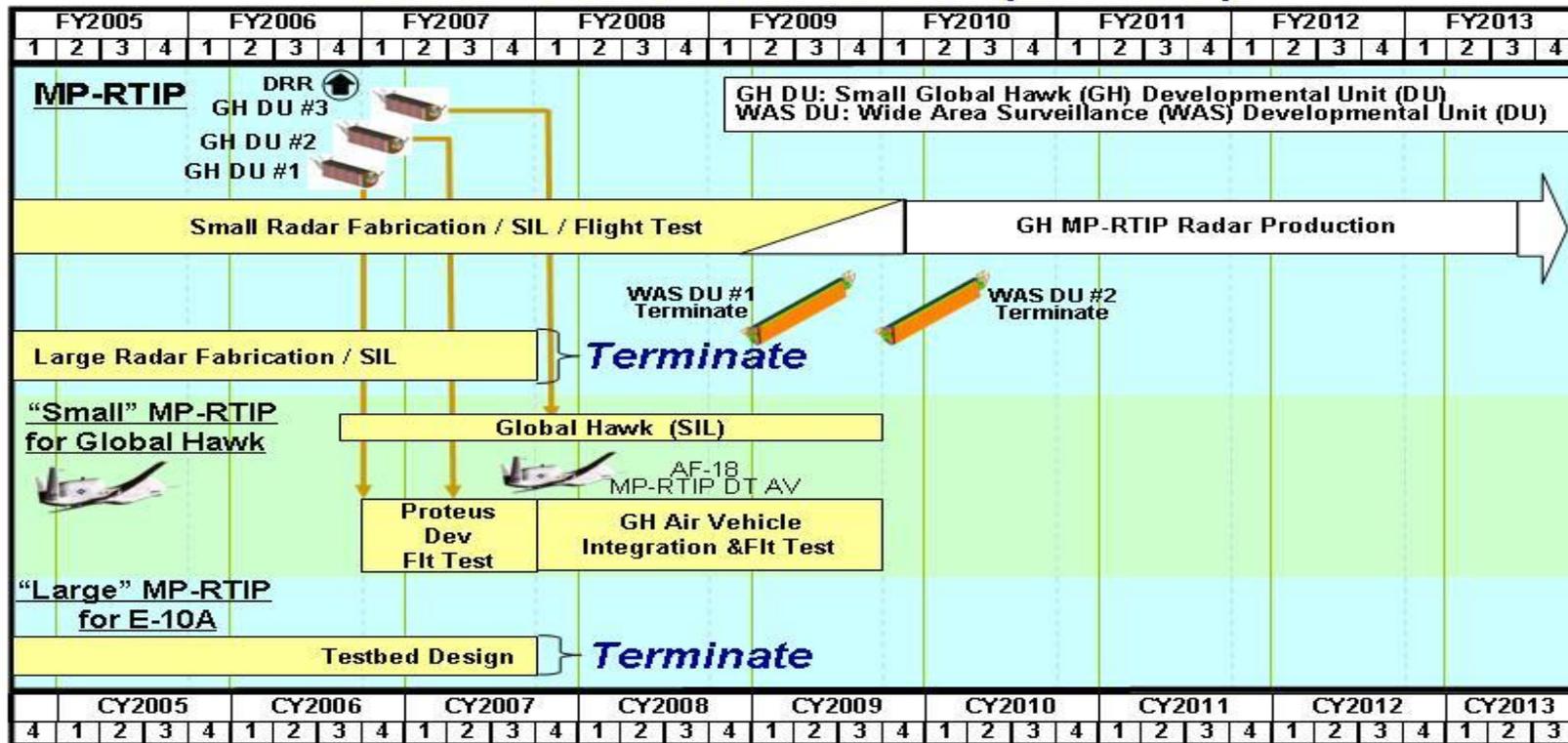
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE
5132 Sensors

MP-RTIP System Development and Demonstration (SDD)



As of 9 Jan 07

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons	PROJECT NUMBER AND TITLE 5132 Sensors
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) SMALL RADAR (GLOBAL HAWK) DEVELOPMENT	1-4Q	1-4Q	1-4Q	1-4Q
(U) GLOBAL HAWK (GH) DEVELOPMENT UNIT (DU) #1 BUILD	1-4Q			
(U) GH DU #2 BUILD	1-4Q	1-2Q		
(U) GH DU #3 BUILD	1-4Q	1-4Q		
(U) GH DU # 1 FLIGHT TEST (ON PROTEUS SURROGATE)	4Q	1-2Q		
(U) GH DU#1 TO SIL		2-4Q	1-4Q	1-4Q
(U) GH DU # 2 FLIGHT TEST (ON PROTEUS SURROGATE)		2-4Q		
(U) DESIGN READINESS REVIEW	4Q			
(U) GH DU#3 TO SIL			1-4Q	1-4Q
(U) GH DU#2 INTEGRATION & TEST (ON GH AIR VEHICLE)*			1-4Q	1-4Q
(U) LARGE RADAR (WAS) DEVELOPMENT**	1-4Q	1-4Q		
(U) WAS DU # 1 BUILD**	1-4Q	1-4Q		

* Note: Schedule depends on Global Hawk program restructure.

**Note: Large radar (WAS) development terminated in FY 2007, no WAS radar deliveries.

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PE NUMBER: 0207451F

PE TITLE: Single Integrated Air Picture (SIAP)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	39.973	4.976	5.067	5.076	5.068	5.056	5.048	0.000	0.000
5232 Single Integrated Air Picture (SIAP)	0.000	39.973	4.976	5.067	5.076	5.068	5.056	5.048	0.000	0.000

In FY07, this is a new PE. All Single Integrated Air Picture (SIAP) funds from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds.

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real-time and near real-time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF Command and Control weapons systems.

SIAP consists of the development and implementation of a software Model Driven Architecture (MDA) known as the Integrated Architecture Behavioral Model (IABM). The MDA approach will provide enhanced interoperability by implementing Joint Battle Management Command and Control (JBMC2) functionality in weapon systems, thus enabling more accurate situational awareness and reduced fratricide. Beginning in FY08, the SIAP funding in PE 0207451F will only be able to provide subject matter experts to assist and advise SIAP Joint Program Office.

The Air Force is applying expertise in the various AF weapon System Program Offices (SPOs) to assist with defining the SIAP Platform Independent Model (PIM) and the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, and the integration methodology for AF weapon systems. This effort funds AF-specific, SIAP-related engineering efforts. Also, the Air Force has staff that works directly with the Joint SIAP Program Office to help define and develop the functional content of the SIAP PIM.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	40.124	13.162	0.102
(U) Current PBR/President's Budget	0.000	39.973	4.976	5.067
(U) Total Adjustments	0.000			
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	0.000	-0.151		
Congressional Increases	0.000			
Reprogrammings	0.000			
SBIR/STTR Transfer	0.000			

(U) **Significant Program Changes:**

In FY07, this is a new PE. All Single Integrated Air Picture (SIAP) funds from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds. The FY07 funding supports the work necessary to support the development and test of the joint product. Beginning in FY08 funding will be used to support the Joint SIAP Program Office to reduce risk until the Air Force AWACS and BCS-F programs are ready to integrate the PSM functionality. FY08-FY13 funding levels were adjusted to synchronize with the needs of the AWACS and BCS-F programs.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)			PROJECT NUMBER AND TITLE 5232 Single Integrated Air Picture (SIAP)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5232 Single Integrated Air Picture (SIAP)	0.000	39.973	4.976	5.067	5.076	5.068	5.056	5.048	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY07 this is a new PE. All Single Integrated Air Picture (funds) from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds.

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real-time and near real-time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF Command and Control weapons systems.

SIAP consists of the development and implementation of a software Model Driven Architecture (MDA) known as the Integrated Architecture Behavioral Model (IABM). The MDA approach will provide enhanced interoperability by implementing Joint Battle Management Command and Control (JBMC2) functionality in weapon systems, thus enabling more accurate situational awareness and reduced fratricide. Beginning in FY08, the SIAP funding in PE 0207451F will only be able to provide subject matter experts to assist and advise SIAP Joint Program Office.

The Air Force is applying expertise in the various AF weapon System Program Offices (SPOs) to assist with defining the SIAP Platform Independent Model (PIM) and the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, and the integration methodology for AF weapon systems. This effort funds AF-specific, SIAP-related engineering efforts. Also, the Air Force has staff that works directly with the Joint SIAP Program Office to help define and develop the functional content of the SIAP PIM.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MDA PSM Development (AWACS 40/45)		6.000		
(U) MDA Integration and Implementation (BCS-F)		14.378		
(U) MDA Demonstration		4.000		
(U) Integration Resource Center (IABM Dev & Risk Reduction/MDA Tools Development)		4.500	1.461	1.500
(U) MDA Verification and Validation (IABM Development Risk Reduction)		4.012		
(U) Engineering Support		7.083	3.515	3.567
(U) Total Cost	0.000	39.973	4.976	5.067

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)	PROJECT NUMBER AND TITLE 5232 Single Integrated Air Picture (SIAP)
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E 27434F	39.600	0.000	0.000	0.000	0.000	0.000			Continuing	TBD

(U) D. Acquisition Strategy

The Air Force SIAP System Program Office (SPO) provides for common development and integration across multiple Air Force platforms via existing contract mechanisms.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)	PROJECT NUMBER AND TITLE 5232 Single Integrated Air Picture (SIAP)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
(U) <u>Product Development</u>														
Integration Resource Center (IABM Dev & Risk Reduction/MDA Tools Development)	CPFF	BAE Systems Inc, Arlington VA				4.500	Dec-06	1.461	Nov-07	1.500	Nov-08	Continuing	TBD	TBD
MDA PSM Development (AWACS 40/45)	CPIF	Boeing Co., Seattle WA				6.000	Dec-06					Continuing	TBD	TBD
MDA Integration and Implementation (BCS-F)	CPIF	Thales-Raytheon Systems, Fullerton CA				14.378	Dec-06					Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		24.878		1.461		1.500		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
ESC Engineering Support	CP/FFFP	Titan Corp, Odyssey Consulting Group, BTAS Inc, MITRE				7.083	Oct-06	3.515	Oct-07	3.567	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	0.000		7.083		3.515		3.567		Continuing	TBD	TBD
Remarks:														
(U) <u>Test & Evaluation</u>														
MDA Demonstration	TBD	TBD				4.000	Jan-07					Continuing	TBD	TBD
MDA Verification and Validation (IABM Development and Risk Reduction)	TBD	TBD				4.012	Jan-07					Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		8.012		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	0.000		39.973		4.976		5.067		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2007

BUDGET ACTIVITY

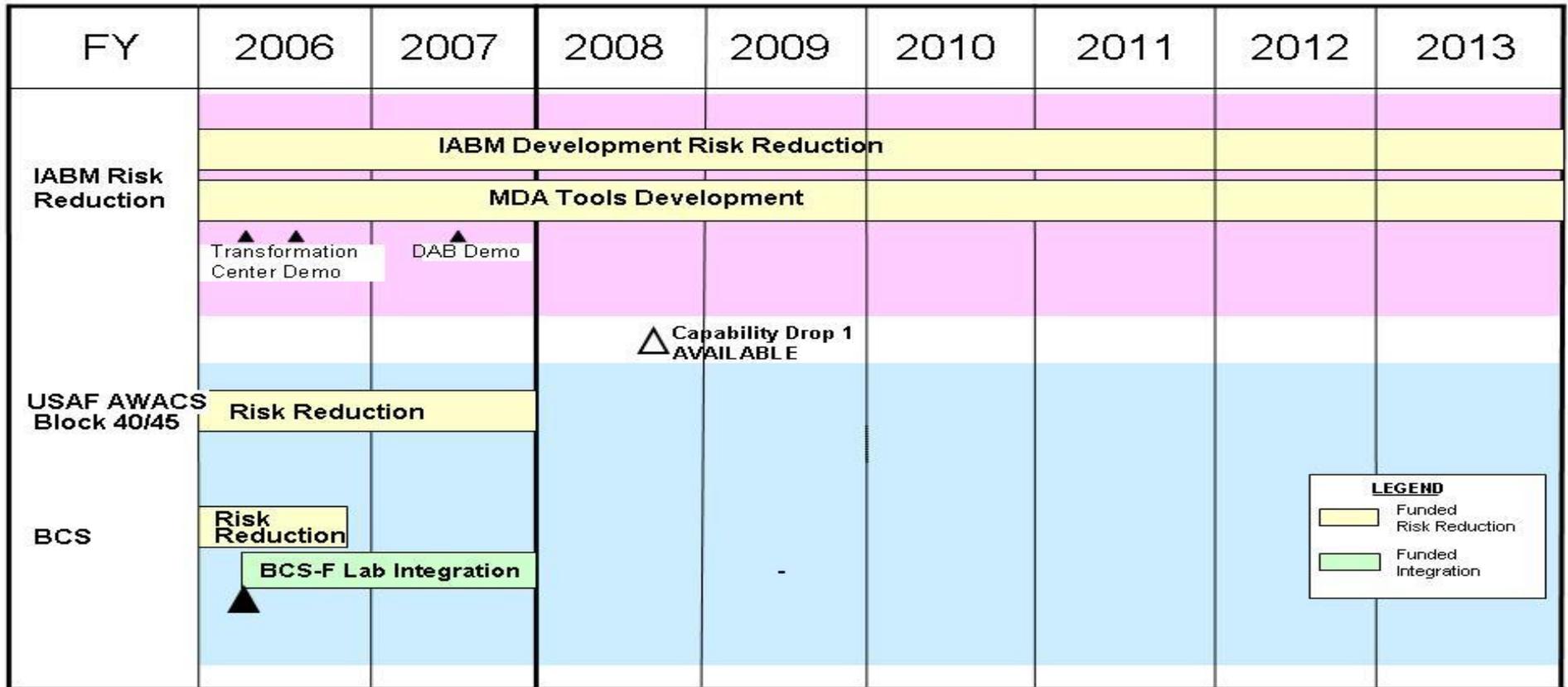
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE

5232 Single Integrated Air Picture (SIAP)



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

**0207451F Single Integrated Air
Picture (SIAP)**

PROJECT NUMBER AND TITLE

**5232 Single Integrated Air Picture
(SIAP)**

(U) Schedule Profile

(U) MDA Tools Development (Software Integration Tools)
 (U) Demonstration
 (U) AWACS Risk Reduction
 (U) BCS Risk Reduction
 (U) BCS IABM Integration

FY 2006

FY 2007

FY 2008

FY 2009

1-4Q

1-4Q

1-4Q

1-4Q

2-3Q

3Q

1-4Q

1-4Q

1-3Q

2-4Q

1-4Q

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PE NUMBER: 0207701F
 PE TITLE: Full Combat Mission Training

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.723	35.010	87.096	99.380	89.568	30.996	26.887	27.972	Continuing	TBD
4673 Distributed Mission Training (DMT)	19.076	27.209	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5012 Full Combat Mission Training	6.647	7.801	87.096	99.380	89.568	30.996	26.887	27.972	Continuing	TBD

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

(U) A. Mission Description and Budget Item Justification

Full Combat Mission Training supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. Networked Live-Virtual-Constructive components form the integrated DMO battlespace by linking geographically distributed high fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.423	32.243	35.768	15.340
(U) Current PBR/President's Budget	25.723	35.010	87.096	99.380
(U) Total Adjustments	-0.700	2.767		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.377	-0.133		
Congressional Increases		2.900		
Reprogrammings	-0.088			
SBIR/STTR Transfer	-0.235			

(U) Significant Program Changes:

FY 06 Funding:

- Decreased by Congressional Rescissions, SBIR, and below threshold reprogramming

FY 07 Funding

- Increased by Congressional add

- Decreased by Congressional Rescissions

FY 08 Funding

- AF increase to support DMO integration of B-1, B-2 and B-52 trainers

- AF increase to support development of F-16 & F-15C trainers to comply with FY 07 NDAA limitation on use of service contracts

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

FY 09

- AF increase to support DMO integration of B-1 and B-2 trainers
- AF increase to support development of F-16 & F-15C trainers to comply with FY 07 NDAA limitation on use of service contracts

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207701F Full Combat Mission Training			PROJECT NUMBER AND TITLE 4673 Distributed Mission Training (DMT)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4673 Distributed Mission Training (DMT)	19.076	27.209	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

(U) A. Mission Description and Budget Item Justification

Air Force Distributed Mission Training (DMT). DMT provides the research and development to facilitate the integration of fielded and newly acquired, Air Force owned, aircraft training devices into Distributed Mission Operations (DMO) networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with Live-Virtual-Constructive components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems.. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues	0.110	6.791	0.000	0.000
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of Air Operation Center [AOC], A-10, B-1, B-2, B-52, Control and Reporting Center [CRC] F-22 F-35, E-8, EC-130, Joint Terminal Attack Controller [JTAC] and Joint Theater Air-Ground Simulation System [JTAGSS])	1.766	4.118	0.000	0.000
(U) Research and development to provide for the DMO integration of F-22 high-fidelity flight trainers.	17.200	16.300	0.000	0.000
(U) Total Cost	19.076	27.209	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) N/A										
All "Other Program Funding" is reflected in BPAC 5012										

(U) D. Acquisition Strategy

Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business case considerations and the magnitude of the training system changes required to provide DMO capability. Fielded and newly acquired, Air Force owned Flight and Mission Training Systems will be modified to ensure compatibility with the DMO environment. Additional DMO capable trainers will be acquired for those systems

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

4673 Distributed Mission Training (DMT)

where current quantities are inadequate to meet training requirements.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 4673 Distributed Mission Training (DMT)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> 677 AESG AFMC		677AEFG AFMC, Wright Patterson AFB, OH	0.000	1.876		10.909						Continuing	TBD	
670 AESS AFMC		670 AESS AFMC, Wright Patterson AFB, OH	0.000	17.200		16.300						Continuing	TBD	
Subtotal Product Development Remarks:			0.000	19.076		27.209		0.000		0.000		Continuing	TBD	0.000
(U) <u>Support</u> Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test & Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	19.076		27.209		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
4673 Distributed Mission Training (DMT)

Exhibit R-4: BPAC 4673 Distributed Mission Training (Distributed Mission Operations)

Fiscal Year	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues									▲	→														
Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of AOC, A-10, B-1, B-2, B-52, CRC, F-22, F-35, E-8, EC-130, JTAC and JTAGSS									▲	→														
Phase A F-22 DMO requirements definition/ systems									▲	→	▲													
Phase B: F-22 DMO Development / Test/Retrofit													△	→	→	→	→	→	→	→			▲	

- ▲ Studies/ Phase Initiated
- △ Phase Scheduled
- ▲ IOC

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 4673 Distributed Mission Training (DMT)
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues (Study initiation)	2Q			
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of AOC, A-10, B-1, B-2, B-52, CRC F-22 F-35, E-8, EC-130, JTAC and JTAGSS (Study Initiation)	2Q			
(U) Phase A: F-22 DMO requirements definition/ systems	2Q	2Q		
(U) Phase B: F-22 DMO Development / Test/Retrofit		2Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0207701F Full Combat Mission Training			PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5012 Full Combat Mission Training	6.647	7.801	87.096	99.380	89.568	30.996	26.887	27.972	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

(U) A. Mission Description and Budget Item Justification

Full Combat Mission Training (FCMT) supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. FCMT provides research in areas benefiting the AF DMO environment as a whole. Provides development funding for DMO capable F-16 and F-15C flight simulators to replace training capability currently provided by training simulation service contracts. Provides Mission Essential Competency studies and contract administration for new systems that support the initial CAF DMO capability. Provides research and development to facilitate integration of fielded and newly acquired, Air Force owned, aircraft training devices into DMO networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with Live-Virtual-Constructive components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Development, demonstration and insertion of multi-level security capability	0.000	0.000	4.040	2.950
(U) Continue development, demonstration, studies and insertion of DMO related technologies and proficiency based continuation training strategies. Includes but is not limited to common databases, improved image generation fidelity, enhanced Brief/Debrief capabilities, Mission Essential Competencies and multi-level security	1.441	2.506	4.944	3.458
(U) Studies to assess and validate warfighter seasoning required/desired in continuation training and accreditation of portions of this experiencing process utilizing the Mission Essential Competencies (MECs) in the DMO environment	1.000	1.000	1.000	1.000
(U) Studies to Develop objective performance enhancement and measurement tools, for use in the DMO environment, which will be used for certification of a team and/or a team of teams' proficiency/currency	1.000	1.000	1.000	1.000
(U) Identify training and rehearsal gaps in DMO architecture based on current weapons system and operational tactics, training, procedures (TTPs), especially those essential to operational Kill Chain	1.000	1.000	1.000	1.000
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of Air Operation Center [AOC], A-10, B-1, B-2, B-52, Control and Reporting Center [CRC] F-22 F-35, E-8, EC-130, Joint Terminal Attack Controller [JTAC] and Joint Theater	0.000	0.000	37.000	8.800

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Air-Ground Simulation System [JTAGSS])				
(U) Research for and development of DMO capable flight simulators to replace training capability currently provided by training simulation service contracts. Includes but is not limited to the development of F-16 and F-15C flight simulators	0.000	0.000	33.783	75.316
(U) Program Office support	2.206	2.295	4.329	5.856
(U) Total Cost	6.647	7.801	87.096	99.380

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) PE 0207701, Full Combat Mission Training, Aircraft Procurement, AF	0.000	10.598	86.114	51.558	109.790	120.451	84.881	24.070	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, Other Procurement, AF	0.000	0.000	0.000	0.000	4.693	7.927	26.383	29.937	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, O & M, AF	181.891	197.340	175.415	144.328	163.602	167.447	172.824	208.374	Continuing	TBD

(U) **D. Acquisition Strategy**
 Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business case analysis (BCA) and the magnitude of the training system changes required to provide DMO capability. The pioneer systems in DMO including F-15C, AWACS, F-16 Block 40/50 and F-15E all required new training systems. In addition, the Operations and Integration capability had to be created. The Training Simulation Service (TSS) acquisition strategy was used to meet a portion of these requirements. In the TSS approach, the contractor owns and provides the simulator equipment, maintains simulator concurrency with weapons system, and has incentives to keep the equipment up to date with simulator and network technologies. The NDAA for FY 07 specifically limits the acquisition of military flight simulators with service contracts. As a result, training capability currently provided on TSS contracts will be replaced with training provided with procured flight simulators as the TSS contracts expire. In addition, currently fielded and projected Air Force owned Flight and Mission Training Systems without DMO capability will be modified to ensure compatibility with the DMO environment. Additional DMO capable trainers will be acquired for those systems where current quantities are inadequate to meet training requirements.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0207701F Full Combat Mission Training				PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training					
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
677 AESG AFMC		677 AESG AFMC, Wright Patterson AFB, OH	16.373	1.441		2.506		45.167	Jan-08	81.724		Continuing	TBD	
670 AESS (F-22)		670 AESS AFMC, Wright Patterson AFB, OH	0.000	0.000		0.000		11.000		0.000		0.000	11.000	
507 MASSG (B-52)		507 MASSG, Hill AFB, UT	0.000	0.000		0.000		4.800	Jan-08	0.000		0.000	4.800	
677 AESG/TQ (B-1 & B-2)		677 AESG/TQ AFMC, Wright Patterson AFB, OH	0.000	0.000		0.000		18.800	Jan-08	8.800	Jan-09		27.600	
Subtotal Product Development			16.373	1.441		2.506		79.767		90.524		Continuing	TBD	0.000
Remarks:	670 AESS funds reflected in BPAC 4673 through FY 07													
<u>(U) Support</u>														
- Air Force Research Lab Human Effectiveness Directorate		AFRL/HEA, Mesa, AZ	2.402	3.000		3.000		3.000		3.000		Continuing	TBD	
Subtotal Support			2.402	3.000		3.000		3.000		3.000		Continuing	TBD	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Program Office Support		677 AESG AFMC, Wright Patterson AFB, OH	6.770	2.206		2.295		4.329		5.856		Continuing	TBD	
Subtotal Management			6.770	2.206		2.295		4.329		5.856		Continuing	TBD	0.000

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Project 5012

Exhibit R-3 (PE 0207701F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

5012 Full Combat Mission Training

Remarks:

(U)

Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	25.545	6.647	7.801	87.096	99.380	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE
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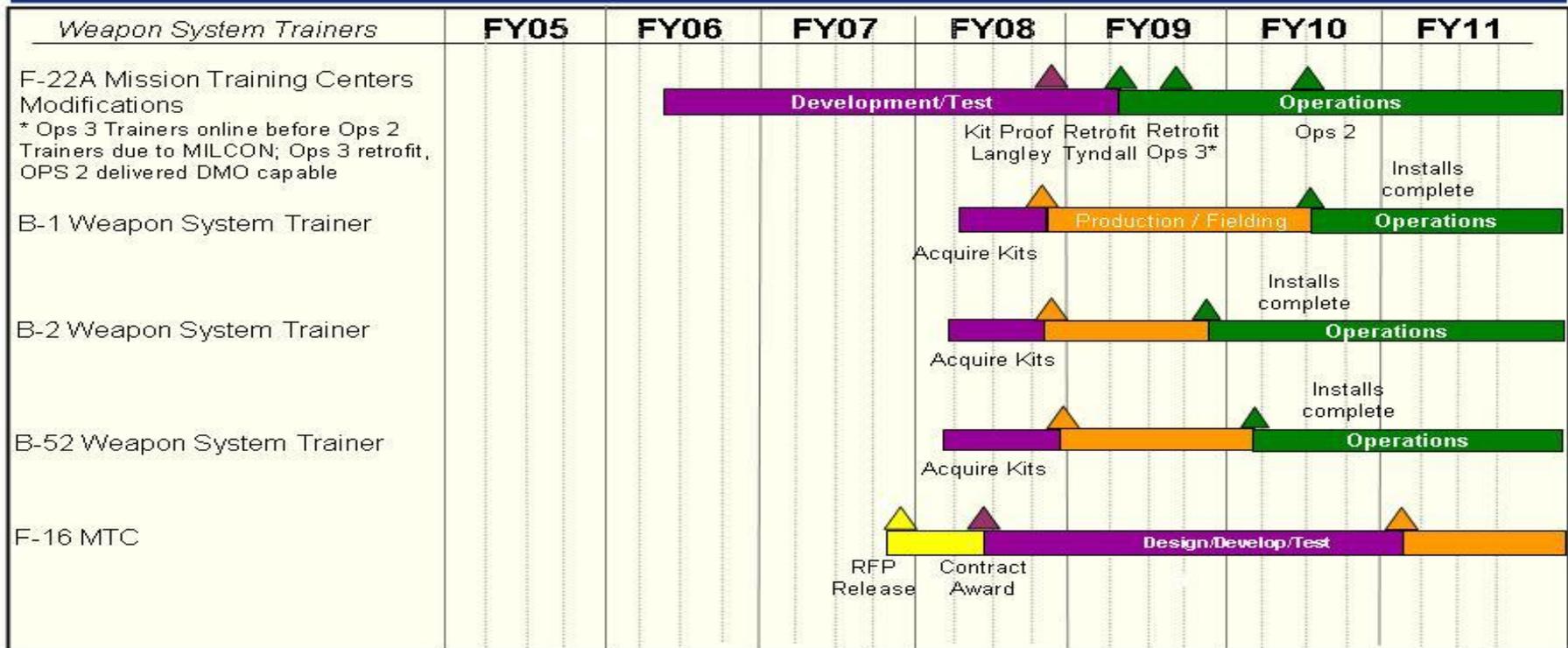
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5012 Full Combat Mission Training



DMO CAF Schedule AF Owned Systems



Source Selection
 Design/Develop/Test
 Production / Fielding
 Operations
 △ ◇ Key events

FY07 Staffer Brief

Exhibit R-4, RDT&E Schedule Profile

DATE
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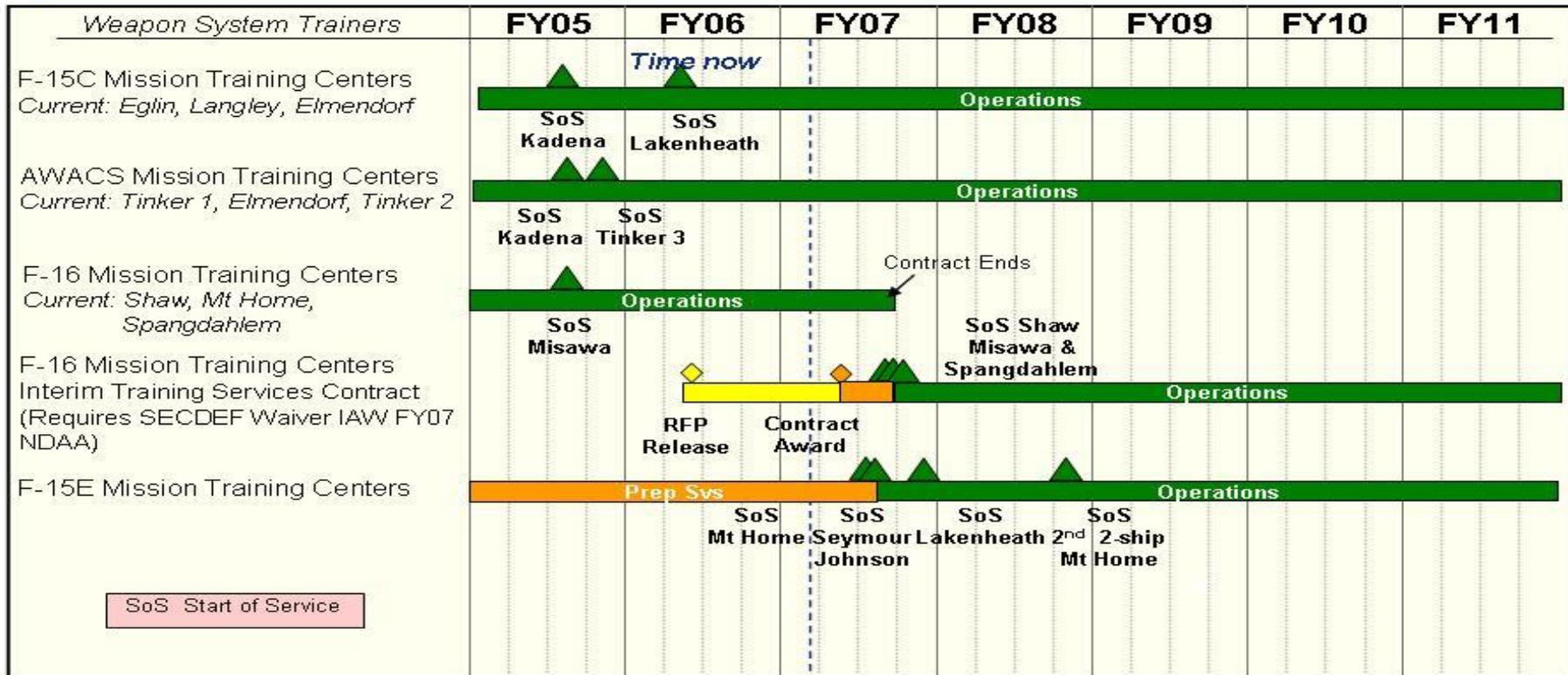
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5012 Full Combat Mission Training



DMO CAF Schedule Training Service Contracts



SoS Start of Service

Source Selection
 Contractor Preparatory Services
 Operations
 Key events

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training
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<u>(U) Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) F-15C 2-ship operations begin: Lakenheath	2Q			
(U) F-15E 2-ship operations begin: Mt. Home		3Q		
(U) F-15E 2-ship operations begin: Seymour Johnson		3Q		
(U) F-15E 2-ship operations begin: Lakenheath		4Q		
(U) F-15E 2-ship operations (2nd) begin: Mt Home				4Q
(U) F-22 Development	2Q			2Q
(U) F-22 Proof Kit: Langley			4Q	
(U) F-22 Kit install :Tyndall				2Q
(U) F-22 Kit install Ops 3				3Q
(U) B-1 Development begins			1Q	
(U) B-1 Mod kits acquired			4Q	
(U) B-2 Development begins			1Q	
(U) B-2 Mod kits acquired			4Q	
(U) B-2 Mod kits installed				4Q
(U) B-52 Development begins			1Q	
(U) B-52 Mod kits acquired			4Q	
(U) F-16 Procurement contract award/development begins			2Q	

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PE NUMBER: 0305176F

PE TITLE: Combat Survivor Evader Locator

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	16.817	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341
4522 CSAR EMD	16.817	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341

FY06 Funding is congressionally directed for TAC/TAG.

(U) A. Mission Description and Budget Item Justification

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survival radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. Acquisition Block A, which corresponds to ORD Block 1, meets threshold requirements. In FY06 Congress reprogrammed funds for the development of Terminal Area Communication and Terminal Area Guidance (TAC/TAG). This program is in Budget Activity 5, System Development and Demonstration, because it funds the development of TAC/TAG.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	17.250	0.000	0.000	0.000
(U) Current PBR/President's Budget	16.818	0.000	0.000	0.000
(U) Total Adjustments	-0.432			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.432			

(U) Significant Program Changes:

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator			PROJECT NUMBER AND TITLE 4522 CSAR EMD		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4522 CSAR EMD	16.817	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survival radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. Acquisition Block A, which corresponds to ORD Block 1, meets threshold requirements. In FY06 Congress reprogrammed funds for the development of Terminal Area Communication and Terminal Area Guidance (TAC/TAG). This program is in Budget Activity 5, System Development and Demonstration, because it funds the development of TAC/TAG.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) CSEL Engineering and Manufacturing Development	14.125			
(U) Government Test and Operational Assessment	1.948			
(U) Other Government Support	0.745			
(U) Total Cost	16.818	0.000	0.000	0.000

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 35176F, Other Procurement, Air Force - WSC 837170 (Budget Activity 3)	7.109	27.225	26.857	27.083	27.733	28.163	28.786	29.423	0.000	202.379

Note: Army and Navy procurement of CSEL radios is funded separately by those Services.

(U) **D. Acquisition Strategy**

The Full Rate Production (FRP) contract is a Sole Source award to Boeing; however, all previous major contracts within this Program Element were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator	PROJECT NUMBER AND TITLE 4522 CSAR EMD
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
Boeing	CPAF	Anaheim, CA	87.623	14.125	Jun-06							0.000	101.748	
SMC (COBRA)	Multiple	Multiple	4.000									0.000	4.000	
Subtotal Product Development			91.623	14.125		0.000		0.000		0.000		0.000	105.748	0.000
Remarks:														
<u>(U) Support</u>														
SPAWAR	MIPR	San Diego, CA	3.289									0.000	3.289	
PRC/ARINC/BD Systems	CPAF	Multiple	3.003	0.150	Sep-06							0.000	3.153	
FFRDC (MITRE/Aerospace)	CPAF	Multiple	6.488	0.295	Sep-06							0.000	6.783	
MANTECH	CPAF	Alliant Tech Systems Hopkins, MN	0.600									0.000	0.600	
SMC	CPAF	Los Angeles, CA	0.777									0.000	0.777	
JPRA	MIPR	Ft. Belvoir, VA	0.200									0.000	0.200	
Miscellaneous	Multiple	various	0.801	0.300	Oct-06							0.000	1.101	
Subtotal Support			15.158	0.745		0.000		0.000		0.000		0.000	15.903	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
AFOTEC	MIPR	Kirtland AFB, NM	0.357									0.000	0.357	
746TS	MIPR	Kirtland AFB, NM	1.308									0.000	1.308	
18FTS			0.000	1.346	Oct-06								1.346	
SMC Test Support	CPAF	Los Angeles AFB, CA	0.000	0.452	Nov-06								0.452	
Joint Spectrum Center	CPAF	IIT Research Institute Chicago, IL	0.514									0.000	0.514	
ESC (TBMCS SPO)	CPAF	Lockheed Martin Colorado Springs, CO	0.500									0.000	0.500	
EPG	MIPR	Ft.	2.284									0.000	2.284	

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Project 4522

Exhibit R-3 (PE 0305176F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)			0305176F Combat Survivor Evader Locator				4522 CSAR EMD				
		Huachuca, AZ									
JITC	MIPR	Multiple	1.040	0.150	Oct-06			0.000	1.190		
DISA	MIPR		0.000					0.000	0.000		
CECOM	MIPR		0.000					0.000	0.000		
SPAWAR	MIPR	San Diego, CA	0.077					0.000	0.077		
Army Research Labs	MIPR	White Sands, NM	0.030					0.000	0.030		
GCCS-A (Integration Support)	MIPR		0.000					0.000	0.000		
GCCS-M	MIPR	SPAWAR San Diego, CA	0.200					0.000	0.200		
PRMS	MIPR							0.000	0.000		
Subtotal Test & Evaluation			6.310	1.948		0.000	0.000	0.000	0.000	8.258	0.000
Remarks:											
(U) <u>Management</u>										0.000	
Subtotal Management			0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Remarks:											
(U) Total Cost			113.091	16.818		0.000	0.000	0.000	0.000	129.909	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

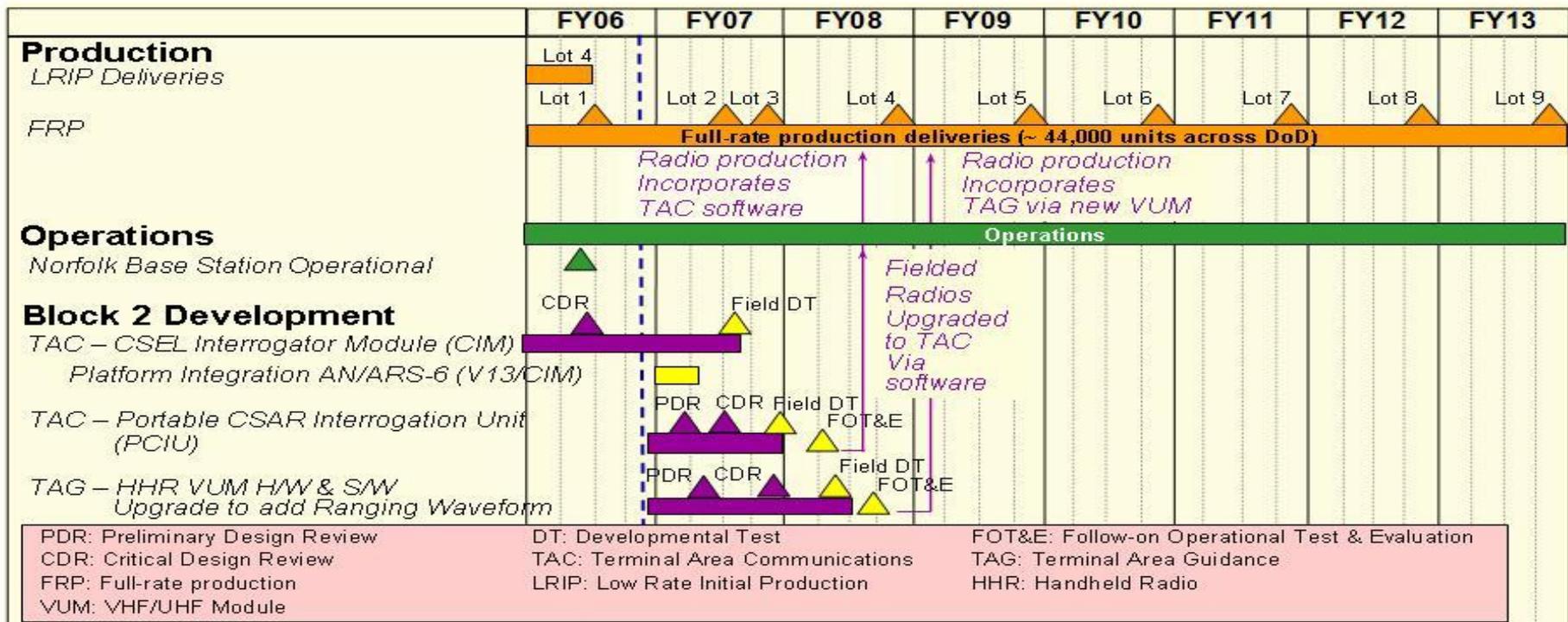
PE NUMBER AND TITLE
0305176F Combat Survivor Evader
Locator

PROJECT NUMBER AND TITLE
4522 CSAR EMD



U.S. AIR FORCE

CSEL Schedule



PDR: Preliminary Design Review
 CDR: Critical Design Review
 FRP: Full-rate production
 VUM: VHF/UHF Module
 DT: Developmental Test
 TAC: Terminal Area Communications
 LRIP: Low Rate Initial Production
 FOT&E: Follow-on Operational Test & Evaluation
 TAG: Terminal Area Guidance
 HHR: Handheld Radio



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator	PROJECT NUMBER AND TITLE 4522 CSAR EMD
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Full Rate Production Decision				
(U) Full Rate Production Award				
(U) LRIP Lot 4 Delivery Completion	1Q			
(U) TAC CSEL Interrogator Module PDR				
(U) TAC CSEL Interrogator Module CDR	2Q			
(U) TAC Portable CSAR Interrogator Unit PDR	3Q			
(U) TAC Portable CSAR Interrogator Unit CDR	4Q			
(U) TAG VHF/UHF Module hardware and Software PDR	3Q			
(U) TAG VHF/UHF Module hardware and Software CDR		2Q		
(U) TAC FOT&E		4Q		

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.400	15.723	42.368	74.433	0.000	0.000	0.000	0.000	Continuing	TBD
5259 Joint Cargo Aircraft (JCA)	1.400	15.723	42.368	74.433	0.000	0.000	0.000	0.000	Continuing	TBD

FY06: The FY06 Omnibus reprogramming action approved JCA new start with \$1.4M.
 FY07: The FY07 PB was APAF, BP10. Per USAF request, the FY07 Defense Appropriations bill transferred the FY07 funds to RDT&E.
 FY10-FY13: Final AF JCA requirements and procurement quantities are still being defined. These requirements will be validated by early FY08. The AF intends to transfer a portion of APAF funds to RDT&E in the FY10 POM to support any resulting aircraft, training system, test, and support system development requirements that remain.

(U) A. Mission Description and Budget Item Justification

The Joint Cargo Aircraft (JCA) is an Army/Air Force aircraft program. It procures a commercial derivative aircraft that meets the Army's immediate needs and implements a RDT&E program to integrate, test, and install additional equipment packages required to meet Air Force mission requirements. In early FY08 the Air Force will complete its requirements analysis and will begin the development program to support Air Force unique JCA mission requirements. The Army's plan is to procure its first aircraft in May 2007. Initial USAF procurement is planned for FY10.

The JCA is a fixed wing airlift platform that performs airlift missions in support of the Joint Force Commander (JFC), in a Joint Operations Area (JOA), at a time and place of the JFC's choosing to achieve strategic, operational and tactical objectives. Joint Publication 3-17, Joint Doctrine, Tactics, Techniques and Procedures for Air Mobility Operations, 14 AUG 02, identifies five basic airlift missions. The JCA provides the Joint Force Commander (JFC) with these mission capabilities predominantly at the tactical level across the designated Joint Operations Area. This is most effective when operating the aircraft as close as possible to the end user, and which may require using austere or unimproved landing zones, but also includes more traditional airfield operations. The Air Force will use the JCA to conduct intratheater airlift in support of operational and tactical objectives. This role will be a part of the common airlift user pool as defined in Joint Publication 3-17.

FY08 Budget Justification: Program implements joint Live Fire Test & Evaluation (LFT&E) and Initial Operational Test & Evaluation (IOT&E) programs, initiates the AF mission equipment integration design/development program, test aircraft order, and engineering, training, and logistics support studies and analysis.

FY09 Budget Justification: Continues joint LFT&E, and IOT&E programs; continues AF mission equipment integration design/development program; continues test aircraft purchase; engineering, training, and logistics support studies and analysis.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000	0.000
(U) Current PBR/President's Budget	1.400	15.723	42.368	74.433
(U) Total Adjustments	1.400			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases		15.723		
Reprogrammings	1.400			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

Per USAF request, the FY07 appropriations bill reprogrammed FY07 APAF, BP10 to RDT&E

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft				PROJECT NUMBER AND TITLE 5259 Joint Cargo Aircraft (JCA)			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
5259 Joint Cargo Aircraft (JCA)	1.400	15.723	42.368	74.433	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	1	0	0	0			

FY06: The FY06 Omnibus reprogramming action approved JCA new start with \$1.4M.

FY07: The FY07 PB was APAF, BP10. Per USAF request, the FY07 Defense Appropriations bill transferred the FY07 funds to RDT&E.

FY10-FY13: Final AF JCA requirements and procurement quantities are still being defined. These requirements will be validated by early FY08. The AF intends to transfer a portion of APAF funds to RDT&E in the FY10 POM to support any resulting aircraft, training system, test, and support system development requirements that remain.

(U) A. Mission Description and Budget Item Justification

The Joint Cargo Aircraft (JCA) is an Army/Air Force aircraft program. It procures a commercial derivative aircraft that meets the Army's immediate needs and implements a RDT&E program to integrate, test, and install additional equipment packages required to meet Air Force mission requirements. In early FY08 the Air Force will complete its requirements analysis and will begin the development program to support Air Force unique JCA mission requirements. The Army's plan is to procure its first aircraft in May 2007. Initial USAF procurement is planned for FY10.

The JCA is a fixed wing airlift platform that performs airlift missions in support of the Joint Force Commander (JFC), in a Joint Operations Area (JOA), at a time and place of the JFC's choosing to achieve strategic, operational and tactical objectives. Joint Publication 3-17, Joint Doctrine, Tactics, Techniques and Procedures for Air Mobility Operations, 14 AUG 02, identifies five basic airlift missions. The JCA provides the Joint Force Commander (JFC) with these mission capabilities predominantly at the tactical level across the designated Joint Operations Area. This is most effective when operating the aircraft as close as possible to the end user, and which may require using austere or unimproved landing zones, but also includes more traditional airfield operations. The Air Force will use the JCA to conduct intratheater airlift in support of operational and tactical objectives. This role will be a part of the common airlift user pool as defined in Joint Publication 3-17.

FY08 Budget Justification: Program implements joint Live Fire Test & Evaluation (LFT&E) and Initial Operational Test & Evaluation (IOT&E) programs, initiates the AF mission equipment integration design/development program, test aircraft order, and engineering, training, and logistics support studies and analysis.

FY09 Budget Justification: Continues joint LFT&E, and IOT&E programs; continues AF mission equipment integration design/development program; continues test aircraft purchase; engineering, training, and logistics support studies and analysis.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Joint LFT&E and IOT&E (AF Share)		3.150	1.916	9.695
(U) AF Mission Equipment Integration Design & Development, Test Aircraft			25.181	52.116
(U) Engineering, Training, and Logistics Studies	1.045	9.196	11.774	8.875
(U) PMA	0.355	3.377	3.497	3.747
(U) Total Cost	1.400	15.723	42.368	74.433

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft	PROJECT NUMBER AND TITLE 5259 Joint Cargo Aircraft (JCA)
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Aircraft Procurement				24.405	467.731	622.267	953.743	974.886	TBD	TBD

(U) D. Acquisition Strategy

The Joint Cargo Aircraft (JCA) is an Army/Air Force aircraft program. It procures a commercial derivative aircraft that meets the Army's immediate needs and implements a RDT&E program to integrate, test, and install additional equipment packages required to meet Air Force mission requirements. In early FY08 the Air Force will complete its requirements analysis and will begin the development program to support Air Force unique JCA mission requirements. The Army's plan is to procure its first aircraft in May 2007. Initial USAF procurement is planned for FY10.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft	PROJECT NUMBER AND TITLE 5259 Joint Cargo Aircraft (JCA)
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
AF Mission Equipment Integration, Test Aircraft, and Trainers Design & Development	SS CPFF	tbd						25.181	Mar-08	52.116		Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		25.181		52.116		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Engineering, Training, and Logistics Support Trade Studies	SS FFP	tbd		1.045	May-07	9.196	May-07	11.774		8.875		Continuing	TBD	TBD
Subtotal Support			0.000	1.045		9.196		11.774		8.875		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Joint LFT&E and IOT&E	MIPR	various locations				3.150	May-07	1.916		9.695		0.439	15.200	15.200
Subtotal Test & Evaluation			0.000	0.000		3.150		1.916		9.695		0.439	15.200	15.200
Remarks:														
<u>(U) Management</u>														
PMA	N/A	N/A		0.355		3.377		3.497		3.747		Continuing	TBD	TBD
Subtotal Management			0.000	0.355		3.377		3.497		3.747		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	1.400		15.723		42.368		74.433		Continuing	TBD	TBD
FY10-FY13: Final AF requirements and procurement questions are still being defined. These requirements will be validated by FY08. The AF intends to transfer a portion of APAF funds to RDT&E in the FY10 POM to support any resulting aircraft, training system, test, and support system development requirements. The \$439K "Cost to Complete" for the joint test program will be addressed in this transfer.														

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

PROJECT NUMBER AND TITLE

5259 Joint Cargo Aircraft (JCA)

(U) **Schedule Profile**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Joint LFT&E and IOT&E

2-4Q

1-4Q

1-4Q

(U) AF Mission Equipment Integration, Test Aircraft, and Trainers Design & Development

2-4Q

1-4Q

(U) Engineering, Training and Logistics Studies

2-4Q

1-4Q

1-4Q

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PE NUMBER: 0401318F
PE TITLE: CV-22

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401318F CV-22
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.672	26.501	16.688	18.717	42.177	39.640	33.457	24.336	Continuing	TBD
4103 CV-22	33.672	26.501	16.688	18.717	42.177	39.640	33.457	24.336	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft. Block 20 development includes critical capabilities such as radio frequency and infrared countermeasures improvements, co-site communications interference, electro-optical navigational sensor, tactical data link, intelligence broadcast receiver functionality, improved aero performance, anti-skid brakes, civil GPS, improved desert environment suitability, TF/TA radar improvements, voice/data recorder and other requirements specified in the V-22 Block C/20 Capabilities Development Document.

USSOCOM and USAF jointly fund Block 10 enhancements, correction of deficiencies, and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance information systems used with the V-22, contractor logistics support for operational testing, and CV-22 unique implementation and testing of MV-22 Block B and Block C changes.

USSOCOM and USAF jointly fund emerging requirements to design, integrate, and test CV-22's ability to accelerate delivery of capabilities to meet the SOF mission as well as comply with OSD/service interoperability requirements and specifications.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	39.532	26.601	56.972	58.315
(U) Current PBR/President's Budget	33.672	26.501	16.688	18.717
(U) Total Adjustments	-5.860			
(U) Congressional Program Reductions	0.000	-0.100		
Congressional Rescissions	-0.566			
Congressional Increases	1.000			
Reprogrammings	-5.199			
SBIR/STTR Transfer	-1.095			

(U) Significant Program Changes:

FY06 defense appropriation added \$1M to research nanocrystalline diamond coatings for radome anti-icing and surface erosion protection. USAF transferred these funds

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

(via technical adjustment) to the appropriate materials R&D PE (0603112F). In addition \$5.2M was reprogrammed (BTR) to other USAF priorities.

FY08 PB reduces FY08 & FY09 RDT&E to fund mod/retrofit of Lot 8 and 9 CV-22s to Lot 10 configuration and increased production and operations & maintenance (O&M) requirements. The CV-22 unit cost increased due to a reduction of MV-22 aircraft buys and direction to budget to the Service estimate. The FY07 PB production budget was based on a lower OSD cost estimate.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0401318F CV-22			PROJECT NUMBER AND TITLE 4103 CV-22		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4103 CV-22	33.672	26.501	16.688	18.717	42.177	39.640	33.457	24.336	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft. Block 20 development includes critical capabilities such as radio frequency and infrared countermeasures improvements, co-site communications interference, electro-optical navigational sensor, tactical data link, intelligence broadcast receiver functionality, improved aero performance, anti-skid brakes, civil GPS, improved desert environment suitability, TF/TA radar improvements, voice/data recorder and other requirements specified in the V-22 Block C/20 Capabilities Development Document.

USSOCOM and USAF jointly fund Block 10 enhancements, correction of deficiencies, and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance information systems used with the V-22, contractor logistics support for operational testing, and CV-22 unique implementation and testing of MV-22 Block B and Block C changes.

USSOCOM and USAF jointly fund emerging requirements to design, integrate, and test CV-22's ability to accelerate delivery of capabilities to meet the SOF mission as well as comply with OSD/service interoperability requirements and specifications.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Block 10 Development	10.402	7.920	1.820	1.510
(U) Block 10 Test &Evaluation	21.406	15.081	5.799	3.510
(U) Block 20 Development	1.864	3.500	9.069	10.197
(U) Block 20 Test &Evaluation				3.500
(U) Total Cost	33.672	26.501	16.688	18.717

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

	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
(U) 3010 BP10/11/16/AP, PE 0401318F	266.166	270.830	593.237	499.108	507.803	440.920	459.296	469.305	636.557	4,143.222

Total Cost number does not include \$745M procurement funding prior to FY06.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

(U) D. Acquisition Strategy

Development activities for the V-22 program are performed by the prime contractor selected on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)										0401318F CV-22		4103 CV-22			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<u>(U) Product Development</u>															
Weapon System Development	SS, CPAF	Bell-Boeing											0.000		
Block 10 Development	SS, CPAF	Bell-Boeing		8.271	Jun-06	4.320	Mar-07	1.820	Mar-08	1.510	Mar-09	Continuing	TBD		
Block 10 Development	Multiple	Multiple		1.131	Aug-06	2.600	Dec-06					Continuing	TBD		
Block 20 Development	SS, CPAF	Bell-Boeing		1.864		3.500	Jun-07	8.069	Dec-07	9.197	Dec-08	Continuing	TBD		
Block 20 Development	Multiple	Multiple										Continuing	TBD		
Subtotal Product Development			0.000	11.266		10.420		9.889		10.707		Continuing	TBD	0.000	
Remarks:															
<u>(U) Support</u>															
Interim Contractor Support	SS, CPAF	Bell-Boeing, Dyn-Corp		19.306	Feb-06	10.200	Dec-06	2.965	Dec-07			Continuing	TBD		
Subtotal Support			0.000	19.306		10.200		2.965		0.000		Continuing	TBD	0.000	
Remarks:															
<u>(U) Test & Evaluation</u>															
Weapon System Testing	SS, CPAF	Bell-Boeing											0.000		
Block 10 Testing & Integration	SS, CPAF	Bell-Boeing		2.100	Sep-06	4.881	Jul-07	2.834	Feb-08	3.510	Feb-09	Continuing	TBD		
Block 20 Testing & Integration	SS, CPAF	Bell-Boeing								3.500	May-09	Continuing	TBD		
Subtotal Test & Evaluation			0.000	2.100		4.881		2.834		7.010		Continuing	TBD	0.000	
Remarks:															
<u>(U) Management</u>															
Leadership Team	MIPR	Multiple		1.000	Apr-06	1.000	Dec-06	1.000	Dec-07	1.000	Dec-08	Continuing	TBD		
Subtotal Management			0.000	1.000		1.000		1.000		1.000		Continuing	TBD	0.000	
Remarks:															
<u>(U) Total Cost</u>			0.000	33.672		26.501		16.688		18.717		Continuing	TBD	0.000	

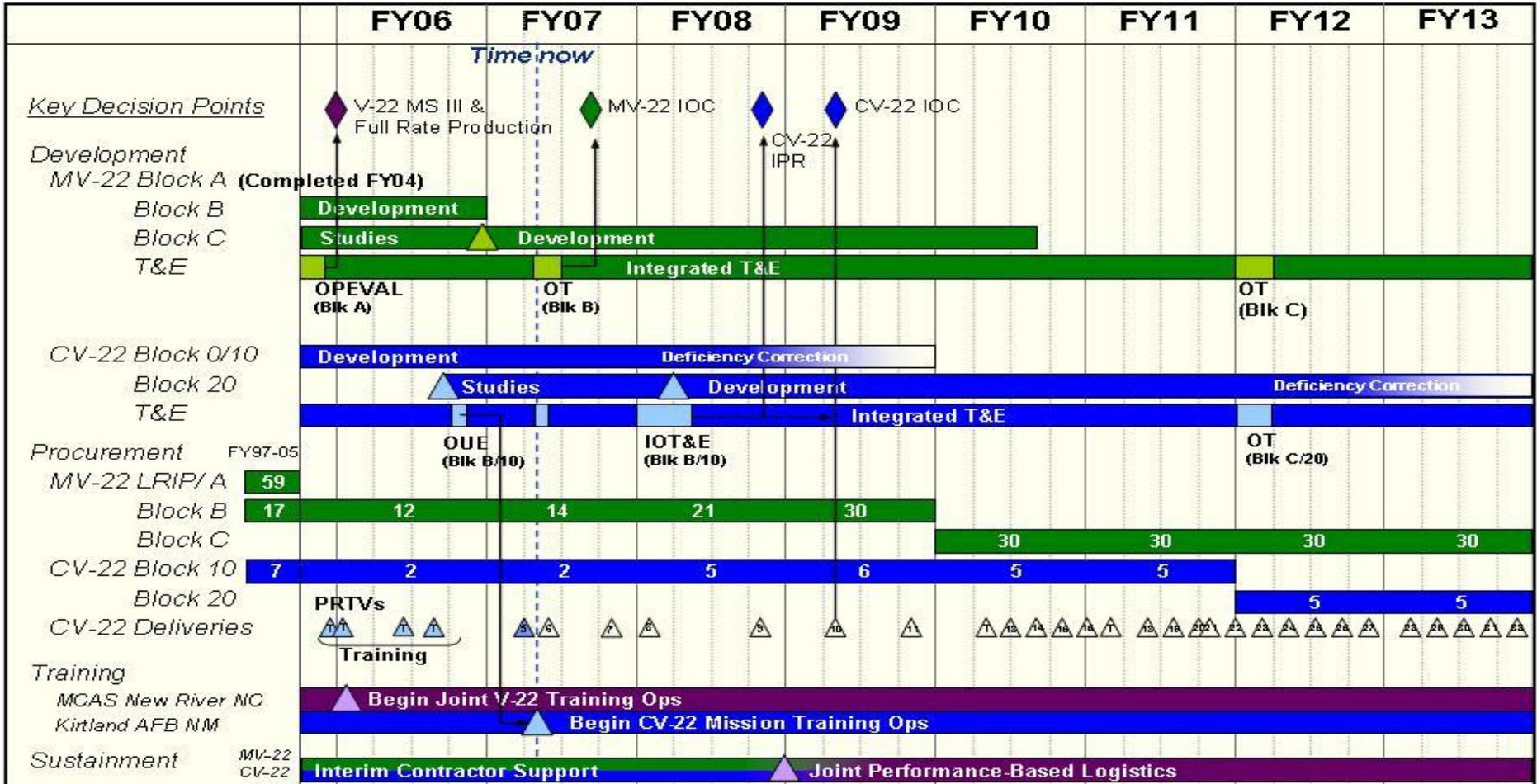
Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0401318F CV-22

PROJECT NUMBER AND TITLE
4103 CV-22



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

(U) Schedule Profile

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 Development/Correction of Deficiencies	1-4Q	1-4Q	1-4Q	1-4Q
(U) Block 0/10 Flight Test	1-4Q	1-4Q	1-4Q	1-4Q
(U) Operational Test & Evaluation	3-4Q	2Q	1-3Q	
(U) Block 20 Studies/Development/Test	3-4Q	1-4Q	1-4Q	1-4Q
(U) Aircraft Deliveries	1-4Q	1-4Q	1-4Q	1-4Q
(U) CV-22 IOC				2Q

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PE NUMBER: 0604256F
 PE TITLE: Threat Simulator Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	31.387	37.987	39.892	39.856	39.162	41.233	42.767	43.054	Continuing	TBD
2907 Electronic Combat Intel Support	1.810	2.104	2.177	2.216	2.265	2.298	2.343	2.391	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	22.306	28.414	29.893	29.763	29.075	31.064	32.400	32.475	Continuing	TBD
7500 Foreign Materiel Acquisition/Exploitation	7.271	7.469	7.822	7.877	7.822	7.871	8.024	8.188	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This PE provides funding for the elements necessary to support the Air Force Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems. Each capability or facility improvement is pursued in concert with the others so as to avoid duplicate capabilities while at the same time producing the proper mix of test resources needed to support the AF EW Test Process and testing of EW systems which can be used in any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities improvements, hardware-in-the-loop test facilities improvements, and installed system test facility improvements. Test investment activities will also be funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs. This PE also provides funding for planning, budgetary management, and technical support of the Air Force for corporate-level implementation of the EW Test Process, improvement and modernization (I&M) activities and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. This PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program as well as to support EW intelligence efforts.

This PE is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for I&M of T&E capabilities at AF Test Centers.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	31.388	38.131		
(U) Current PBR/President's Budget	31.387	37.987	39.892	39.856
(U) Total Adjustments	-0.001			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.001	-0.144		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development			PROJECT NUMBER AND TITLE 2907 Electronic Combat Intel Support		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2907 Electronic Combat Intel Support	1.810	2.104	2.177	2.216	2.265	2.298	2.343	2.391	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:				
(U) Funds fighter and bomber testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	1.084	1.335	1.382	1.406
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	0.708	0.689	0.775	0.790
(U) Funds classified operational assessments for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.	0.018	0.080	0.020	0.020
(U) Total Cost	1.810	2.104	2.177	2.216

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN None.										

(U) D. Acquisition Strategy

Not applicable.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
06 RDT&E Management Support		0604256F Threat Simulator Development						3321 Electronic Warfare Ground Test Resources		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3321 Electronic Warfare Ground Test Resources	22.306	28.414	29.893	29.763	29.075	31.064	32.400	32.475	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems. To manage program risk effectively throughout the weapons system acquisition process, and conduct test and evaluation (T&E) effectively and efficiently, a broad multi-spectrum, integrated set of T&E capabilities for modeling and simulation (M&S) through open-air ranges (OAR) is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The Electronic Warfare Test Analysis Tools & Methodologies (EWTATM) project standardizes test methodologies and provides common tools for data reduction and analysis. The National Radar Cross Section (RCS) Test Facility - NRTF (formerly Radar Target Scatter (RATSCAT)) upgrades provide improvements to the NRTF at Holloman AFB, NM, to support RCS measurement requirements of DoD and commercial customers, with either conventional or stealth systems. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS) provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides simulations of advanced Infrared (IR) & Radio Frequency (RF) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), RF missile warning, IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection, limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The DIADS Upgrades project will provide improvements to the existing DIADS system. The Installed Test Integration Program (ITIP) develops a multi-spectral synthetic battlespace with virtual and constructive modeling and simulation test and evaluation capabilities at Edwards AFB, CA. The Air Warfare Mission Simulator (AWMS) program develops an electronic warfare capability with high fidelity reconfigurable cockpits. This program will also provide the capability to link high fidelity cockpits to the information battlespace via High Level Architecture (HLA). Test investment activities will also be funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
06 RDT&E Management Support	0604256F Threat Simulator Development	3321 Electronic Warfare Ground Test Resources			
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) Accomplishments/Planned Program:					
(U) Electronic Combat (EC) Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure.	0.885	1.070	1.126	1.147	
(U) NRTF Upgrades. Enhance efficiency of operations and accuracy of low observable measurements. Assess and develop initial studies and concept design for advanced target suspension systems. Improve secure test program capability.	1.578	2.660	2.790	2.538	
(U) AFEWES. Includes upgrades to the IR and RF test capability, development of an IR Missile Warning System Pointer-Tracker evaluation capability, and Verification & Validation efforts on all threat simulators. Integration of RF SAM-E2, RF SAM-F, RF SAM-H, IR SAM-M and IR SAM-N. Continue development of integrated test capability with OAR(s). Transition of flyout models to most current DIA baseline. Integration of other test facilities with AFEWES threat suite. Development of IR background scene environment.	5.842	8.049	3.325	3.353	
(U) ITIP. Integration of ATIC (Avionics Test and Integration Complex) RF simulators/stimulators to replicate an EW battlespace to support testing of advanced weapons systems such as the F-22A, F-35, UAS, and Compass Call; includes upgrades of RF environment monitoring capabilities, as well as existing simulators/stimulators: Advanced Radar Environment Simulator (ARES), IR Sensor Stimulator (IRSS), RF threat simulators and Communications, Navigation and Identification (CNI) simulator and the integration of those upgrades into the electronic battlespace. Newly integrated capabilities include DIADS, ARES free-space radar target generation, JCS (Joint Communications Simulator), EW RF signal free-space generation; improvements to test control, real-time data displays, scenario development, data reduction and analysis functions.	7.243	8.300	8.751	7.323	
(U) AWMS. Builds 2 TS/SAR modeling & simulation facilities and 2 reconfigurable/reusable high fidelity manned flight simulators with 360 degree field-of-view visual systems. It adds integrated avionics and EW capability to 4 simulators. Develops full mission level simulation capabilities, internal & external linking, and interoperable tools to run distributed simulations in multi-ship formations for Test & Evaluation of modern aircraft such as the F-35 and F-16. AWMS provides man-in-the-loop capability to other T&E assets.	1.437	2.045	1.629	3.755	
(U) DIADS UPGRADES improve fidelity of the DIADS model by maintaining currency with the Threat Modeling and Analysis Program (TMAP) modeling architecture for threat models and upgrading	3.855	4.750	4.713	4.162	

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development	PROJECT NUMBER AND TITLE 3321 Electronic Warfare Ground Test Resources
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
individual integrated air defense system elements such as the radar model and surface to air missile model. DIADS will also be improved by incorporating changes in the threat as evidenced by updates to intelligence databases. Develop distributed interfaces between DIADS and Blue (e.g. friendly) C4ISR simulations to develop a coherent synthetic battlespace for the test and training of multi-platform sensor integration programs. An architecture update will be incorporated to move from large proprietary computers to a non-proprietary personal computer based system as well as other technical refresh updates to the system. Improve man-in-the-loop functionality by upgrading DIADS operator displays and adding new operator positions. Continue the parametric validation effort of various DIADS components.				
(U) EWTATM establishes methodologies and provides tools to standardize data reduction across the Test Facilities. These tools will be interfaced with the Measure of Performance Analysis Tool (MOPAT) developed under an earlier program. EWTATM will also expand the MOPAT with the addition of new Measures Of Performance (MOPs). As these tools are developed, the results will be incorporated in the Test Methodology Reference.	1.466	1.540	1.989	2.062
(U) Technology Insertion & Risk Reduction (TIRR): will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. Will reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs. This is an FY08 new start. Specific TIRR sub-programs for FY08 will be determined prior to end-of-year FY07.			5.570	5.423
(U) Total Cost	22.306	28.414	29.893	29.763

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>						
(U) Other APPN									
(U) Related RDT&E PE 0604759F, Major T&E Investment; PE 0604940D, Central T&E Investment Program; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, T&E Support; PE 0605978F, Facilities Sustainment - T&E Support; PE 0605976F, Facility Restoration and Modernization; PE 0605804D, Development Test and Evaluation.									

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0604256F Threat Simulator
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(U) D. Acquisition Strategy

Contracts funded from this program are predominately awarded on the basis of full and open competition.

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development			PROJECT NUMBER AND TITLE 7500 Foreign Materiel Acquisition/Exploitation		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
7500 Foreign Materiel Acquisition/Exploitation	7.271	7.469	7.822	7.877	7.822	7.871	8.024	8.188	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&E) funds are included in the prioritized Air Force FMA list established each year. Each MAJCOM prepares and approves a Foreign Materiel - Mission Need Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOM's requirements lists are then integrated into an Air Force requirement list. Each MAJCOM then approves the AF list and requirements, and final validation comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions. The list is classified secret. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, air-to-ground bomb/missiles, satellites, early warning radars, and Intercontinental Ballistic Missiles. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) B. Accomplishments/Planned Program (\$ in Millions)

Accomplishments/Planned Program:	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.	3.318	3.505	3.674	3.698
(U) Funds the exploitation of acquired Foreign Materiel IAW prioritized lists and specific exploitation plans.	3.047	3.155	3.313	3.335
(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.	0.906	0.809	0.835	0.844
(U) Total Cost	7.271	7.469	7.822	7.877

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN None.										

(U) D. Acquisition Strategy

Not applicable.

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	62.753	61.671	59.064	62.333	63.836	67.333	68.588	69.434	Continuing	TBD
4597 Air Force Test Investments	62.753	61.671	59.064	62.333	63.836	67.333	68.588	69.434	Continuing	TBD

In FY 2008, Project 4597, Air Force Test Investments, includes new start efforts

(U) A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR) program, formerly the Test Technology Development (TTD) program. The TIRR program provides funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process (TIPP). Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

The 46TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. Advanced Airborne Instrumentation Integration (AAII) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Operational Facilities (OPFACs) for Link-16 Weapon-Platform Integration (formerly

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0604759F Major T&E Investment

Link-16 Support) will provide a host platform simulator for C4I testing. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) will extend instrumentation capabilities into the Gulf of Mexico to permit testing of large footprint weapon systems. C4ISR Modeling & Simulation, Command & Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.

AEDC, located at Arnold AFB, TN, provides pre-flight ground environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Improve Turbine Engine Structural Integrity (ITESI) project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. Real-Time Display and Analysis System (RDAS) will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. The Enhance Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cells (SL2 and SL3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be upgraded for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. Propulsion Consolidation and Streamlining (PC&S) program invests in modernization of AEDC jet engine test capability by consolidating major industrial aeropropulsion test facilities, improving plant and test cell reliability, increasing test cell capability, and streamlining test processes. Von Karman Facility (VKF) Modernization is a new start program for FY07.

AFFTC, located at Edwards AFB, CA, conducts and supports DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between AFFTC and AEDC. The goal is for the two centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, Scheduling and Asset Tracking System; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry instrumentation, aircraft instrumentation suites, and ground support systems. It also provides a quick reaction capability for future weapon systems and enhancements required by AFFTC customers. The Advanced GPS Range Sensors (AGRS) project will provide increased Time, Space, Position Information (TSPI) accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Follow-on Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for

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real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, and on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	62.755	58.506		
(U) Current PBR/President's Budget	62.753	61.671	59.064	62.333
(U) Total Adjustments	-0.002			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.002	-0.235		
Congressional Increases		3.400		
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

Congressional Action, FY07 plus up of \$3.400M: High Resolution Optical Sensor/T&E (3-DATA), \$1.000M; Enterprise Test Data Management, \$1.400M; Eglin Air Armament Center, \$1.000M. We are also expecting an additional \$3.855M in Congressional Marks for the Holloman High Speed Test Track which was erroneously placed in a different program element. The transfer to correct this has not occurred as of this date (11 Jan 07).

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0604759F Major T&E Investment			PROJECT NUMBER AND TITLE 4597 Air Force Test Investments		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4597 Air Force Test Investments	62.753	61.671	59.064	62.333	63.836	67.333	68.588	69.434	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR) program, formerly the Test Technology Development (TTD) program. The TIRR program provides funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process (TIPP). Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

The 46TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. Advanced Airborne Instrumentation Integration (AAIL) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Operational Facilities (OPFACs) for Link-16 Weapon-Platform Integration (formerly Link-16 Support) will provide a host platform simulator for C4I testing. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable

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models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) will extend instrumentation capabilities into the Gulf of Mexico to permit testing of large footprint weapon systems. C4ISR Modeling & Simulation, Command & Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.

AEDC, located at Arnold AFB, TN, provides pre-flight ground environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Improve Turbine Engine Structural Integrity (ITESI) project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. Real-Time Display and Analysis System (RDAS) will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. The Enhance Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cells (SL2 and SL3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be upgraded for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. Propulsion Consolidation and Streamlining (PC&S) program invests in modernization of AEDC jet engine test capability by consolidating major industrial aeropropulsion test facilities, improving plant and test cell reliability, increasing test cell capability, and streamlining test processes. Von Karman Facility (VKF) Modernization is a new start program for FY07.

AFFTC, located at Edwards AFB, CA, conducts and supports DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between AFFTC and AEDC. The goal is for the two centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, Scheduling and Asset Tracking System; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry instrumentation, aircraft instrumentation suites, and ground support systems. It also provides a quick reaction capability for future weapon systems and enhancements required by AFFTC customers. The Advanced GPS Range Sensors (AGRS) project will provide increased Time, Space, Position Information (TSPI) accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Follow-on Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade

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(ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, and on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) 46 Test Wing, Air Armament Center				
(U) Armament and Munitions Digital Modeling and Simulation (AMD M&S): Develops and coordinates Modeling and Simulation Master Plan and Modeling and Simulation activities.	3.890	3.536	3.579	2.979
(U) Advanced Airborne Instrumentation Integration (AAII): Acquires and integrates state-of-the-art airborne instrumentation such as Advanced Common Airborne Instrumentation System (CAIS) and Central Test & Evaluation Investment Program (CTEIP) developed ARTM. Acquires ground support equipment to support pre/post flight operations.	3.026	6.232		
(U) Scene Characterization and Reconstruction for Advanced Munitions (SCRAM): Acquires instrumentation to support scene characterization and reconstruction for Test & Evaluation (T&E) of Electro Optical/Infra Red, RF/MMW, and GPS seeker/sensors.	3.784			
(U) Test Control & Visualization (TCV): Upgrades telemetry (TM) systems and network infrastructure to handle higher data rates. Acquires and integrates real-time computing servers, data recorders, and video displays.	2.838	1.469		
(U) C4I Advanced Simulation and Test Environment (CASTE): Acquires equipment, instrumentation, hardware, software, and connectivity for C4I testing.	2.365	0.881		
(U) OPFACs for Link 16 Weapon-Platform Integration (formerly Link-16 Support): Acquires platform simulators and related datalink equipment.	1.893			
(U) Over Water Impact Scoring System (OWISS): Develops the capability necessary to test long-range precision strike munitions in an overwater environment.	4.931	5.832	1.223	2.979
(U) C4ISR Modeling and Simulation: Acquires and develops comprehensive digital models and integrates real and synthetic environments to provide a realistic battlespace for testing C2 systems.		0.903	2.500	3.931

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		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) B. Accomplishments/Planned Program (\$ in Millions)					
(U) Command and Control Test Operations Center (C2TOC): Develops a Joint Air Operations Center level test capability to conduct functional, performance and load/stress testing on C2 Weapons Systems.			1.619	2.171	2.483
(U) Advanced Range Telemetry System (ARTM): Improves and upgrades critical telemetry infrastructure for higher throughput rates. Improves quality of real-time data and more efficient utilization of the frequency spectrum.			2.906	4.176	4.866
(U) Operational Ground Test Facility (OGT): OGT is a required capability to test munitions in their operational environment. OGT is a hardware in the loop simulation with IR/UV/optical scene generators adding vibration, temperature and climatic variables to the simulation.			0.531	2.537	2.029
(U) Advanced Command Destruct System (ACDS): Improves & upgrades existing command destruct (aka flight termination) systems utilizing state-of-the-art datalink & encryption technologies to provide a robust & secure destruct commands to in-flight weapon systems.				2.042	1.837
(U) Advanced Munitions Test Improvements (AMTI): Develops new HITL capabilities to permit the testing of advanced technology guidance, control, and signal processing techniques employed in the next generation weapon systems.				1.537	1.483
(U) Ultra High-Accuracy Reference System (UHARS): Develops a high-accuracy inertial based TSPI system to meet the position & velocity requirements of advanced weapon systems and their navigation systems, and enables weapon system testing in GPS-denied environments.				1.289	1.284
(U) Holloman High speed Test Track (HHSTT), Maglev Test Track: Allows for two new magnets w/pullaway umbilicals, automated cool down & charging system, expansion of track from 480 to 700 meters, system test to 550 mph, and 4 verification and validation tests. (FY06 Congressional Insert)		4.059			
(U) 3 Data Sensor System: Installs an operating laser and integrates software for ranging. Modifies software for range input/output. Improves tracking capabilities. (FY05/06 Congressional Insert)		2.319			
(U) High Resolution Optical Sensor/T&E: This is an FY07 Congressional Plus-up			1.000		
(U) Eglin Air Armament Center: This is an FY07 Congressional Plus-up			1.000		
(U) Instrumentation Loading, Integration, Analysis, and Decommutation (ILIAD) and Enterprise Test Data Management System (ETDMS): ILIAD develops enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernizes flight line ground support unit and engineering support unit hardware to current technological specification. Performs InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the Microsoft NET and Operating System upgrades. Provides improved and Range Commanders Council standardized enhancement and IRIG standard compliance to the components that decommutate, display, and process the data generated by the data acquisition system for preflight		1.933			

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>checkout, troubleshooting, and analysis. ETDMS will facilitate effective management of large volumes of data; increase T&E efficiency; reduce time-delays and costs; foster effective data sharing between govt and contractors; and posture 46TW to receive and process data from operational units, bolstering warfighter effectiveness. This proposal directly supports current and upcoming test programs: F-22A, C-17, C-130J, C-130 AMP, F-16, B-1, B-52, B-2, J-UCAS. (FY05/06 Congressional Insert)</p>				
<p>(U) FPS-16 Radar Mobilization and Upgrade: Upgrades the radar with fully digital electronics, increasing reliability, decreasing maintenance time and cost, and enhancing radar performance and data products. Mobilizes the radar, giving the range added flexibility, allowing the radars to be sited for optimal tracking coverage for each specific test program, while avoiding potential encroachment or interference issues. (FY06 Congressional Insert)</p>	0.978			
<p>(U) Air Force Flight Test Center</p>				
<p>(U) Modeling and Simulation Test and Evaluation Resource (MASTER): Develops on-line comparisons of predictions with flight trajectories and the resolution of anomalies between predictions and flight. Documents the result of F-22A simulation and re-usable code validation. Develops 4th Generation information distribution interface and automated model-based fault detection and diagnostic capability for ground and flight test. Enhances capabilities of fluid-structural technology to ground and flight test requirements will also be provided. Develops the facility management, configuration management and data management capabilities providing control of pre-test, test, and post test operations. Develops the initial operational capability enabling collaboration between AFFTC and AEDC engineers. Develops and validates enhanced capabilities of Fluid-Structural Technology to Ground and Flight Test requirements at the AFFTC. Executes code validation plan and places validated codes and data in MASTER repository as well as the documented results of simulations and re-usable code validation. Develops unclassified and classified capable information systems to provide configuration, data and facility management. Develops, stores, and transitions models in the MASTER repository to support current and future test programs. Enhances the 4th Generation Propulsion Analysis System's information distribution interfaces and automated model-based fault detection and diagnostic capabilities for ground and flight test. Validates towed device cable model using flight data.</p>	0.283			
<p>(U) Advanced Range Telemetry (ARTM) Integration. Integrate ARTM-developed Multi-h Continuous Phase Modulation (CPM) technology (Tier 1/Tier 2 modulation) into telemetry ground stations. Migrate airborne telemetry users from S-band to L-band (Tier 0, Tier 1, and Tier 2 modulation technology, as required by user). Refurbish old and integrate new antennas based on integration roadmap to support high-data rate users. Integrate high-data rate receivers and high-data rate telemetry communication</p>	3.670			

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		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
systems for ground stations based on implementation roadmap. Integrate ARTM-developed technology and upgrade the telemetry support infrastructure to improve spectral efficiency, link reliability, and spectrum utilization. Upgrade data communication and integrate high data rate recorders for test support ground stations based on roadmap.					
(U) Advanced GPS Range Sensors (AGRS): Produces the first iteration of the Modular Affordable GPS Inertial Measurement Unit (IMU) Receiver (MAGIR I) that integrates a miniature IMU into a compact GPS internal mount instrumentation unit. Upgrades and delivers high-accuracy kinematic GPS TSPI processing software. Initiates low cost commercial spectrum datalink effort. Provides AFFTC inputs to the Range Instrumentation System Program Office (RISPO) for GPS and datalink equipment to be developed under their Enhanced Range Applications Program (EnRAP) Follow-On. Integrates the second iteration of the MAGIR I into next generation software receiver GPS instrumentation. Purchases Enhanced Range Applications Program (EnRAP) equipment. Integrate low cost GPS/IMU and low cost real-time GPS. Delivers user interface for TSPI processing software upgrades.	0.982	5.143	7.202	1.427	
(U) Data Processing Multi-Stage Improvement Program (DPMSIP): Deployed the first telemetry processor upgrade to support higher data rates and large data formats. Develops second telemetry processor upgrade kit to improve data transfer between systems. Develops a PC based common display system. Developed the first control room display upgrade kit. Develops additional standard post-test analysis software to support avionics flight-testing. Deploys common display system at three mission control centers.	2.978				
(U) Next Generation Test Instrumentation: Integrates new measurement technology into multiple aircraft and support labs. Provides enhancements and improvements to the Internet based Instrumentation Management Information Systems to improve modification cost accounting and program management. Expands the capabilities of ILIAD to program multiple vendor hardware suites and preflight test articles and airframes. Develops airborne instrumentation components to address new sensor interfaces. Purchases instrumentation components to upgrade obsolete and unreliable instrumentation components. Replaces obsolete data systems (Airborne Test Instrumentation System, Metraplex) and unreliable data recorders on Test aircraft, support fleet, and Test Pilot School aircraft.	2.508	2.628			
(U) AFFTC Range System Upgrade (ARSU). Expand the range digital voice communication system to meet increasing customer requirements. Implement range data command and control system to automate the setup, configuration, monitoring and reconfiguration of networks and widely dispersed end equipment supporting data, telemetry, voice, video and other real-time and non-real time data thereby increasing the number and quality of missions supported.	0.584	0.200	0.200	3.729	

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		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) B. Accomplishments/Planned Program (\$ in Millions)						
(U) AFFTC RT & Post Flight System Upgrade (ARPSU): Upgrades the TM processing to handle new data formats and increased data rates. Upgrades the data distribution network that transfers data from multiple data sources into the control rooms. Implements solutions for bi-directional TM (being developed under CTEIP programs) into the control rooms which increases the speed and capacity of the data analysis systems.			2.606	4.798	4.745	
(U) AFFTC TSPI System Upgrade (ATSU): Acquires and implements Digital High speed Video Systems (DHVS), automated TSPI architecture, continuous wave radars, and upgrade with off the shelf GPS related packages.			2.803	3.854	4.008	
(U) Joint Airborne Instrumentation Integration (JAII): Develops state-of-the-art data acquisition and transmission systems with data rate capacity of 500-1000 MB/sec, solid state and 3-D recorders capable of storing terabytes of data, spectrum efficient and spectrum agile packetized data telemetering transmitters for global battlespace testing, airborne separation video equipment capable of color megapixel resolution in both the visible and Infrared (IR) spectrum, high accuracy GPS based aircraft TSPI and time code equipment.				4.221	7.044	
(U) Enterprise Test Data Management: This is an FY07 Congressional Plus-up			1.400			
(U) Arnold Engineering Development Center						
(U) Improve Turbine Engine Structural Integrity (ITESI): Develops the Non-Intrusive Stress Measurement System (NSMS) software and hardware systems. Validates and fabricates final software of the second NSMS. Procures a dynamic data system. Provides the NSMS optical system. Improves C, J, and SL cells on-line dynamic data monitoring/processing bandwidth capability. Develops inlet flow distortion generator for High Cycle Fatigue (HCF) studies.		2.643				
(U) Enhanced Turbine Engine Installation and Productivity (ETEIP) (formerly JSF STOVL Engine Test Cells Upgrade): Designs, procures, and fabricates efforts for sea level (SL3) upgrades for JSF, F-22A, F-15, F-16, F-18, and other programs. Designs environmental systems (steam, sand, corrosion). Installs and checks out SL3 Thrust Stand, Inlet, and Service Systems. Designs and fabricates thrust stand and designs electrical distribution system for SL2.		2.576				
(U) Real Time Display and Analysis System (RDAS): Designs, procures, installs, checks out and turns over the J2 Test Unit Supervisory Systems (TUSS), 4T Test Article Control System, SL2 TUSS, C1 TUSS, 4T Pretest System, 4T Operations Center, and partial SL3 TUSS. Installs and checks out the 4T Test System. Integrates checkout and turnover of the 4T Data Acquisition Processing Systems (DAPS). Designs and procures activities for the 4T Plant Automation effort.		3.466	2.523	1.734		

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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) Propulsion Consolidation and Streamlining (PC&S): Improves plant and test cell reliability, increasing test cell capability, and streamlining test processes of the jet engine test facility.	9.942	10.156			
(U) VKF Plant Modernization: Provides pressurized air support for hypersonic wind tunnel and turbine engine test requirements.		3.385	3.354	4.286	
(U) Tunnel 4T Modernization: 1) Implements non-intrusive flow measurement techniques, accurate drag measurement capability, and utilize fiber optic sensors and microelectromechanical sensors (MEMS); 2) Integrates on-board data systems, upgrades high angle-of-attack, weapons bay acoustic/store separation, and pressure sensitive paint (PSP); 3) modernizes and automates process air controls and test section controls; 4) Adds model in-line roll capability.			2.402	3.338	
(U) Tunnels A/B/C Modernization: 1) Develops non-intrusive flow measurement techniques, develops plasma aerodynamic capability, and utilize fiber optic sensors and microelectromechanical sensors (MEMS); 2) Integrates on-board data systems, weapons bay acoustic/store separation, and pressure sensitive paint (PSP); 3) Modernizes and automates process air controls and test section controls; 4) Constructs an advanced facility control room for efficient and rapid test execution; 5) Integrates/upgrades Model Injection & CTS Control systems.			4.605	5.044	
(U) Other Projects					
(U) Next Generation Satellite TT&C (Nxt Gen Sat TT&C): Modernizes the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. Replaces obsolete satellite COTS based C2 hardware and software components. Integrates X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Replaces obsolete data recording and data trending systems.	0.446	4.301	2.390		
(U) T&E Board of Directors Support: Coordinates tri-service investment efforts. Coordinates joint Reliance documents.	0.150	0.150	0.117	0.110	
(U) Technology Insertion & Risk Reduction (TIRR): Short Focal Length Collimator (SFLC) will enable full Field-of-View (FOV) testing of space-based space surveillance & radiance-based sensors. HHSTT Rainfield Enhancement will improve methodologies for quantifying weather environments impact on missile systems. Sub-miniature EFTS & FTSA will produce miniaturized flight termination components necessary to the SFSS CTEIP program.	0.509	0.467	3.133	4.731	
(U) Total Cost	62.753	61.671	59.064	62.333	

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) Other APPN

Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604940D, Central Test and Evaluation Investment Program; PE 0605804D, Development Test and Evaluation; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, Test and Evaluation Support; PE 0605978F, Facilities Sustainment - T&E Support; and PE 0605976F, Facility Restoration and Modernization.

(U) **D. Acquisition Strategy**

This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.

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 PE TITLE: RAND Project Air Force

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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.098	26.510	30.999	31.294	32.437	33.005	33.448	33.934	Continuing	TBD
1110 Project Air Force	33.098	26.510	30.999	31.294	32.437	33.005	33.448	33.934	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

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

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

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking into the future, the FY07 research program will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

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

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(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	27.139	25.211	30.667	30.877
(U) Current PBR/President's Budget	33.098	26.510	30.999	31.294
(U) Total Adjustments	5.959			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.405			
Congressional Increases				
Reprogrammings	7.127			
SBIR/STTR Transfer	-0.763			
(U) <u>Significant Program Changes:</u>				
N/A				

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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1110 Project Air Force	33.098	26.510	30.999	31.294	32.437	33.005	33.448	33.934	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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

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

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking into the future, the FY07 research program will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

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

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force.

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PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U)				
(U) Strategy and Doctrine	7.216	7.281	7.100	7.100
(U) Aerospace Force Development	7.200	5.927	6.532	6.617
(U) Manpower, Personnel, and Training	6.800	5.877	6.500	6.500
(U) Resource Management	7.611	5.129	7.000	7.200
(U) Integrative Research/Direct Support	4.271	2.296	3.867	3.877
(U) Total Cost	33.098	26.510	30.999	31.294

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>										
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**
 A comprehensive review of RAND/Project AIR FORCE was completed in Sep 00 and led to a 5-year (FY01-FY05) Cost Plus / Fixed Fee contract, awarded on 01 Oct 00. A subsequent comprehensive review was conducted in FY05. A follow-on (FY06-FY10) Cost Plus / Fixed Fee contract was awarded in Oct 05.

UNCLASSIFIED

PE NUMBER: 0605306F

PE TITLE: Ranch Hand II Epidemiology Study

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.142
2767 Ranch Hand II Epidemiology Study	4.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.142

(U) A. Mission Description and Budget Item Justification

As a result of Presidential direction, PE 0605306F was established to conduct a 25-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins.

This project involves a 25-year study, initiated in 1980, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Southeast Asia. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles. Note: This program is comprised of six cycles and each cycle consists of participant physical examinations followed by data analysis and report generation. The largest expenditure of funds occurred during the physical exam cycles such as in 1997-1998 and 2002-2003. The program is in the final cycle and is scheduled to complete in FY 2006.

This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development use.

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PE NUMBER AND TITLE

0605306F Ranch Hand II Epidemiology Study

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.128	0.000	0.000	0.000
(U) Current PBR/President's Budget	4.024	0.000	0.000	0.000
(U) Total Adjustments	-0.104			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.104			
(U) <u>Significant Program Changes:</u>				
Reprogramming in FY06 was for fact of life changes.				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study				PROJECT NUMBER AND TITLE 2767 Ranch Hand II Epidemiology Study		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2767 Ranch Hand II Epidemiology Study	4.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.142
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

As a result of Presidential direction, PE 0605306F was established to conduct a 25-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins.

This project involves a 25-year study, initiated in 1980, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Southeast Asia. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles. Note: This program is comprised of six cycles and each cycle consists of participant physical examinations followed by data analysis and report generation. The largest expenditure of funds occurred during the physical exam cycles such as in 1997-1998 and 2002-2003. The program is in the final cycle and is scheduled to complete in FY 2006.

This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development use.

(U) B. Accomplishments/Planned Program (\$ in Millions)

(U) Complete the sixth and final cycle of physical examinations, questionnaires, and participant database. Complete data processing and statistical analysis of examination data. Document all analyses and findings and initiate work on the 3,000 page Sixth Cycle Final Report. Conduct analyses as recommended by the Congressionally-established Ranch Hand II Advisory Committee based on morbidity data trends and findings. Prepare a Specimen Viability Study for the Ranch Hand II biological specimens on a randomly selected basis. Prepare the Ranch Hand II/Air Force Health Study (AFHS) History Project. Complete work on comprehensive longitudinal report in FY06. Establish a relational information warehouse for the AFHS database as recommended by both the Ranch Hand II Advisory Committee and the Institute of Operational Medicine Committee studying the disposition of the AFHS in its Interim Letter Report.

<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
1.061			

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study	PROJECT NUMBER AND TITLE 2767 Ranch Hand II Epidemiology Study
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>						
(U) Continue to process and document examination data and to verify the physical examination database. Continue new medical records coding and verify existing medical records coding. Perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel. Conduct data analysis for articles to be submitted to peer-reviewed journals as directed. Process and document Cycle 6 examination data to include updating of the participant database. Complete collaborative studies with other agencies/universities supporting scientific effort; complete morbidity and mortality mathematical modeling. Support the Specimen Viability Study, the Comprehensive Longitudinal Report, the Ranch Hand II History Project, and the Relational Information Warehouse effort. Prepare for project completion and turnover of archives/biological samples to designated agencies. Complete project at the end of FY06.	1.967									
(U) Continue to process and document examination data. Continue archiving previous cycles' examination data and digitize and archive the Cycle 6 data as received. Conduct medical records coding and verification of examination database and Cycles 1 through 6 coding. Perform annual mortality analysis support. Provide Scientific Director support in FY06. Conduct data analysis for journals and reports to Congress. Continue maintenance of Ranch Hand II LAN. Provide support for and complete the transition or turnover of archives and specimens to designated agencies. Complete project at the end of FY06.	0.996									
(U) Total Cost	4.024	0.000	0.000	0.000						
(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>										
	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Not Applicable.										
(U) <u>D. Acquisition Strategy</u> Not Applicable.										

UNCLASSIFIED

PE NUMBER: 0605712F

PE TITLE: Initial Operational Test & Evaluation

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.184	34.670	30.203	29.783	30.055	29.960	30.543	31.169	Continuing	TBD
0191 Initial Operational Test & Eval	28.184	34.670	30.203	29.783	30.055	29.960	30.543	31.169	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test & Evaluation

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	34.122	34.802	29.880	29.386
(U) Current PBR/President's Budget	28.184	34.670	30.203	29.783
(U) Total Adjustments	-5.938			
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-5.152			
SBIR/STTR Transfer	-0.786			
(U) <u>Significant Program Changes:</u>				

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation			PROJECT NUMBER AND TITLE 0191 Initial Operational Test & Eval		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
0191 Initial Operational Test & Eval	28.184	34.670	30.203	29.783	30.055	29.960	30.543	31.169	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) (U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include:	16.750	23.534	15.580	19.487

- FY06
- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct OA.
 - AOA-10A Precision Engagement (AOA-10A PE): Conduct DT/OT.
 - B-2 Radar Modernization Program (RMP): Conduct OA and DT/OT.
 - B-52 Avionics Mid-Life Improvement (AMI): Conduct IOT&E phase 2.
 - C-130X Aircraft Modernization Program (AMP): Conduct OA.

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0191 Initial Operational Test & Eval

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2006FY 2007FY 2008FY 2009

- Combat Search and Rescue Vehicle (CSAR-X): Early Involvement.
- CV-22: Conduct OUE.
- E-10A: Early Involvement.
- F/A-22: Plan FOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OA.
- Miniature Air Launched Decoy (MALD): Planning for OA.
- MQ-9: Planning IOT&E and conduct OA.
- Other systems.

FY07

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Planning for IOT&E.
- AOA-10A Precision Engagement (AOA-10A PE): Conduct OUE.
- B-2 Radar Modernization Program (RMP): Conduct OA and DT/OT.
- C-130X Aircraft Modernization Program (AMP): Conduct DT/OT.
- Combat Search and Rescue Vehicle (CSAR-X): Early Involvement.
- CV-22: Planning for IOT&E.
- E-10A: Early Involvement.
- F/A-22: Conduct FOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OUE.
- Miniature Air Launched Decoy (MALD): Conduct OA, planning for IOT&E.
- MQ-9: Planning for IOT&E.
- Other systems.

FY08

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct IOT&E.
- AOA-10A Precision Engagement (AOA-10A PE): Conduct IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct IOT&E, planning for FOT&E.
- B-52 COmbat NETwork Communications Technology (CONNECT): Conduct OA.
- C-130X Aircraft Modernization Program (AMP): Plan and conduct IOT&E.
- Combat Search and Rescue Vehicle (CSAR-X): Planning for OA.

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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<ul style="list-style-type: none"> - CV-22: Conduct IOT&E. - E-10A: Early Involvement. - F/A-22: Planning for FOT&E. - Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OUE, planning for IOT&E. - HC-130 Recapitalization (RECAP): Early Involvement. - KC-135 Replacement Program (KC-X): Planning for OA. - Large Aircraft Infrared Countermeasures Phase II (LAIRCM Phase II): Conduct IOT&E. - Miniature Air Launched Decoy (MALD): Conduct OA, planning for IOT&E. - MQ-9: Conduct IOT&E. - Other systems. <p>FY09</p> <ul style="list-style-type: none"> - B-2 Radar Modernization Program (RMP): Conduct FOT&E. - B-52 COMbat NETwork Communications Technology (CONNECT): Conduct IOT&E. - C-130X Aircraft Modernization Program (AMP): Complete IOT&E. - Combat Search and Rescue Vehicle (CSAR-X): Conduct OA. - E-10A: Early Involvement. - F/A-22: Conduct FOT&E. - Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct IOT&E. - HC-130 Recapitalization (RECAP): Early Involvement. - KC-135 Replacement Program (KC-X): Conduct OA. - Miniature Air Launched Decoy (MALD): Conduct IOT&E. - Other systems. 				
<p>(U) (U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include:</p> <p>FY06</p> <ul style="list-style-type: none"> - Advanced EHF Satellite Communications (Advanced EHF): DT/OT. - Combat Commanders Integrated Command & Control System-Increment 2 (CCIC2S Increment 2): DT/OT. - Global Broadcast System (GBS): Conduct DT/OT and MOT&E. 	1.830	1.744	1.724	1.616

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2006FY 2007FY 2008FY 2009

- Global Positioning System/GPS III (GPS-III): Conduct OUE.
- National Polar-Orbit Ops Environment Satellite System (NPOESS): Planning OA2.
- Space Based Infrared System (SBIRS): Conduct OUE.
- Space Radar (SR): Early Involvement.
- Transformational Satellite Communications System (TSAT): Early Involvement.
- Upgraded Early Warning Radar (UEWR): Conduct IOT&E.
- Wideband Gapfiller Satellite (WGS): Early Involvement.
- Other systems.

FY07

- Advanced EHF Satellite Communications (Advanced EHF): Conduct DT/OT.
- Combat Commanders Integrated Command & Control System-Increment 2 (CCIC2S Increment 2): Conduct IOT&E.
- Global Positioning System/GPS-III (GPS-III): Conduct OUE.
- National Polar-Orbit Ops Environment Satellite System (NPOESS): Planning OA2.
- Operationally Responsive Spacelift (ORS): Early Involvement.
- Space Based Infrared System (SBIRS): Complete OUE and DT/OT.
- Space Radar (SR): Early Involvement.
- Transformational Satellite Communications System (TSAT): Early Involvement.
- Upgraded Early Warning Radar (UEWR): Publish Final Report.
- Wideband Gapfiller Satellite (WGS): Planning for MOT&E.
- Other systems.

FY08

- Advanced EHF Satellite Communications (Advanced EHF): Conduct OUE.
- Enhance Polar Satellite Communications (EPS): Early Involvement.
- National Polar-Orbit Ops Environment Satellite System (NPOESS): Conduct OA2.
- Space Based Space Surveillance Pathfinder System Block 10 (SBSS Block 10): Conduct IOT&E.
- Space Based Infrared System (SBIRS): Conduct OUE.
- Space Radar (SR): Conduct EOA.
- Transformational Satellite Communications System (TSAT): Conduct OA1.
- Wideband Gapfiller Satellite (WGS): Conduct MOT&E.

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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
- Other systems. FY09 - Enhance Polar Satellite Communications (EPS): Early Involvement. - National Polar-Orbit Ops Environment Satellite System (NPOESS): Conduct OA2. - Space Based Space Surveillance Pathfinder System Block 10 (SBSS Block 10): Conduct IOT&E. - Space Based Infrared System (SBIRS): Conduct OUE. - Space Radar (SR): Conduct EOA. - Transformational Satellite Communications System (TSAT): Conduct OA1. - Wideband Gapfiller Satellite (WGS): Conduct MOT&E. - Other systems.				
(U) (U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include: FY06 - Common Aero Vehicle (CAV): Early Involvement. - Minuteman III Safety Enhanced Reentry Vehicle (ICBM-SERV): Conduct IOT&E and publish final report. - Joint Air-to-Surface Standoff Missile (JASSM): Publish final report. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Planning for DT/OT. - Land Based Strategic Deterrent (LBSD): Early Involvement. - Small Diameter Bomb (SDB): Conduct IOT&E. - Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Conduct OUE. - Other systems. FY07 - Common Aero Vehicle (CAV): Early Involvement. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct DT/OT. - Land Based Strategic Deterrent (LBSD): Early Involvement. - Small Diameter Bomb (SDB): Publish final report. - Other systems.	3.679	0.524	5.534	1.311

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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></p> <p>FY08</p> <ul style="list-style-type: none"> - AIM-9X Block II: Conduct IOT&E. - Common Aero Vehicle (CAV): Early Involvement. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct IOT&E. - Land Based Strategic Deterrent (LBSD): Early Involvement. - Other systems. <p>FY09</p> <ul style="list-style-type: none"> - Common Aero Vehicle (CAV): Early Involvement. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct IOT&E. - Land Based Strategic Deterrent (LBSD): Early Involvement. - Other systems. 				
<p>(U) (U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include:</p> <p>FY06</p> <ul style="list-style-type: none"> - Air Force Tactical Data Links (AF TDL): Early Involvement. - Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development. - Airborne Signals Intelligence Payload (ASIP): Planning for DT/OT. - Battle Control Systems-Mobile (BCS-M): Early Involvement. - Cobra Judy Replacement (CJR): Conduct EOA. - Distributed Common Ground System (DCGS): Early Involvement. - Expeditionary Combat Support System (ECSS): Early involvement. - Family of Advanced Beyond Line Of Sight Terminals (FAB T): Plan and conduct OA. - Integrated Broadcast System (IBS): Conduct OA. - Joint Command and Control Capability (JC2): Early Involvement. - Joint Interface Control Officer (JICO) Support System (JSS): Conduct OA. - Mobile Approach Control System (MACS): Conduct DT/OT. - Multi-Mission Payload (MMP): Early Involvement. - Mark XIIA MODE 5 IFF (MODE 5): Early involvement. 	4.051	4.801	6.474	6.450

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PE NUMBER AND TITLE

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2006FY 2007FY 2008FY 2009

- Multi-Platform Common Data Link (MP CDL): Early Involvement.
 - Rapid Attack Identification, Detection and Reporting System (RAIDRS): Conduct OA and publish OA final report.
 - Other systems.
- FY07
- Air Force Tactical Data Links (AF TDL): Early Involvement.
 - Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development.
 - Airborne Signals Intelligence Payload (ASIP): Conduct DT/OT.
 - Battle Control Systems-Mobile (BCS-M): Conduct IOT&E.
 - Cobra Judy Replacement (CJR): Conduct OA.
 - Deliberate and Crisis Action Planning and Execution Segments Increment 2b (DCAPES 2b): Early Involvement.
 - Distributed Common Ground System (DCGS): Plan and conduct OUE.
 - Expeditionary Combat Support System (ECSS): Early involvement.
 - Family of Advanced Beyond Line Of Sight Terminals (FAB T): Conduct OA and publish OA Final Report.
 - Integrated Broadcast System (IBS): Conduct MOT&E and publish Final Report.
 - Joint Command and Control Capability (JC2): Plan and conduct IOT&E.
 - Joint Interface Control Officer (JICO) Support System (JSS): Conduct MOT&E.
 - Multi-Mission Payload (MMP): Early Involvement
 - Mark XIIA MODE 5 IFF (MODE 5): Early involvement.
 - Mobile Approach Control System (MACS): Conduct IOT&E and publish Final Report.
 - Multi-Platform Common Data Link (MP CDL): Early Involvement.
 - Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct IOT&E and publish Final Report.
 - Other systems.
- FY08
- Air and Space Operations Center Weapon System (AOC): DT/OT.

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

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PROJECT NUMBER AND TITLE

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2006FY 2007FY 2008FY 2009

- Air Force Distributed Common Ground System (DCGS): Conduct OUE.
- Airborne Signals Intelligence Payload (ASIP): Conduct OUE.
- B-1 Fully Integrated Data Link (FIDL): OA and Reporting.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Early Involvement.
- Battle Control System - Mobile Block 20 (BCS-M Blk 20): Conduct IOT&E.
- Battle Control System - Mobile Block 30 (BCS-M Blk 30): Planning
- Cobra Judy Replacement (CJR): OA and Reporting.
- Defense Business Sourcing Environment (DBSE): Conduct OA.
- Deliberate and Crisis Action Planning and Execution Segments Increment 2B (DCAPES 2b): Conduct OA.
- Department of Defense Teleport (DoD Teleport): Conduct DT/OT.
- DoD National Airspace System (DoD NAS): Planning
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): OUE and Reporting.
- Expeditionary Combat Support System (ECSS): Planning for OA.
- Integrated Broadcast Service (IBS): Conduct OA.
- JICO Support System (JSS): Conduct MOT&E.
- Joint Tactical Radio System - Airborne Maritime Fixed (JTRS-AMF): Planning DT/OT.
- Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): OUE Reporting.
- Network-Enabled Command and Control Capability (NECC): Conduct IOT&E.
- Rapid Attack Identification Detection and Reporting System Spiral II (RAIDRS Spiral II): Early Involvement.
- Rapid Attack Identification, Detection and Reporting System (RAIDRS): IOT&E Reporting.
- VC-25A AIMS: Early Involvement.
- Other systems.

FY09

- Air and Space Operations Center Weapon System (AOC): DT/OT.
- Air Force Distributed Common Ground System (DCGS): Conduct IOT&E.
- Airborne Signals Intelligence Payload (ASIP): Conduct IOT&E
- B-1 Fully Integrated Data Link (FIDL): Conduct IOT&E.

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Exhibit R-2a (PE 0605712F)

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<ul style="list-style-type: none"> - B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Early involvement. - Battle Control System - Mobile Block 20 (BCS-M Blk 20): Final Reporting. - Battle Control System - Mobile Block 30 (BCS-M Blk 30): Early Involvement. - Cobra Judy Replacement (CJR): OA and Reporting. - Defense Business Sourcing Environment (DBSE): OA Reporting. - Deliberate and Crisis Action Planning and Execution Segments Increment 2B (DCAPES 2b): OA and Final Reporting. - DoD National Airspace System (DoD NAS): Conduct FOT&E. - Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Conduct IOT&E. - Expeditionary Combat Support System (ECSS): OA & Final Reporting. - Integrated Broadcast Service (IBS): Final Reporting. - Joint Tactical Radio System - Airborne Maritime Fixed (JTRS-AMF): DT/OT. - Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): DT/OT. - Network-Enabled Command and Control Capability (NECC): Conduct IOT&E. - Rapid Attack Identification Detection and Reporting System Spiral II (RAIDRS Spiral II): Planning IOT&E. - Rapid Attack Identification, Detection and Reporting System (RAIDRS): FOT&E Reporting. - VC-25A AIMS: Early Involvement.- Air and Space Operations Center Weapon System (AOC): DT/OT. - Other systems 				
(U) (U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include:	1.874	4.067	0.891	0.919
FY06				
<ul style="list-style-type: none"> - Common Low Observable Verification System (CLOVerS): Planning for OA. - Combat Survivor Evader Locator (CSEL): Plan for MOT&E. - Joint Mission Planning System (JMPS): Conduct IOT&E. - Large Aircraft Infrared Countermeasures Phase II (LAIRCM PHASE II): Conduct DT/OT. - Other systems. 				
FY07				

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation	PROJECT NUMBER AND TITLE 0191 Initial Operational Test & Eval
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- (U) **B. Accomplishments/Planned Program (\$ in Millions)**
- | | | | | |
|--|----------------|----------------|----------------|----------------|
| | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
|--|----------------|----------------|----------------|----------------|
- Common Low Observable Verification System (CLOVerS): Conduct OA and publish OA Final Report.
 - Combat Survivor Evader Locator (CSEL): Plan and Conduct MOT&E.
 - Joint Mission Planning System (JMPS): Conduct IOT&E.
 - Large Aircraft Infrared Countermeasures Phase II (LAIRCM PHASE II): Conduct DT/OT.
 - Other systems.

FY08

- Joint Mission Planning System (JMPS): Conduct IOT&E & Reporting.
- Joint Integrative Analysis & Planning Capability (JIAPC): Early Involvement.
- Large Aircraft Infrared Countermeasures Phase II (LAIRCM PHASE II): Conduct IOT&E.
- Other systems.

FY09

- Joint Mission Planning System (JMPS): Conduct IOT&E & Reporting.
- Joint Integrative Analysis & Planning Capability (JIAPC): Early Involvement.
- Other systems.

- (U) B. Budget Activity Justification
- This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

(U) Total Cost 28.184 34.670 30.203 29.783

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**

N/A

UNCLASSIFIED

PE NUMBER: 0605807F
 PE TITLE: Test and Evaluation Support

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	701.064	739.708	740.602	748.730	763.286	765.257	777.524	790.328	Continuing	TBD
06TG 46 Test Group	25.631	27.066	29.222	29.663	26.372	27.057	27.626	28.226	Continuing	TBD
06TS Test and Evaluation Support	675.433	712.642	711.380	719.067	736.914	738.200	749.898	762.102	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, civilian payroll, and contractor services. It also provides resources for maintaining and modifying as required Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	685.657	742.522	716.414	718.918
(U) Current PBR/President's Budget	701.064	739.708	740.602	748.731
(U) Total Adjustments	15.407			
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	-1.896	-2.814		
Congressional Increases	15.350			
Reprogrammings	1.953			
SBIR/STTR Transfer	0.000			

(U) Significant Program Changes:

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605807F Test and Evaluation Support			PROJECT NUMBER AND TITLE 06TG 46 Test Group		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06TG 46 Test Group	25.631	27.066	29.222	29.663	26.372	27.057	27.626	28.226	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Project infrastructure support is provided for the unique capabilities of the 46th Test Group (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF/781st Test Squadron), the 586th Flight Test Squadron and Detachment 1 (Det 1). CIGTF provides independent test and evaluation of inertial, Global Positioning System, and integrated systems used for aircraft navigation and missile guidance systems, including vulnerability to electronic interference. HHSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bistatic amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. Det 1 provides the liaison function for coordinating and scheduling all US Air Force test and training operations at White Sands Missile Range (WSMR). OL-AA provides test support for the Air Force Research Lab (AFRL) Directed Energy Division. The 586th Flight Test Squadron executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs. The 46th TG support services contracts are awarded on the basis of full and open competition.

Budget Activity Justification:

This Program Element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Accomplishments/Planned Program (\$ in Millions)

(U) Accomplishments/Planned Program:

(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning System (GPS) upgrades, Defense Advanced GPS Receiver, Federal Aviation Authority (FAA) tests, GPS jamming and electronic countermeasures, Joint Precision Approach and Landing System (JPALS), GPS integrated and embedded inertial navigation programs, aircraft navigation systems including F-22, JSF, F-16, F-15, P-3, B-1, B-52, C-130, HH-60 and MH-53, munitions navigation systems including the Conventional Air-Launched Cruise Missile (CALCM), Small Diameter Bomb (SDB), as well as numerous advanced navigation and navigation warfare research projects; Bomb Live Unit (BLU) -121 and BLU-128 developmental testing, Theater High Altitude Area Defense (THAAD) Live Fire T&E (LFT&E), JSF ejection seat and transparency removal systems, High Speed Penetrator, Patriot Advanced Capabilities-3 (PAC-3), Joint Service Aircrew Mask, Army Tactical	2.858	2.361	3.003	3.093

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TG 46 Test Group
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Missile System (ATACMS), Active Denial System (ADS), Airborne Laser (ABL), Advanced Tactical Laser (ATL), various high-powered microwave (HPM), and high-energy laser (HEL) systems, RCS testing, as well as multiple classified programs. Continue GPS-Joint Program Office (JPO) Responsible Test Organization (RTO) responsibilities.				
(U) Utilities	0.213	0.258	0.265	0.273
(U) Contractor Services (in-house contract support activities)	10.507	11.363	11.962	12.163
(U) T&E Civilian Pay	11.071	12.309	12.950	13.077
(U) Flying Hour Costs	0.982	0.775	1.042	1.057
(U) Total Cost	25.631	27.066	29.222	29.663

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related RDT&E:										
PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment -T&E Support										

(U) **D. Acquisition Strategy**
Not applicable

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support			PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06TS Test and Evaluation Support	675.433	712.642	711.380	719.067	736.914	738.200	749.898	762.102	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School. Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). Included are operations at the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California as well as operations at Tunnel 9 located at White Oak, Maryland. (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. Included are operations at Air Force Electronic Warfare Evaluation Simulator (AFEWES) located at AF Plant 4 in Ft. Worth, TX. The AFFTC mission includes the United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) 46th Test Wing (TW) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC 46TW provides the institutional test infrastructure required for the conduct of developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles); Command, Control, Communications, Computers and Intelligence (C4I) systems; target acquisition and weapon delivery systems; a multi-service climatic simulation capability, and determines target/test item spectral signatures for DOD and allied forces. AAC 46TW provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC 46TW technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Small Diameter Bomb (SDB), CSAR-X, Advanced Short Range Air-to-Air Missile (ASRAAM), Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc. T&E support services contracts are awarded on the basis of full and open competition.

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support
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Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:				
(U) Provide infrastructure to support testing of DoD, other Government Agencies, FMS and commercial weapon systems.				
(U) ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)				
(U) Continue institutional test infrastructure support to enable ground testing for classified programs and unclassified programs (JSF-F135/136, F22A-F119, B2/U2-F118, F15/F16-F100, A10-TF34-100B, FMS-JDA P-X, JSF, MMA, F/A-18 E/F, JASSM-ER, NASA CLV/CEV, Seek Eagle, Global Hawk, E-2 Hawkeye, SDB, J-UCAS, FALCON-CAV, F-16/F-15/F-22A Derivatives, Minuteman III PRP, Peacekeeper RSLP, MM-RVAP, Trident II-NSWC RSAP, Classified RS, ARROW, PAC-3, Space Shuttle, HyTECH SED, F22A, Seek Eagle, Threat Airborne Simulator, CHSSI, Inlet/Eng Integration, T&E S&T Support, MSIC, ABL, Airborne Sensors, Tactical Tomahawk, Navy T45/F405, F414, Commercial-Genx/Trent 1000, Trident II/LMSSC Cables, AFSPC and AFRL Programs, MDA-NSM/KEI/GBI/THAAD/HFDP/PURE/Data Center/DES/and Exo-Experiments.	13.779	27.926	25.023	25.273
(U) Utilities.	9.000	9.200	9.400	9.600
(U) Contractor Services (in-house contract support activities).	117.947	110.649	116.223	118.547
(U) T&E Civilian Pay.	13.990	14.587	15.316	15.623
(U) AIR FORCE FLIGHT TEST CENTER (AFFTC)				
(U) Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52 F-16, F-15, F-15E, F-22A, F-117, F-35, C-17, CV-22, ATIC, ECCM, ABL, Predator, Global Hawk, etc.) communications, information systems, and classified programs. Operate the USAF Test Pilot School.	29.633	66.658	32.051	32.066
(U) Utilities	5.891	6.215	7.417	7.575
(U) Contractor services (in-house contract support activities)	83.819	68.801	92.624	93.595
(U) T&E Civilian Pay	139.955	155.382	156.698	157.561
(U) Aircraft flying costs include test, test support and pilot proficiency for sustained readiness. Costs include programmed depot maintenance (PDM), engine overhauls, petroleum, oils and lubricants (POL), depot level repairables (DLR); fuel and fuel price increase; and related support. Funds proficiency flying to minimum levels allowing AFFTC to meet proficiency flying goals and funds the aircraft infrastructure	95.148	59.641	75.446	76.500

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
to also support test flying requirements.				
(U) AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)				
(U) Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, SEEK EAGLE, WCMD, F-22A, AIM9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAF, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS), etc).	18.678	33.883	21.585	21.622
(U) Utilities.	4.635	4.827	5.009	5.211
(U) Contractor Services (in-house contract support activities).	70.364	66.541	76.106	76.142
(U) T&E Civilian Pay	44.449	48.761	47.156	47.170
(U) Aircraft flying hours costs include: pilot proficiency flying for sustained readiness; deferred and projected programmed depot maintenance (PDM); engine overhauls; petroleum, oils, and lubricants (POL); depot level reparables (DLR); fuel and fuel price increases; and related support. Funds proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals and funds the aircraft infrastructure to also support test flying requirements.	28.145	39.571	31.326	32.582
(U) Total Cost	675.433	712.642	711.380	719.067

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related RDT&E: PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment -T&E Support										

(U) **D. Acquisition Strategy**
Not applicable.

UNCLASSIFIED

PE NUMBER: 0605860F

PE TITLE: Rocket Systems Launch Program (RSLP)

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.365	26.005	15.145	15.115	15.308	15.366	15.661	15.980	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	25.365	26.005	15.145	15.115	15.308	15.366	15.661	15.980	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). It includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. It provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.391	14.704	15.004	14.931
(U) Current PBR/President's Budget	25.365	26.005	15.145	15.115
(U) Total Adjustments	-1.026	11.301		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.099		
Congressional Increases		11.400		
Reprogrammings				
SBIR/STTR Transfer	-1.026			

(U) Significant Program Changes:

FY07: Congressional add of + \$10.4M for Ballistic Missile Range Safety Technology (BMRST) and + \$1.0M for Space Launch Advanced Technology Demonstration

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)			PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program (RSLP)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program (RSLP)	25.365	26.005	15.145	15.115	15.308	15.366	15.661	15.980	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). It includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. It provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue storage and refurbishment of deactivated Minuteman, Peacekeeper and other missile flight test assets and perform research and development support operations as required	8.795	9.316	9.858	10.055
(U) Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors	4.480	5.388	5.287	5.060
(U) Expand BMRST system capability to include data encryption and secured command destruct links, downrange reentry support, and continue full Eastern Range certification	12.090	10.301		
(U) Space Launch Advanced Technology Demonstration		1.000		
(U) Total Cost	25.365	26.005	15.145	15.115

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

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06 RDT&E Management Support

PE NUMBER AND TITLE

0605860F Rocket Systems Launch Program (RSLP)

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program (RSLP)

(U) D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605864F Space Test Program
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	49.315	46.135	47.430	58.361	58.945	59.325	60.466	61.698	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	49.315	46.135	47.430	58.361	58.945	59.325	60.466	61.698	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. This list contained 43 experiments in 2006 and 37 in 2007.

(U) STP has a continually evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other U.S. Government, on a cost-reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle, and/or the International Space Station; readiness reviews, launch support, and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the resources available. These STP efforts led to the flight of

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

10 successful experiments in FY06 and the planned launch of 21 experiments in FY07.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	47.308	46.310	57.000	57.651
(U) Current PBR/President's Budget	49.315	46.135	47.430	58.361
(U) Total Adjustments	2.007	-0.175		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.175		
Congressional Increases				
Reprogrammings	3.026			
SBIR/STTR Transfer	-1.019			

(U) **Significant Program Changes:**

\$3.026M was added in FY06 to cover costs associated with the failed Communication/Navigation Outage Forecasting System (C/NOFS) satellite solar array panels.

FY08 Funding reduced (-\$10M) due to higher Air Force priorities.

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
06 RDT&E Management Support				0605864F Space Test Program				2617 Free-Flyer Spacecraft Missions			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2617 Free-Flyer Spacecraft Missions	49.315	46.135	47.430	58.361	58.945	59.325	60.466	61.698	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. This list contained 43 experiments in 2006 and 37 in 2007.

(U) STP has a continually evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other U.S. Government, on a cost-reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle, and/or the International Space Station; readiness reviews, launch support, and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the resources available. These STP efforts led to the flight of 10 successful experiments in FY06 and the planned launch of 21 experiments in FY07.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

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Project 2617

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605864F Space Test Program	PROJECT NUMBER AND TITLE 2617 Free-Flyer Spacecraft Missions
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	1.287	1.408	1.420	1.462
(U) Initiate, develop, and continue integration of payloads onto piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions to include acquisition of associated spacecraft and integration hardware	20.957	26.282	26.329	30.309
(U) Initiate and continue purchase of launch vehicles and launch vehicle support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	17.071	10.143	11.145	17.799
(U) Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	8.951	6.027	6.192	6.377
(U) Conduct studies to explore future launch opportunities, risk reduction activities, and mission planning	1.049	2.275	2.344	2.414
(U) Total Cost	49.315	46.135	47.430	58.361

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Procurement: Not Required										
(U) D. Acquisition Strategy Not Required										

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PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&E

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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	65.494	55.472	59.131	51.592	50.804	50.114	51.029	52.496	Continuing	TBD
06MC Facility Restoration and Modernization - T&E	65.494	55.472	59.131	51.592	50.804	50.114	51.029	52.496	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

FY 2006 includes \$4.500M Hurricane Katrina supplemental funds to repair storm damage.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	61.080	54.683		
(U) Current PBR/President's Budget	65.494	55.472	59.131	51.592
(U) Total Adjustments	4.414	0.789		
(U) Congressional Program Reductions				
Congressional Rescissions	-4.392	-0.221		
Congressional Increases	4.306	3.600		
Reprogrammings	4.500	-2.590		
SBIR/STTR Transfer				

(U) Significant Program Changes:

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E				PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06MC Facility Restoration and Modernization - T&E	65.494	55.472	59.131	51.592	50.804	50.114	51.029	52.496	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

FY 2006 includes \$4.500M Hurricane Katrina supplemental funds to repair storm damage.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:				
(U) 46TG: Projects include Rail refurbishment at the Holloman High Speed Test Track (HHSTT), Hangar Door Installation at 586 Flight Test Squadron (FLTS), adding a classified data processing facility at 746 Test Squadron (TS) and general restoration and modernization planning and design.	1.133			
(U) 46TG: Projects include RCS Advanced Measurement System (RAMS) Range Surface Reseal and Pit 3 440 volt cable replacement at the 781st TS, Building 1265 Renovation, Building 1261 Fire Alarm System and Roof Repair at the 746th TS, Building 1026 Auto Electric Sliding Gate and Pave Taxiway D at the 586th FLTS, insulate HVAC in building 1604 at the 846th TS and general restoration and modernization planning and design.		1.167		
(U) 46TG: Projects include Building 1265 HVAC at the 746th TS, replace RAMS Silo Roof Air Bag at 781st TS, repave Camera Pad & Connectors Phase 1 at the 846th TS and general restoration and modernization planning and design.			1.215	
(U) 46TG: Projects include NRTF Mainsite Roof Replacement and Mobile Target Shelter Refurbishment at				0.814

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E	PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E			
(U) B. Accomplishments/Planned Program (\$ in Millions)		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
the 781st TS, building 1261 HVAC Replacement at the 746th TS, repave Camera Pad & Connectors Phase 2 at the 846th TS and general restoration and modernization planning and design.					
(U) 46TW: The 46th Test Wing has an excess of 200 restoration/modernization projects effecting T&E facilities to include but not limited to the following categories: roofing, windows & doors, roads, fire protection, erosion, and HVAC. Some of these restoration/modernization projects include Bldg 8320-replacing seawall, Bldg 8550-replacing HVAC, Bldg 9292-replacing soil around building foundation, Bldg 22-Replace windows and upgrade building's main entrance, FY06 includes \$4.5M Hurricane Supplement (IV) to repair storm damages, Bldg 12722-replacing septic tank, Bldg 12722-replacing AC, Climatic Laboratory (Bldg 440) - repairing roof leaks, Climatic Laboratory (Bldg 440) - replacing existing asphalt roadway, Climatic Laboratory (Bldg 440) - refurbishing two main chamber doors, Climatic Laboratory (Bldg 440) - replacing corrosion piping for air makeup #1, Bldg 955-repairing Range Road 234, Bldg 68-repairing/replacing windows, Range Site-renovating Control Bldg, Range Site-providing & installing NEC Infrastructure Communication Power and general restoration and modernization planning and design.		16.333			
(U) 46TW: Replace 20+ year old CATV system between C-7 Control and C-7A Launch Facility with fiber optic cable system. Replace 20+ year old CATV system on Range 72 with fiber optic cable system. Replace fabric on E294, the Hellfire hanger. Replace safety rails on stairs and roof of Bldg 8550. Bldg 440-MCL Icing Capability upgrade, B-70 MANPAD facility upgrade, Bldg 9521 Replace HVAC, Bldg 440 repair/upgrade lightening protection system, Bldg 9371 upgrade HVAC service power panel, Bldg 374 replace GWEF facility roof, Santa Rosa Island (SRI) Test Site (TS) A-13B emergency elevator repair and upgrade. Replace Condenser Coils on 80-Ton Chiller Unit for Radar (Bldg 9960). Repair dock or seawall at Test Site A-10. Enclose heavy equipment pole barn at RMT. Complete construction of paint booth cover at 46TW. Transportation Expansion project: Improve ventilation equipment racks for vehicle. Completion of C-72 Hellfire high speed video tracker upgrades, C-64 200M gun range facility upgrades, KEMTF facility upgrades, C-74 Facility modernization, A-30/31 facility upgrade & modernization. Fabricate a building to accommodate the RHIB boat(s) at building 963 and general restoration and modernization planning and design.			4.238		
(U) 46TW: Replace roof of building 8970 at TA B-70 control site. Rework parking area to enhance drainage at TA B-70 control site. Install fiber-optic cable to service building 9300 at TA B-70 control site. Upgrade/replace/install lightening protection of test range facilities. Paint/refurbish exterior of building 963 and general restoration and modernization planning and design.				2.474	

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E	PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) 46TW: Continue Upgrade/replace/install lightening protection of test range facilities. Restoration/modernization projects effecting T&E facilities to include but not limited to the following categories: roofing, windows & doors, roads, fire protection, corrosion control, erosion, fencing, and HVAC replacement/upgrades. Continue evaluation and implementation of mitigation efforts for site protection to critical test sites. Continue with fiber optic cable installation and interconnectivity infrastructure to enhance communications and data transfer. Continue with multi-year herbicide range clearing plan.				2.426
(U) AEDC: Projects to revitalize the Engine Test Facilities, Propulsion Wind Tunnels, Von Karmon Test Facilities, and the Space and Missile chambers and facilities. Projects to restore and modernize the supporting plant facilities and to perform project specific planning and design. Also includes large-scale projects that directly support engine development, the Joint Strike Fighter program, hypersonic programs, the Missile Defense Agency, and spacecraft test and evaluation.	44.998	45.946	51.152	43.968
(U) AFFTC: Projects include modifying Mission Control rooms 248/249/250 in Bldg 1440; replacing power distribution units - F-16 Test Bay in Bldg 1020 Integrated Facility for Avionics Systems Test (IFAST); repairing/upgrading freight elevator in Bldg 1020; repairing/upgrading passenger elevator in Bldg 1020; repairing HVAC in ABL facility Bldg 369; upgrading conference room A/B Bldg 1020; repairing/upgrading passenger elevator in Bldg 1030 Benefield Anechoic Facility (BAF); repairing retrofit chillers Bldg 1020; adding 800 square feet addition to Bldg 5790; constructing clean room at Bldg 1717 Liquid Oxygen Facility (LOX); and designing costs for upgrading room 204B in Bldg 1030.	3.030			
(U) AFFTC: Projects include designing costs for FY08 multiple projects, repairing HVAC chillers at Ridley Mission Control Center Bldg 1440; repairing retrofit CFC-11 chillers Phase 2 Bldg 1020; conception study for Bldg 1020 seismic upgrade; conception study for Bldg 1030 seismic upgrade; upgrading room 204B to top secret (TS) security authorization request (SAR) Bldg 1030; repairing roof at Bldg 1830 Weight and Balance Facility; and RAM replacement Bldg 1030.		4.121		
(U) AFFTC: Projects include designing costs for FY09 multiple projects, upgrading generators for Bldg 1030; modifying space for tool crib Bldg 1030; conception study for Bldg 1440 seismic upgrade; repairing/replacing raised computer flooring Bldg 1020/Room 224; conception study for Bldg 1830 seismic upgrade; repairing/replacing raised computer flooring Bldg 1020/Room 314; repairing/replacing raised computer flooring Bldg 1020/Room 234; repairing/replacing raised computer flooring Bldg 1020/Room 142 & 143; replacing Radar Absorbent Material (RAM) Bldg 1030; replacing nine air handlers Bldg 1440; repairing/replacing raised computer flooring Bldg 1440/Room 282; and repairing			4.290	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E	PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
vent system with emergency shut off Bldg 1020.				
(U) AFFTC: Projects include designing costs for FY10 multiple projects, repairing emergency operations shelter MCC Bldg 1440; replacing heating Bldg 1830; installing HVAC in Avionics Lab Bldg 1030; repairing AT/FP Mission Control Center Bldg 1440; repairing AT/FP Bldg 1020/1030; repairing vent system with emergency shut off Bldg 1020; installing environmental management system Bldg 4785,4795,4970,5780,5781, and 5790; replacing instrumented backflow preventers Bldg 1030; removing HALON piping Bldg 1440; maintenance replacement air compressor plant Bldg 1830; building lockable storage area Bldg 1030; constructing shop area for technicians Bldg 1030; installing water meter Bldg 1440; installing digital phone service Bldg 1030; demolishing/repairing site buildings/utilities (Off-base sites).				4.384
(U) Total Cost	65.494	55.472	59.131	51.592

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604759F, Major T&E Investment, PE 0604940D, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605978F, Facility Sustainment - T&E support.										

(U) **D. Acquisition Strategy**
Not applicable

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UNCLASSIFIED

PE NUMBER: 0605978F

PE TITLE: Facility Sustainment - T&E Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605978F Facility Sustainment - T&E Support
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	31.697	28.072	30.865	29.136	25.774	28.809	29.244	29.507	Continuing	TBD
06MR Facility Sustainment - T&E Support	31.697	28.072	30.865	29.136	25.774	28.809	29.244	29.507	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	31.650	25.579	24.502	22.932
(U) Current PBR/President's Budget	31.697	28.072	30.865	29.136
(U) Total Adjustments	0.047	2.493		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.001	-0.097		
Congressional Increases	0.048			
Reprogrammings		2.590		
SBIR/STTR Transfer				

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605978F Facility Sustainment - T&E Support			PROJECT NUMBER AND TITLE 06MR Facility Sustainment - T&E Support		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06MR Facility Sustainment - T&E Support	31.697	28.072	30.865	29.136	25.774	28.809	29.244	29.507	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:				
(U) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.	0.445	0.458	0.373	0.381
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.	1.618	1.155	0.526	0.318
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN and the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, CA. Efforts include plant asset maintenance, test building maintenance, and core and support facility maintenance at AEDC and regular adjustments and inspections, preventative maintenance tasks, emergency response and service calls for minor repairs, and major repairs or replacement of facility components that are expected to occur periodically throughout the life cycle of NFAC.	28.499	25.290	28.749	27.193
(U) AFFTC: Projects include civil engineering in-house and emergency sustainment; EW facility sustainment Bldg 1020; boiler and cooler tower chemical treatment sustainment contract Bldg 1440;	1.135			

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605978F Facility Sustainment - T&E Support	PROJECT NUMBER AND TITLE 06MR Facility Sustainment - T&E Support
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
substanting fire detection and reporting system Bldg 1030 Room 017; Repairing raised computer flooring Bldg 1020 Room 127; repairing fire engine Bldg 1032; and sustaining water drainage around Bldg 1020.				
(U) AFFTC: Projects include civil engineering in-house and emergency sustainment; EW facility sustainment Bldg 1020; boiler and cooler tower chemical treatment sustainment contract Bldg 1440; and upgrading STAEFA System Phase IV and V Bldg 1030.		1.169		
(U) AFFTC: Projects include civil engineering in-house and emergency sustainment; EW facility sustainment Bldg 1020; boiler and cooler tower chemical treatment sustainment contract Bldg 1440; sustaining deluge system for Anechoic Chamber Bldg 1030.			1.217	
(U) AFFTC: Projects include civil engineering in-house and emergency sustainment; EW facility sustainment Bldg 1020; boiler and cooler tower chemical treatment sustainment Bldg 1440.				1.244
(U) Total Cost	31.697	28.072	30.865	29.136

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN Related RDT&E: PE 0604256F, Threat Simulator Development, PE 0604759F, Major T&E Investment, PE 0604940F, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605976F, Facility Restoration and Modernization - T&E.										

(U) **D. Acquisition Strategy**
Not applicable.

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UNCLASSIFIED

PE NUMBER: 0804731F
 PE TITLE: GENERAL SKILL TRAINING

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.309	0.304	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4980 Research and Development of Computer Forensic Anaylst Tools	0.309	0.304	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The DoD Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.327	0.305	0.000	0.000
(U) Current PBR/President's Budget	0.309	0.304	0.000	0.000
(U) Total Adjustments	-0.018			
(U) Congressional Program Reductions	-0.017	-0.001		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.001			
(U) <u>Significant Program Changes:</u>				
FY06 increase for fact of life changes.				

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING			PROJECT NUMBER AND TITLE 4980 Research and Development of Computer Forensic Anaylst Tools		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4980 Research and Development of Computer Forensic Anaylst Tools	0.309	0.304	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The DoD Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplished/Planned Programs				
(U) Next Generation Electronic Media Analysis System	0.040			
(U) Damaged Storage Device Data Recovery Tools	0.030			
(U) Knowledge Management System	0.050			
(U) Vulnerability Assessment Environment (V.A.E.)	0.089	0.151		
(U) Fused Analysis System/Data Analysis Tools	0.100	0.153		
(U) Total Cost	0.309	0.304	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL
TRAINING

PROJECT NUMBER AND TITLE

4980 Research and Development of
Computer Forensic Analyst Tools

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other Procurement	0.264	0.277	0.572	0.290	0.298	0.609			Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.

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PE NUMBER: 1001004F
 PE TITLE: International Activities

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 1001004F International Activities
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.582	3.896	4.041	4.124	4.225	4.298	4.381	4.472	Continuing	TBD
4645 International Cooperative Research & Development	3.582	3.896	4.041	4.124	4.225	4.298	4.381	4.472	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; space cooperation; specialized working groups; Long-Term Technology Project developments; NATO Research and Technology Organization; 5-Power Air Senior National Representative meetings and projects; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; bilateral Air Senior National Representative meetings; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP).

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

1001004F International Activities

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.686	4.099	3.998	4.069
(U) Current PBR/President's Budget	3.582	3.896	4.041	4.124
(U) Total Adjustments	-0.104			
(U) Congressional Program Reductions		-0.015		
Congressional Rescissions	0.000			
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.104	-0.109		
(U) <u>Significant Program Changes:</u>				
N/A				

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 1001004F International Activities				PROJECT NUMBER AND TITLE 4645 International Cooperative Research & Development		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4645 International Cooperative Research & Development	3.582	3.896	4.041	4.124	4.225	4.298	4.381	4.472	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; space cooperation; specialized working groups; Long-Term Technology Project developments; NATO Research and Technology Organization; 5-Power Air Senior National Representative meetings and projects; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; bilateral Air Senior National Representative meetings; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP).

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	0.060	0.030	0.000	0.000
(U) ESEP/APEP - Funds the USAF execution and the management oversight of ESEP and APEP agreements. Funds approximately eight to ten field level military and civilian personnel from AFMC Facilities, Product Centers, Test Centers, Logistic Centers, and the Academy for two-year tours at selected European and Asian government laboratories or other institutions. By FY07, the USAF will have signed ESEP agreements with 18 countries and be in negotiation with an additional 3 countries. By FY07, the USAF will have signed APEP agreements with 2 countries and be in negotiations with at least one other country.	0.350	0.300	0.300	0.300

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Exhibit R-2a, RDT&E Project Justification		DATE February 2007			
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 1001004F International Activities	PROJECT NUMBER AND TITLE 4645 International Cooperative Research & Development			
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ). Funds USAF participation at the NATO Five-Power Forum to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum. Funds USAF participation in Defense Cooperation Committee Meetings with Egypt, Singapore, South Korea and Taiwan. Funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds negotiation and support costs associated with the NATO AWACS Board of Directors. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to Brazil, Czech Republic, Denmark, India, Israel, Italy, Netherlands, Poland, Portugal, Spain, Singapore, Sweden, Taiwan, Ukraine, and other countries on new technology exchange projects.		1.926	2.106	2.201	2.284
(U) Armaments Cooperation - Funds the USAF's ability to develop and negotiate the increasing number of proposals for ICR&D bi-lateral and multi-lateral Agreements with key allies. Work will continue on agreements developed, but not signed, during FY06 and work will be initiated in the areas of: Communication and Information; Interoperability; Coalition Warfare; Nanotechnology; Reconnaissance and Surveillance; Global Positioning Satellites; SATCOM; Space Surveillance; Ground Based Relay Stations; Unmanned Combat Air System; Airborne Radar; Early Warning Systems; Counter Air Weapons; Command and Control; Biological Warfare Protection; Distributed Simulation Technology; Non-lethal Technologies; Laser Technology; Propulsion; Directed-Energy Technology; and Electromagnetic Technology.		0.850	0.900	0.900	0.900
(U) Air Force Material Command (AFMC) - Funds support and oversight of International Armaments Cooperation R&D efforts within the Air Force Research Laboratories (AFRL). Funds AFRL support of technical assessments and discussions to identify, create, and develop promising cooperative R&D programs. Funds AFRL participation in meetings of The Technical Coordination Program (TTCP), NATO Research and Technology Organization and NATO Conference of National Armaments Directors (CNAD) Working Groups.		0.096	0.500	0.500	0.500
(U) NATO RTO - Funds USAF participation in the NATO RTO activities. The FY07 activities will include but are not limited to: 1) Mitigation and Control of High Cycle Fatigue; 2) Critical Technologies for Hypersonic Vehicle Development; 3) Unmanned Material Vehicles as Force Multipliers; 4) Network Centric Operations Security; 5) Testing of Precision Airdrop Systems; 6) Information and Knowledge; 7) Mission Management; and 8) Sensors, Electronics, Processing and		0.200	0.000	0.040	0.040

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Project 4645

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 1001004F International Activities	PROJECT NUMBER AND TITLE 4645 International Cooperative Research & Development
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Components.				
(U) International Space Cooperation - New and growing mission requirement to be supported by the International Activities. Funds research and development cooperation to provide a foundation upon which to develop operational strategies, concepts, and technologies with our allies which in turn provides a foundation for long-term operational cooperation. Cooperation with our allies in space will allow the USAF to geographically distributed ground systems and provides invaluable access to remote test ranges for test and evaluation of space systems	0.100	0.060	0.100	0.100
(U) Total Cost	3.582	3.896	4.041	4.124

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) N/A										

(U) **D. Acquisition Strategy**
 This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, realize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are then funded by the program office.

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UNCLASSIFIED

PE NUMBER: 0702806F

PE TITLE: ACQUISITION AND MANAGEMENT SUPPORT

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0702806F ACQUISITION AND MANAGEMENT SUPPORT
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.739	17.614	22.317	21.765	21.792	21.619	21.960	22.326	0.000	0.000
5252 ACS1	10.739	17.614	22.317	21.765	21.792	21.619	21.960	22.326	0.000	0.000

(U) A. Mission Description and Budget Item Justification

Supporting Congressional and SECDEF mandates, program funding provides the framework for Air Force business and acquisition transformation in developing capabilities-based architectures, integrating robust systems engineering into early acquisition processes, and developing and managing a larger, more relevant technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. Leveraging the Defense Acquisition Performance Assessment, restores stability in Air Force acquisition systems by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. The 554th Electronic Systems Wing, formerly known as Information System Activity Group (ISAG), designs, tests, and evaluates combat support system architectures, operating environments, and computer platforms.

This program is in Budget Activity 06 - Management Support because it provides overall support to research and development activities.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.804	17.706	18.794	18.801
(U) Current PBR/President's Budget	10.739	17.614	22.317	21.765
(U) Total Adjustments	5.935			
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	-0.090			
Congressional Increases	1.500			
Reprogrammings	4.700			
SBIR/STTR Transfer	-0.175			

(U) Significant Program Changes:

FY06:

- A reprogramming of +\$5M occurred 12 Dec 06 for SECAF-directed AF Smart Operations 21 Initiatives; therefore, the reprogramming line above should reflect +\$9.7M

- Three separate reprogramming actions occurred in FY06 in the amount of \$4.1M for Acquisition Transformation Initiatives in support of AF Smart Operations 21 efforts/activities.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0702806F ACQUISITION AND MANAGEMENT SUPPORT

FY06-09:

- IAW Congressional and SECDEF priorities and Defense Acquisition Performance Assessment recommendations, increasing acquisition and systems engineering process improvements in the Air Force Acquisition Transformation Program
- Increasing technical and analytical support through training development; independent cost estimating and assessment to help analyze cost/risk growth and create defensible risk analyses for cost, schedule, and technical risks; information technology infrastructure development; and economic, statistical, and engineering analyses of acquisition programs
- Initiating performance measures for capability-based planning constructs, aligning relevant science and technology areas with operational requirements to include systems integration modeling and architecture analysis
- Increasing activities to recruit, develop, and manage the technical workforce, enhancing business and engineering processes to develop leaders to manage the acquisition and engineering transformation and interface with the academic community
- Transforming acquisition review processes to re-establish clean lines of responsibility, authority, and accountability at appropriate levels
- Exploring methods to operate a materiel solution development process that is responsive to COCOM capability needs, aligned with the OSD Joint Task Assignment Process

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0702806F ACQUISITION AND MANAGEMENT SUPPORT			PROJECT NUMBER AND TITLE 5252 ACS1		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5252 ACS1	10.739	17.614	22.317	21.765	21.792	21.619	21.960	22.326	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Supporting Congressional and SECDEF mandates, program funding provides the framework for Air Force business and acquisition transformation in developing capabilities-based architectures, integrating robust systems engineering into early acquisition processes, and developing and managing a larger, more relevant technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. Leveraging the Defense Acquisition Performance Assessment, restores stability in Air Force acquisition systems by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. The 554th Electronic Systems Wing, formerly known as Information System Activity Group (ISAG), designs, tests, and evaluates combat support system architectures, operating environments, and computer platforms.

This program is in Budget Activity 06 - Management Support because it provides overall support to research and development activities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Acquisition/engineering process research/cost estimating	2.041	2.180	4.175	4.050
(U) Systems integration modeling/architecture analysis	1.933	7.950	3.817	3.829
(U) IT infrastructure development	0.322	0.246	0.469	0.455
(U) Technical workforce management	6.443	7.238	13.856	13.431
(U) Total Cost	10.739	17.614	22.317	21.765

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not Applicable										

(U) D. Acquisition Strategy

Contracts will be awarded through full and open competition.

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