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**DEPARTMENT OF THE AIR FORCE**

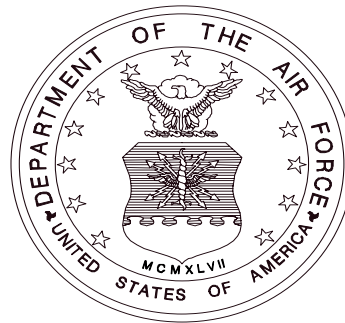
**FISCAL YEAR (FY) 2007 BUDGET ESTIMATES**

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

**DESCRIPTIVE SUMMARIES, VOLUME II**

**BUDGET ACTIVITIES 4 - 6**

**FEBRUARY 2006**



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**Fiscal Year 2007 Budget Estimates  
RDT&E Descriptive Summaries, Volume II  
Budget Activities 4 - 6  
February 2006**

**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 2007 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 2007 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) "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E, are included at the end of Volume III.

**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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SPACE WARFARE CENTER	0305174F	1779
Space Radar	0603858F	671



Spacelift Range System	0305182F	1785
SPACETRACK	0305910F	1891
SPECIAL TACTICS/COMBAT CONTROL	0408011F	2039
Specialized Undergraduate Pilot Training	0604233F	799
STRAT WAR PLANNING SYS - USSTRATCOM	0101313F	1273
Submunitions	0604604F	957
Support Systems Development	0708611F	2083
TAC AIRBORNE CONTROL SYSTEM	0207418F	1437
Tactical AIM Missiles	0207161F	1349
Test and Evaluation Support	0605807F	1193
Theater Battle Management (TBM) C4I	0207438F	1455
Threat Simulator Development	0604256F	1153
Transformational SATCOM (TSAT)	0603845F	617
University Research Initiatives	0601103F	45
USAF Modeling and Simulation	0207601F	1523
Warfighter Rapid Acquisition Program	0203761F	1289
Wargaming and Simulation Centers	0207605F	1547
Distributed Training and Exercises	0207697F	1553
WEATHER SERVICE	0305111F	1711
Wideband MILSATCOM (Space)	0603854F	659
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1645



UNCLASSIFIED  
DEPARTMENT OF DEFENSE  
FY 2007 RDT&E PROGRAM

SUMMARY  
(\$ IN THOUSANDS)

02 FEB 2006

APPROPRIATION -----	FY 2005 -----	FY 2006 -----	FY 2007 -----
Research, Development, Test & Eval, AF	20,477,909	21,671,763	24,396,767
Total Research, Development, Test & Evaluation	20,477,909	21,671,763	24,396,767



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DEPARTMENT OF DEFENSE  
FY 2007 RDT&E PROGRAM

SUMMARY  
(\$ IN THOUSANDS)

02 FEB 2006

Summary Recap of Budget Activities -----	FY 2005 -----	FY 2006 -----	FY 2007 -----
Basic Research	373,798	362,607	370,206
Applied Research	923,608	1,070,572	973,094
Advanced Technology Development	925,181	1,010,491	804,836
Advanced Component Development & Prototypes	1,767,113	2,201,113	2,741,701
System Development & Demonstration	4,341,382	4,830,329	4,571,330
RDT&E Management Support	1,128,533	968,297	1,042,276
Operational Systems Development	11,018,294	11,228,354	13,893,324
Total Research, Development, Test & Evaluation	20,477,909	21,671,763	24,396,767

Summary Recap of FYDP Programs -----			
Strategic Forces	84,178	93,243	151,821
General Purpose Forces	3,090,493	3,490,786	4,222,700
Intelligence and Communications	7,805,406	7,597,391	9,313,073
Mobility Forces	780,718	842,068	917,294
Research and Development	8,454,154	9,465,541	9,497,133
Central Supply and Maintenance	126,641	133,994	232,770
Training Medical and Other	3,246	3,320	3,491
Administration and Associated Activities	129,276	41,734	54,574
Support of Other Nations	3,797	3,686	3,911
Total Research, Development, Test & Evaluation	20,477,909	21,671,763	24,396,767



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FY 2007 RDT&E PROGRAM  
SUMMARY  
(\$ IN THOUSANDS)

02 FEB 2006

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DEPARTMENT OF THE AIR FORCE  
FY 2007 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 02 FEB 2006

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
1	0601102F	Defense Research Sciences	01	246,414	241,436	250,232	U
2	0601103F	University Research Initiatives	01	115,506	108,757	107,571	U
3	0601108F	High Energy Laser Research Initiatives	01	11,878	12,414	12,403	U
	Basic Research			----- 373,798	----- 362,607	----- 370,206	
4	0602015F	Medical Development	02		18,434		U
5	0602102F	Materials	02	117,460	121,451	111,073	U
6	0602201F	Aerospace Vehicle Technologies	02	75,195	104,469	112,751	U
7	0602202F	Human Effectiveness Applied Research	02	83,867	108,171	92,991	U
8	0602203F	Aerospace Propulsion	02	129,190	155,673	170,885	U
9	0602204F	Aerospace Sensors	02	92,597	115,689	117,553	U
10	0602500F	Multi-disciplinary Space Technology	02	91,773	91,694		U
11	0602601F	Space Technology	02	102,928	104,392	85,594	U
12	0602602F	Conventional Munitions	02	50,821	62,061	62,105	U
13	0602605F	Directed Energy Technology	02	42,754	44,169	48,422	U
14	0602702F	Command Control and Communications	02	84,201	96,714	119,267	U
15	0602805F	Dual Use Science and Technology Program	02	3,955	986		U
16	0602890F	High Energy Laser Research	02	48,867	46,669	50,166	U
17	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	02			2,287	U
	Applied Research			----- 923,608	----- 1,070,572	----- 973,094	
18	0603112F	Advanced Materials for Weapon Systems	03	61,305	70,100	48,901	U

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EXHIBIT R-1

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

Date: 02 FEB 2006

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
19	0603203F	Advanced Aerospace Sensors	03	41,607	39,782	55,150	U
20	0603211F	Aerospace Technology Dev/Demo	03	34,717	53,657	27,424	U
21	0603216F	Aerospace Propulsion and Power Technology	03	76,110	97,163	115,546	U
22	0603231F	Crew Systems and Personnel Protection Technology	03	29,375	34,968	32,156	U
23	0603270F	Electronic Combat Technology	03	37,883	33,342	24,436	U
24	0603311F	Ballistic Missile Technology	03	11,288	11,435		U
25	0603400F	Joint Unmanned Combat Air Systems (J-UCAS) Advanced Technology Dev and Research	03		76,691		U
26	0603401F	Advanced Spacecraft Technology	03	80,832	85,564	68,026	U
27	0603444F	Maui Space Surveillance System (MSSS)	03	56,561	47,166	6,074	U
28	0603500F	Multi-disciplinary Advanced Development Space Technology	03	47,676	55,732		U
29	0603601F	Conventional Weapons Technology	03	24,680	30,519	19,658	U
30	0603605F	Advanced Weapons Technology	03	49,782	49,821	51,336	U
31	0603723F	Environmental Engineering Technology	03		1,873		U
32	0603789F	C3I Advanced Development	03	31,595	41,124	35,785	U
33	0603801F	Special Programs	03	306,646	275,841	316,605	U
34	0603850F	Integrated Broadcast Service	03	2,235			U
35	0603924F	High Energy Laser Advanced Technology Program	03	9,490	5,713	3,713	U
36	0207418F	Tactical Airborne Control Systems	03			26	U
37	0207423F	Advanced Communications Systems	03	14,767			U



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

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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
38	0401840F	AMC Command and Control System	03	5,803			U
39	0804757F	Joint National Training Center	03	2,829			U
		Advanced Technology Development		925,181	1,010,491	804,836	
40	0603260F	Intelligence Advanced Development	04	4,567	4,761	4,776	U
41	0603287F	Physical Security Equipment	04	25,915	25,563	298	U
42	0603421F	NAVSTAR Global Positioning System III	04	33,773	85,172	315,314	U
43	0603430F	Advanced EHF MILSATCOM (SPACE)	04	607,254	655,779	633,258	U
44	0603432F	Polar MILSATCOM (SPACE)	04	894	2,154	35,685	U
45	0603438F	Space Control Technology	04	14,493	15,606	27,076	U
46	0603742F	Combat Identification Technology	04	23,634	51,146	26,517	U
47	0603790F	NATO Research and Development	04	3,819	3,916	4,095	U
48	0603791F	International Space Cooperative R&D	04	532	566	593	U
49	0603845F	Transformational SATCOM (TSAT)	04	443,960	429,244	867,102	U
50	0603850F	Integrated Broadcast Service	04	23,309	15,063	20,592	U
51	0603851F	Intercontinental Ballistic Missile	04	56,908	57,087	45,538	U
52	0603854F	Wideband Gapfiller System RDT&E (Space)	04	54,413	92,287	37,672	U
53	0603858F	Space Radar	04	67,820	98,253	266,401	U
54	0603859F	Pollution Prevention	04	4,768	10,483	2,853	U
55	0603860F	Joint Precision Approach and Landing Systems	04	12,623	10,951	10,011	U
56	0604015F	Next Generation Bomber	04	28,877	24,777	25,598	U
57	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	5,239	3,943		U



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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
58	0604400F	Joint Unmanned Combat Air Systems (J-UCAS) Advanced Component and Prototype Deve	04		227,857		U
59	0604855F	Operationally Responsive Launch	04	32,142	38,519		U
60	0604856F	Common Aero Vehicle (CAV)	04	16,053	26,993	33,386	U
61	0604857F	Operationally Responsive Space	04			35,625	U
62	0207423F	Advanced Communications Systems	04		1,940		U
63	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	306,120	319,053	349,311	U
		Advanced Component Development & Prototypes		----- 1,767,113	----- 2,201,113	----- 2,741,701	
64	0603840F	Global Broadcast Service (GBS)	05	21,797	19,383	23,599	U
65	0604012F	Joint Helmet Mounted Cueing System (JHMCS)	05	2,245	2,870	2,792	U
66	0604222F	Nuclear Weapons Support	05	13,344	13,951	14,895	U
67	0604226F	B-1B	05	79,201	95,910	130,546	U
68	0604233F	Specialized Undergraduate Flight Training	05	2,785	8,472	3,703	U
69	0604239F	F-22	05	211,815	75,117		U
70	0604240F	B-2 Advanced Technology Bomber	05	263,550	294,898	224,177	U
71	0604261F	Personnel Recovery Systems	05			254,310	U
72	0604270F	Electronic Warfare Development	05	100,865	91,169	87,784	U
73	0604280F	Joint Tactical Radio	05	36,109	81,036		U
74	0604287F	Physical Security Equipment	05	9,381	10,994	93	U
75	0604329F	Small Diameter Bomb (SDB)	05	73,573	63,521	104,080	U
76	0604421F	Counterspace Systems	05	25,351	29,074	47,292	U



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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars		FY 2007 -----	S E C -
				FY 2005 -----	FY 2006 -----		
77	0604425F	Space Situation Awareness Systems	05			121,157	U
78	0604429F	Airborne Electronic Attack	05		119,262	12,421	U
79	0604441F	Space Based Infrared System (SBIRS) High EMD	05	587,121	696,562	668,902	U
80	0604443F	Alternative Infrared Space System (AIRSS)	05			102,962	U
81	0604479F	Milstar LDR/MDR Satellite Communications (SPACE) (H)	05	1,056			U
82	0604600F	Munitions Dispenser Development	05	25,870	5,952		U
83	0604602F	Armament/Ordnance Development	05	8,015	7,675	5,039	U
84	0604604F	Submunitions	05	5,682	5,397	5,759	U
85	0604617F	Agile Combat Support	05	16,989	11,211	10,095	U
86	0604618F	Joint Direct Attack Munition	05			15,450	U
87	0604706F	Life Support Systems	05	8,333	13,373	12,370	U
88	0604735F	Combat Training Ranges	05	15,712	8,794	14,363	U
89	0604740F	Integrated Command & Control Applications (IC2A)	05	21,279	18,872	167	U
90	0604750F	Intelligence Equipment	05	2,426	2,730	1,426	U
91	0604762F	Common Low Observables Verification System (CLOVerS)	05	8,940	8,568		U
92	0604800F	Joint Strike Fighter (JSF)	05	2,080,058	2,333,009	1,999,068	U
93	0604851F	Intercontinental Ballistic Missile	05	94,684	31,948		U
94	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	20,991	25,721	18,513	U
95	0605011F	RDT&E for Aging Aircraft	05	25,249	41,090	25,490	U
96	0605807F	Test and Evaluation Support	05		49,288	2,388	U

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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
97	0207434F	Link-16 Support and Sustainment	05	120,633	161,345	172,625	U
98	0207443F	Family of Interoperable Operational Pictures (FIOP)	05	43,440	28,880		U
99	0207450F	E-10 Squadrons	05	390,957	391,006	390,896	U
100	0207451F	Single Integrated Air Picture (SIAP)	05			40,124	U
101	0207701F	Full Combat Mission Training	05	9,756	26,046	32,243	U
102	0305176F	Combat Survivor Evader Locator	05		17,250		U
103	0401318F	CV-22	05	14,175	39,955	26,601	U
		System Development & Demonstration		----- 4,341,382	----- 4,830,329	----- 4,571,330	
104	0604256F	Threat Simulator Development	06	32,975	32,083	38,131	U
105	0604759F	Major T&E Investment	06	58,628	64,014	58,506	U
106	0605101F	RAND Project Air Force	06	30,609	27,139	25,211	U
107	0605306F	Ranch Hand II Epidemiology Study	06	4,663	4,128		U
108	0605502F	Small Business Innovation Research	06	349,650			U
109	0605712F	Initial Operational Test & Evaluation	06	27,392	34,122	34,802	U
110	0605807F	Test and Evaluation Support	06	358,584	636,369	740,134	U
111	0605860F	Rocket Systems Launch Program (SPACE)	06	21,975	26,391	14,704	U
112	0605864F	Space Test Program (STP)	06	44,705	47,308	46,310	U
113	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	73,015	61,080	54,683	U
114	0605978F	Facilities Sustainment - Test and Evaluation Support	06	22,011	31,650	25,579	U
115	0804731F	General Skill Training	06	311	327	305	U



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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
116	0909900F	Financing for Expired Account Adjustments	06	218			U
117	0909980F	Judgment Fund Reimbursement	06	100,000			U
118	1001004F	International Activities	06	3,797	3,686	3,911	U
		RDT&E Management Support		----- 1,128,533	----- 968,297	----- 1,042,276	
119	0605024F	Anti-Tamper Technology Executive Agency	07	7,345	7,715	8,014	U
120	0605798F	Analysis Support Group	07				
121	0101113F	B-52 Squadrons	07	29,782	26,748	71,379	U
122	0101120F	Advanced Cruise Missile	07	6,609	1,960	6,983	U
123	0101122F	Air-Launched Cruise Missile (ALCM)	07	6,495	2,218	3,736	U
124	0101313F	Strat War Planning System - USSTRATCOM	07	13,472	29,705	27,285	U
125	0101314F	Night Fist - USSTRATCOM	07	4,786	4,941	5,162	U
126	0101815F	Advanced Strategic Programs	07	8,313	9,734	22,423	U
127	0102326F	Region/Sector Operation Control Center Modernization Program	07	14,721	17,937	14,853	U
128	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	34,697	22,764	30,584	U
129	0207131F	A-10 Squadrons	07	29,878	56,025	80,771	U
130	0207133F	F-16 Squadrons	07	95,664	154,533	148,373	U
131	0207134F	F-15E Squadrons	07	127,112	143,572	125,062	U
132	0207136F	Manned Destructive Suppression	07	16,143	9,260	515	U
133	0207138F	F/A-22 Squadrons	07	318,369	373,124	584,290	U
134	0207141F	F-117A Squadrons	07	17,385	13,406	14,093	U

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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
135	0207161F	Tactical AIM Missiles	07	5,346	15,416	8,850	U
136	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	31,871	32,788	43,417	U
137	0207224F	Combat Rescue and Recovery	07	6,460	70,801		U
138	0207247F	AF TENCAP	07	17,010	11,661	11,202	U
139	0207248F	Special Evaluation Program	07	195,663	273,167	530,038	U
140	0207253F	Compass Call	07	3,952	9,907	4,469	U
141	0207268F	Aircraft Engine Component Improvement Program	07	141,803	151,082	154,319	U
142	0207277F	CSAF Innovation Program	07	1,780	1,695	1,612	U
143	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	43,298	66,042	40,881	U
144	0207410F	Air & Space Operations Center (AOC)	07	22,301	67,029	87,483	U
145	0207412F	Control and Reporting Center (CRC)	07	9,660	18,892	8,798	U
146	0207417F	Airborne Warning and Control System (AWACS)	07	273,971	119,746	165,820	U
147	0207418F	Tactical Airborne Control Systems	07			2,286	U
148	0207423F	Advanced Communications Systems	07	17,940	30,968	53,093	U
149	0207424F	Evaluation and Analysis Program	07	2,501	6,013		U
150	0207433F	Advanced Program Technology	07	243,801	296,063	313,251	U
151	0207438F	Theater Battle Management (TBM) C4I	07	34,948	39,787	31,835	U
152	0207445F	Fighter Tactical Data Link	07	35,668	119,965	113,388	U
153	0207446F	Bomber Tactical Data Link	07	76,568	142,800	168,168	U
154	0207448F	C2ISR Tactical Data Link	07	24,420	14,627	4,338	U



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Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
155	0207449F	Command and Control (C2) Constellation	07	38,288	40,334	44,027	U
156	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	98,394	104,321	152,696	U
157	0207590F	Seek Eagle	07	22,316	19,232	16,426	U
158	0207591F	Advanced Program Evaluation	07	408,231	286,131	437,057	U
159	0207601F	USAF Modeling and Simulation	07	10,784	25,145	23,470	U
160	0207605F	Wargaming and Simulation Centers	07	6,993	6,278	6,595	U
161	0207697F	Distributed Training and Exercises	07		4,162	6,138	U
162	0208006F	Mission Planning Systems	07	87,659	119,860	146,396	U
163	0208021F	Information Warfare Support	07	10,066	14,973	24,758	U
164	0301310F	National Air Intelligence Center	07				
165	0301314F	COBRA BALL	07				
166	0301315F	Missile and Space Technical Collection	07				
167	0301324F	FOREST GREEN	07				
168	0301386F	GDIP Collection Management	07				
169	0302015F	E-4B National Airborne Operations Center (NAOC)	07	13,801	18,639	283	U
170	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	17,973	48,327	64,109	U
171	0303140F	Information Systems Security Program	07	65,702	116,532	183,523	U
172	0303141F	Global Combat Support System	07	20,645	20,262	19,895	U
173	0303150F	Global Command and Control System	07	5,096	13,306	3,348	U
174	0303158F	Joint Command and Control Program (JC2)	07		5,125	5,818	U



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				FY 2005 -----	FY 2006 -----	-----	
175	0303601F	MILSATCOM Terminals	07	245,582	269,218	271,562	U
176	0304111F	Special Activities	07				
177	0304260F	Airborne SIGINT Enterprise	07		77,798	117,834	U
178	0304311F	Selected Activities	07				
179	0304346F	Imagery Derived MASINT	07				
180	0304347F	Overhead Non-Imaging Infrared	07				
181	0305099F	Global Air Traffic Management (GATM)	07	6,727	6,943	6,620	U
182	0305110F	Satellite Control Network (SPACE)	07	19,379	31,170	19,907	U
183	0305111F	Weather Service	07	16,848	28,222	34,899	U
184	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	12,512	2,169		U
185	0305116F	Aerial Targets	07	2,909	6,547	5,203	U
186	0305124F	Special Applications Program	07				
187	0305128F	Security and Investigative Activities	07	663	484	509	U
188	0305142F	Applied Technology and Integration	07				
189	0305148F	Measurement and Signature Intelligence (MASINT) Systems/ Program	07	13,811			U
190	0305159F	Defense Reconnaissance Support Activities (SPACE)	07				
191	0305160F	Defense Meteorological Satellite Program (SPACE)	07		3,852	969	U
192	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	93,408	123,794	131,083	U
193	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	128,349	184,756	177,792	U

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## UNCLASSIFIED

DEPARTMENT OF THE AIR FORCE  
FY 2007 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 02 FEB 2006

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
194	0305172F	Combined Advanced Applications	07				
195	0305173F	Space and Missile Test and Evaluation Center	07			4,675	U
196	0305174F	Space Warfare Center	07	397	405	726	U
197	0305182F	Spacelift Range System (SPACE)	07	46,056	49,081	38,044	U
198	0305193F	Intelligence Support to Information Operations (IO)	07	1,087	3,566	3,813	U
199	0305202F	Dragon U-2	07	83,862	10,013		U
200	0305206F	Airborne Reconnaissance Systems	07	60,633	55,737	52,824	U
201	0305207F	Manned Reconnaissance Systems	07	23,364	18,074	10,132	U
202	0305208F	Distributed Common Ground/Surface Systems	07	31,470	34,883	120,777	U
203	0305219F	Predator UAV (JMIP)	07	82,113	64,081	61,466	U
204	0305220F	Global Hawk UAV	07	382,557	327,697	247,665	U
205	0305221F	Network-Centric Collaborative Target (TIARA)	07		8,524	8,499	U
206	0305887F	Intelligence Support to Information Warfare	07	923	961	5,163	U
207	0305906F	NCMC - TW/AA System	07	61,701	57,329	50,908	U
208	0305910F	SPACETRACK (SPACE)	07	129,438	164,190		U
209	0305913F	NUDET Detection System (SPACE)	07	34,691	32,266	60,281	U
210	0305917F	Space Architect	07	14,701	12,676		U
211	0305924F	National Security Space Office	07			13,437	U
212	0305940F	Space Situation Awareness Operations	07			31,401	U
213	0307141F	NASS, IO Technology Integration & Tool Dev	07	13,100	14,965	15,449	U



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DEPARTMENT OF THE AIR FORCE  
FY 2007 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 02 FEB 2006

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
214	0308699F	Shared Early Warning (SEW)	07	3,183	3,235	2,999	U
215	0401115F	C-130 Airlift Squadron	07	158,716	232,173	248,283	U
216	0401119F	C-5 Airlift Squadrons (IF)	07	311,508	223,252	150,209	U
217	0401130F	C-17 Aircraft (IF)	07	195,042	164,781	173,781	U
218	0401132F	C-130J Program	07	13,247	6,586	40,542	U
219	0401133F	Aeromedical Evacuation	07		2,047		U
220	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	69,069	58,596	34,916	U
221	0401218F	KC-135s	07	1,931	1,477	1,126	U
222	0401219F	KC-10s	07		13,280	4,781	U
223	0401221F	KC-135 Tanker Replacement	07	10,200	97,797	203,932	U
224	0401839F	Air Mobility Tactical Data Link	07			32,099	U
225	0408011F	Special Tactics / Combat Control	07	1,027	2,124	1,024	U
226	0702207F	Depot Maintenance (Non-IF)	07	1,328	1,388	1,457	U
227	0702239F	Avionics Component Improvement Program	07	976			U
228	0702806F	Acquisition and Management Support	07	5,110	4,735	17,706	U
229	0708011F	Industrial Preparedness	07	62,501	55,137	36,673	U
230	0708012F	Logistics Support Activities	07	962	2,760		U
231	0708610F	Logistics Information Technology (LOGIT)	07	3,000	43,384	166,338	U
232	0708611F	Support Systems Development	07	52,764	26,590	10,596	U
233	0804757F	Joint National Training Center	07		2,883	3,073	U
234	0808716F	Other Personnel Activities	07	106	110	113	U
235	0901202F	Joint Personnel Recovery Agency	07		964	992	U



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DEPARTMENT OF THE AIR FORCE  
FY 2007 RDT&E PROGRAM

EXHIBIT R-1

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

Date: 02 FEB 2006

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2005 -----	FY 2006 -----	FY 2007 -----	
236	0901218F	Civilian Compensation Program	07	14,608	7,339	7,779	U
237	0901220F	Personnel Administration	07		16,150	18,262	U
238	0901538F	Financial Management Information Systems Development	07	14,450	17,281	27,541	U
		Operational Systems Development		----- 11,018,294	----- 11,228,354	----- 13,893,324	
		Total Research, Development, Test & Eval, AF		----- 20,477,909	----- 21,671,763	----- 24,396,767	



## PROGRAM ELEMENT COMPARISON SUMMARY

### PROGRAM ELEMENT (By BUDGET ACTIVITY)

#### BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

None

#### BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

0602102F	Materials	In FY 2007, Project 01SP, Space Materials Development, is a new start. Efforts will transfer from PE 0602500F, Multidisciplinary Space Technology, Project 5025, Space Materials Development, in order to more effectively manage and provide oversight of the efforts.
0602201F	Aerospace Vehicle Technologies	In FY 2007, Project 6266SP, Applied Space Access Vehicle Technology, is a new start. Efforts were transferred from PE 0602500F, Multidisciplinary Space Technology, Project 625030, Applied Space Access Vehicle Technology, in order to effectively manage and provide oversight of the efforts.
0602203F	Aerospace Propulsion	In FY 2007, Project 33SP, Space Rocket Component Technology, is a new start. It will transfer from PE 0602500F, Multi-Disciplinary Space Technology, Project 5026, Rocket Propulsion Component Technology, and Project 5027, High Speed Airbreathing Propulsion Technology, in order to more effectively manage and provide oversight of the efforts. In FY 2006 and 2007, funding was increased to accelerate efforts to develop technologies to support an Air Force scramjet effort.
0602204F	Aerospace Sensors	In FY 2007, Project 44SP, Space Sensors, is a new start. Efforts will transfer from PE 0602500F, Multidisciplinary Space Technology, Project 5028, Space Sensors, Photonics and RF Processors, and Project 5029, Space Sensor and CM Technology, in order to more effectively manage and provide oversight of the efforts.



0602500F	Multi-Disciplinary Space Tech	In FY 2007, Project 5023, Laser and Imaging Space Technology, efforts transfer to PE 0602605F, Directed Energy Technology, Project 6255SP, Laser and Imaging Space Technology; Project 5025, Space Materials Development, efforts transfer to PE 0602102F, Materials, Project 6210SP, Space Materials Development; Project 5026, Rocket Propulsion Component Technology, and Project 5027, High Speed Airbreathing Propulsion Technology, efforts transfer to PE 0602203F, Aerospace Propulsion, Project 6233SP, Space Rocket Component Technology; Project 5028, Space Sensors, Photonics and Radio Frequency (RF) Processes, and Project 5029, Space Sensor and Countermeasure (CM) Technology, efforts transfer to PE 0602204F, Aerospace Sensors, Project 6244 SP, Space Sensors; Project 5030, Applied Space Access Vehicle Technology, efforts transfer to PE 0602201F, Aerospace Vehicle Technologies, Project 6222SP, Applied Space Access Vehicle Technology; and Project 5082, Optical Networking Technology, efforts transfer to PE 0602702F, Command Control and Communication, Project 6266SP, Space Optical Network Technology, in order to more effectively
0602605F	Directed Energy Technology	In FY 2007, efforts will transfer from PE 0602500F, Multidisciplinary Advanced Development Space Technology, Project 5023, Laser and Imaging Space Tech, to this project in order to more effectively manage and provide oversight of the efforts. In FY2007, this is a new start.
0602702F	Command Control and Communications	In FY 2007, Project 6266SP, Space Optical Network Technology, is a new start. Efforts were transferred from PE 0602500F, Multidisciplinary Space Technology, Project 5082, Optical Networking Technology, in order to more effectively manage and provide oversight of the efforts.

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

0603112F	Advanced Materials for Weapon Systems	In FY 2007, Project 77SP, Advanced Space Materials, is a new start. Efforts will be transferred from PE 0603500F, Multidisciplinary Space Technology, Project 5032, Advanced Space Materials, in order to more effectively manage and provide oversight of the efforts.
0603203F	Advanced Aerospace Sensors	In FY 2007, efforts will transfer from PE 0603500F, Multidisciplinary Advanced Development Space Technology, Project 5034, Advanced Space Sensors, to this project in order to more effectively manage and provide oversight of the efforts. In FY2007, this is a new start.
0603211F	Aerospace Technology Dev/Demo	In FY 2007, Project 6399SP, Advanced Structures for Space Vehicles, is a new start. Efforts were transferred from PE 0603500F, Multidisciplinary Advanced Space Technology, Project 635062, Advanced Structures for Space Vehicles, order to effectively manage and provide oversight of the efforts.



0603216F	Aerospace Propulsion and Power Technology	In FY 2007, a portion of the funding in Projects 2480 and 4921 was shifted to Project 5098. In FY 2007, Project 310SP, Space Rocket Propulsion Demonstration, is a new start and will transfer from PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5033, Rocket Propulsion Demonstration, in order to more effectively manage and provide oversight of the efforts. In 2007, funding increases to support ground demonstrations and fabricate test vehicles for out-year flight demonstrations.
0603400F	J-UCAS Joint Program Office	In FY2007-11, the J-UCAS program is being terminated and \$1,830.5M is being realigned to PE0604402N.
0603500F	Multi-Disciplinary Adv Dev Space Tech	In FY 2007, Project 5031, efforts transfer to PE 0603605F, Project 6311SP, Advanced Optics and Laser Space Technology; Project 5032, efforts transfer to PE 0603112F, Advanced Materials for Weapons Systems, Project 6377SP, Advanced Space Materials; Project 5033, efforts transfer to PE 0603216F, Aerospace Propulsion and Power Technology, Project 6310SP, Space Rocket Propulsion Demonstration; Project 5034, efforts transfer to PE 0603203F, Advanced Aerospace Sensors, Project 6388SP, Advanced Space Sensors; and Project 5062, efforts transfer to PE 0603211F, Aerospace Technology Development/Demonstration, Project 6399SP Advanced Structures Space Vehicles, in order to more effectively manage and provide oversight of the efforts.
0603605F	Advanced Weapons Technology	In FY 2007, efforts will transfer from PE 0603500F, Multidisciplinary Advanced Development Space Technology, Project 5031, Advanced Optics and Laser Space Tech, to this project in order to more effectively manage and provide oversight of the efforts. In FY2007, this is a new start.

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

0603851F	ICBM - DEM/VAL	In FY 2007 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.
0604400F	Joint Unmanned Combat Air System (J-UCAS)	In FY2007-11, the J-UCAS program is being terminated and \$1,830.5M is being realigned to PE0604402N.
0604855F	Operationally Responsive Launch	In FY 2007 this PE is being 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.



0604857F      Operationally Responsive Space

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

In FY 2007, the Affordable Responsive Spacelift (ARES) effort in Project 64A016 and the Tactical Satellite (TacSat) effort in Project 64A015 are new starts to meet some of the requirements of the Operationally Responsive Space Analysis of Alternatives.

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

0207434F      Link 16 Support and Sustainment

In FY2007 and out, funding for the Single Integrated Air Picture program (SIAP) (currently residing in PE 0207434F and PE 0207443F), will be moved to PE 0207451F.

0207443F      Family of Interop Operational Pic (FIOP)

In FY2007 and out, funding for the Single Integrated Air Picture program (SIAP) (currently residing in PE 0207434F and PE 0207443F), will be moved to PE 0207451F.

0207451F      Single Integrated Air Picture (SIAP)

In FY2007, this is a new PE. All Single Integrated Air Picture (SIAP) funds from PE 0207443F Project #655187 and PE 0207434F Project #655050 were transferred to consolidate Air Force SIAP funds.

0604012F      Joint Helmet Mounted Cueing System (JHMCS)

In FY2007 and beyond, funds transferred from PE 0604012F to PE 0207170F.

0604240F      B-2 Advanced Technology Bomber

In FY2007, the B-2 Mode S/5 Identification Friend or Foe (IFF) and the Proximity Sensor Logic Unit (PSLU) are new start programs.

0604261F      Personnel Recovery Systems

In FY2007, this is a new start.

0604280F      Joint Tactical Radio Systems (JTRS)

In FY2007, Project No. 5068, Joint Tactical Radio Systems (JTRS) efforts were transferred from PE 0604280F to PE 0604280A, Joint Tactical Radio Systems (JTRS) in order to support the revised JTRS program development acquisition strategy. Refer to PE 060280A for all updates on acquisition strategy contracts and schedules. Only FY 2005 and FY 2006 actuals have been updated within this display.

0604421F      Counterspace Systems

In FY2007, this program includes a new start effort.

0604425F      Space Situation Awareness Systems

In FY 2007 this is a new PE. These projects transferred from PE 0305910F, Spacetrack, to reflect evolution of space surveillance to the Space Situation Awareness construct.

0604429F      Airborne Electronic Attack

In FY 2007, Project 655193, B-52 Stand-Off Jammer, is terminated.

0604443F      Alternative Infrared Satellite System (AIRSS)

In FY 2007, this is a new PE. In FY 2007, Project Number 65A020, Alternative Infrared Satellite System includes new start efforts.

0604617F      Agile Combat Support

In FY2007, this program includes a new start effort.



0604618F Joint Direct Attack Munition

In FY2007, this program includes a new start effort.

0604706F Life Support Systems

In FY2007, this program includes new start efforts.

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

0604759F Major T&E Investment

In FY 2007, Project 4597, Air Force Test Investments, includes new start efforts

**BUDGET ACTIVITY #7: OPERATIONAL SYSTEM DEVELOPMENT (Volume 3)**

0207170F JHMCS

In FY2007 and beyond, funds transferred from PE 0604012F to PE 0207170F. This is a new start.

0207418F TAC Airborne Control System

In FY 2007 this is the first time this program element (PE) has had Research, Development, Testing and Evaluation (RDT&E) funds, Project Number 5234, Tactical Air Control Party (TACP) Support, includes new start efforts.

0303131F Minimum Essential Emergency Communications Network (MEECN)

In FY2007, this program includes a new start effort.

0303140F Information Systems Security Program

In FY2007, former Project 674861, AF Electronic Key Management System - Key Management Infrastructure (AFEKMS-KMI), is being split to properly reflect the Joint KMI Program as a next-generation system rather than an upgrade to the current EKMS. The AFEKMS stays in BPAC 674861; the AF KMI moves to the new BPAC 675231. However, since the transformational key generation/key provisioning capability will not be built into KMI until Capability Increment (CI)-3, EKMS will continue to provide this capability via a number of temporary interfaces created for that purpose.

0304260F Airborne SIGINT Enterprise (JMIP)

In FY2007, BPACs 5180, 5182, and 5186 are new starts. This PE began in FY06 and combines signals intelligence (SIGINT) development efforts previously being accomplished in multiple USAF PEs. The funds have been distributed among all seven Airborne SIGINT Enterprise (ASE) projects based on the development priorities established by the USAF SIGINT Capabilities Working Group in order to build a total SIGINT capability. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability. All funds in Compass Bright are 3600 RDT&E. The source for these funds was the redistribution of SIGINT funds moved into the ASE PE from other USAF SIGINT projects as explained in the R2. For BPAC 675180, these funds will be split between the RIVET JOINT, COMBAT SENT, and COBRA BALL programs.

0305173F Space & Missile Test & Evaluation Center

In FY 2007, all funding from BPAC 4992 was transferred to new BPAC A014 - this re-name better reflects focus of efforts.



0305910F	Spacetrack	In FY 2007 these projects all transferred to PE 0604425F, Space Situation Awareness Systems, to reflect evolution of space surveillance to the Space Situation Awareness construct, with two exceptions: Project 67A008 transferred to PE 0305940F, Space Situation Awareness Operations, for the same reason, and Project 67A009 was terminated in FY 2006 rather than transferred to another PE.
0305917F	Space Architect	In FY 2007 these efforts transferred to PE 0305924F, National Security Space Office, to reflect the name of the office created by the merger of the National Security Space Architect with other organizations.
0305924F	National Security Space Office	In FY 2007 this is a new PE. These efforts transferred from PE 0305917F, Space Architect, to reflect the name of the office created by the merger of the National Security Space Architect with other organizations.
0305940F	Space Situation Awareness Operations	In FY 2007 this is a new PE. This project transferred from PE 0305910F, Spacetrack, to reflect evolution of space surveillance to the new Space Situation Awareness construct.
0401219F	KC-10S	In FY2007, this program includes a new start effort.
0401839F	Airlift/Other Tactical Data Link	In FY2007, this is a new start.



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

0101815F	Advanced Strategic Programs
0207248F	Special Evaluation Program
0207424F	Evaluation and Analysis Program
0207591F	Advanced Program Evaluation
0208160F	Technical Evaluation System
0208161F	Special Evaluation System
0304311F	Selected Activities
0603801F	Special Programs
0101314F	Night Fist
0304312F	Special Applications Program
0207433F	Advanced Program Technology





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## PROGRAM ASSESSMENT

### Defense Applied Research Program

This program supports scientific study of physical, biomedical, behavioral or other phenomena to determine the means by which a particular military need may be met. This work is a little more advanced and applied than the basic research from which it may arise.

#### PERFORMING

##### Moderately Effective

- **Program purpose and design are clear.** The purpose is to support quality science with potential application to the defense mission. The Department has established methodical processes for setting program goals and for reviewing progress.
- **Reviews of the program by external review panels are not independent of program officials.** Some reviewers are government employees with financial associations to the program areas under review.
- **A large part of the program is executed either without the benefit of military or scientific expertise in choosing the funded work or without allowing the applications process to be open to all capable researchers.** Earmarking of projects in the program has increased in the recent past and has led to these problems.

**We are taking the following actions to improve the performance of the program:**

- Ensuring that adequate funding exists to carry promising basic research results through the applied research phase.
- Changing the expert evaluation process to use fully independent review panels in assessing the performance of the program.
- Working with the research community and Congress to explain the need to limit claims on research grant funds to proposals that independently can meet the standards of a strict merit-review process.

- [Details and Current Status of this program assessment.](#)
- [How all Federal programs are assessed.](#)
- [Learn more about Defense Applied Research Program.](#)





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## PROGRAM ASSESSMENT

### Defense Basic Research

This program supports scientific study and experimentation to increase fundamental knowledge in the physical, engineering, environmental and life sciences of potential importance to the defense mission. The program is carried out primarily through grants to universities and non-profit organizations.

#### PERFORMING

##### Effective

- **The program has clear purposes.** It helps develop technologies that provide options for new weapons, helps prevent technological surprise by adversaries and develops new scientists who will contribute to the DoD mission in the future.
- **The program is reviewed regularly by technically capable outside experts, who recommend improvements they believe should be implemented.** The experts indicate that the work is of overall high quality.
- **Research earmarks have increased dramatically in the past 15-20 years.** Such projects contribute less than typical projects to meeting the Department's mission, as they don't have to be screened for relevance or quality, and cost more to administer. Earmarks also reduce incentives for other projects to perform to peak potential, as non-earmarked projects encounter less competition for funding.

**We are taking the following actions to improve the performance of the program:**

- Emphasizing the use of independent review panels in assessing the performance of the program.
- Working with the research community and Congress to explain the need to limit claims on research grant funds to proposals that independently can meet the standards of a strict merit-review process.
- [Details and Current Status of this program assessment.](#)
- [How all Federal programs are assessed.](#)
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## PROGRAM ASSESSMENT

### Defense Small Business Innovation Research/Technology Transfer

This program uses funding set aside specifically for small businesses to investigate the potential for new technologies to help meet the Department's mission and funds the early stage of development of such technologies by small businesses.

#### NOT PERFORMING

##### Results Not Demonstrated

- Provides funds to small businesses, but has poor controls on unproductive spending.
- Continues to provide funding to companies with track records of poor performance.
- Overestimates commercial successes resulting from Federal support by counting additional investment on par with product sales as measures of success. Product sales are the ultimate measure of success in the marketplace.

We are taking the following actions to improve the performance of the program:

- Tightening eligibility requirements for accepting proposals from companies and individuals that repeatedly fail to sell resulting products in the marketplace.
- Changing the way companies' past performance is assessed to ensure that it more closely matches the intent of the law (Section 638 of Title 15, USC) that the program support product commercialization.
- Seeking to get highly successful awardees to enter the mainstream of Defense contracting.

- [Details and Current Status of this program assessment.](#)
- [How all Federal programs are assessed.](#)
- [Learn more about Defense Small Business Innovation Research/Technology Transfer.](#)





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## PROGRAM ASSESSMENT

### National Security Space Weather Programs

The weather satellite programs reviewed include current operational systems and the next generation satellites under development. Weather satellites collect global high resolution visible and thermal cloud imager and other meteorological/oceanographic data supporting DoD forces and civil agencies.

#### PERFORMING Adequate

- **The National Security Weather Satellite Programs are adequately meeting their mission requirements.** The current weather satellite program continues to provide the DoD assured access to weather data remote areas such as Afghanistan and Iraq.
- **The next-generation weather satellite system being developed jointly with DOC, has experienced some development challenges and cost overruns, and is currently under review by the DoD and DOC.** However, this new program will fully meet military and civil user requirements and significantly improve weather forecasting and climate prediction in the future.

#### We are taking the following actions to improve the performance of the program:

- Working with Commerce to address programmatic problems and analyzing system and architectural replan options based on findings from various studies provided by the program office.
- [Details and Current Status of this program assessment.](#)
- [How all Federal programs are assessed.](#)
- [Learn more about National Security Space Weather Programs.](#)





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## PROGRAM ASSESSMENT

### Space Launch

This set of programs provides the United States with satellite launch capability. The systems includes the launch vehicles, ground infrastructure and launch range capability to support satellite launches and other national security space operations.

#### PERFORMING Adequate

- **The assessment found that the Evolved Expendable Launch Vehicle (EELV) program has demonstrated good progress in achieving its annual and long-term goals.** The EELV has performed flawlessly to date, with a 100% launch success rate.
- **New independent evaluations will need to be accomplished in the next cycle to evaluate the effectiveness of achieving cost, schedule and performance goals for various space launch programs.**

#### We are taking the following actions to improve the performance of the program:

- Continue monitoring milestones for schedule compliance to ensure programmatic adjustments can be made in a timely and efficient manner without disrupting planned satellite launches.
- Ensure the satellite launch programs are flexible enough to respond to changing conditions, while maintaining the necessary capabilities described in National Space Transportation policy.

- [Details and Current Status of this program assessment.](#)
- [How all Federal programs are assessed.](#)
- [Learn more about Space Launch.](#)



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## UNCLASSIFIED

PE NUMBER: 0603260F

PE TITLE: Intelligence Advanced Development

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603260F Intelligence Advanced Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.567	4.761	4.776	4.878	4.963	5.067	5.135	Continuing	TBD
3479 Advanced Sensor Exploitation	0.829	0.979	0.771	0.805	0.820	0.831	0.834	Continuing	TBD
3480 Automated Imagery Exploitation	0.943	1.336	1.414	1.437	1.460	1.493	1.515	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	2.037	1.361	1.441	1.465	1.488	1.522	1.545	Continuing	TBD
3482 Science & Tech Intelligence Methodology	0.758	1.085	1.150	1.171	1.195	1.221	1.241	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 Lab Rome Research Site (AFRL/IFE) works directly with users, employing a rapid prototyping evolutionary approach, integrating finished modules directly into the field. The programs are oriented toward specific shortfalls and deficiencies as documented by the major commands (MAJCOMS), 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. This program bridges the transition of new technologies from Advanced Technology Demonstrations (ATDs) and Integrated Technology Thrust Programs (ITTPs) into current/new systems, and also supports the associated Defense Technology Objectives (DTOs).

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.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	4.612	4.580	4.734
(U) Current PBR/President's Budget	4.567	4.761	4.776
(U) Total Adjustments	-0.045	0.181	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.045	-0.069	
Congressional Increases		0.250	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress added \$250K in FY06 for development of the AVT234 - Smart Camera System with Target Motion Cueing. This continues an effort that was added by Congress in FY05 in PE 63287F, Physical Security Equipment.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

## PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3479 Advanced Sensor Exploitation	0.829	0.979	0.771	0.805	0.820	0.831	0.834	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Predictive Battlespace Awareness (PBA)	0.829	0.729	0.571
(U) Initiate / Complete AVT234-Smart Camera Development with Target Motion Cueing (FY06 Congressional Add)		0.250	
(U) Initiate Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)			0.200
(U) Total Cost	0.829	0.979	0.771

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</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 Reconnaissance Center (AFC2ISRC). Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratories (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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006			
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			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Product Development													
Predictive Battlespace Awareness (PBA)	C/CPFF	Zel-Tec, Inc., Hampton, VA and Intelligent Software Solutions, Colorado Springs, CO	0.687	0.829	Nov-04	0.729	Nov-05	0.571	Jan-07	Continuing	TBD	TBD	
AVT234-Smart Camera Development with Target Motion Cueing (FY06 Congressional Add)	TBD	PL E-Communicat ions, Rochester, NY	0.000	0.000		0.250	Mar-06	0.000		0.000	0.250	0.250	
Web Automated Assistance with Intelligence Preparation of the Battlefield (WA2IPB)	C/TBD	Intelligent Software Solutions, Colorado Springs, CO	0.000	0.000		0.000		0.200	Jan-07	Continuing	TBD	TBD	
Subtotal Product Development			0.687	0.829		0.979		0.771		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			0.687	0.829		0.979		0.771		Continuing	TBD	TBD	



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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

Fiscal Year	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
<u><i>Advanced Sensor Exploitation</i></u>																												
<u><i>(BPAC 643479) Efforts</i></u>																												
- Predictive Battlespace Awareness																												
- AVT 234 Smart Camera with Target Motion Cueing (FY06 Congressional Add)																												
- Web Automated Assistance w / Intelligence Preparation of the Battlespace																												
- Ubiquitous Collaboration																												



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced  
Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Continue Predictive Battlespace Awareness (PBA)

1-4Q

1-4Q

1-4Q

(U) Initiate / Complete AVT234-Smart Camera Development with Target Motion Cueing (FY06  
Congressional Add)

2-4Q

(U) Initiate Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)

2Q



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

## PROJECT NUMBER AND TITLE

3480 Automated Imagery Exploitation

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3480 Automated Imagery Exploitation	0.943	1.336	1.414	1.437	1.460	1.493	1.515	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed Imagery Assurance and Exploitation	0.100		
(U) Completed Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)	0.050		
(U) Completed J-View Integration into AF Research Laboratory (AFRL) Imagery Viewer	0.100		
(U) Completed Map-Based Interface to Geospacial Product Library Client	0.075		
(U) Continue / Complete UAV Motion Imagery Exploitation (MIE)	0.250	0.381	
(U) Initiated / Continue / Complete Dynamic Motion Imagery Annotation & Exploitation Tools	0.150	0.479	0.320
(U) Initiated / Continue / Complete Operational Imagery Protection and Authentication	0.218	0.476	0.415
(U) Initiate Multi-View Toolkit for Imagery Assessment and Exploitation			0.679
(U) Total Cost	0.943	1.336	1.414

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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 AF Research Laboratories (Rome Research Site). The prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major



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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>	PROJECT NUMBER AND TITLE <b>3480 Automated Imagery Exploitation</b>
<p>contracts within this project are awarded after full and open competition.</p>		
<p>Project 3480</p>		

R-1 Shopping List - Item No. 40-9 of 40-21

Exhibit R-2a (PE 0603260F)

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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3480 Automated Imagery Exploitation

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Imagery Assurance and Exploitation	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.420	0.100	Nov-04					0.000	0.520	0.520
Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC) Video Annotation Capability	C/CPFF	Science Applications International Corp (SAIC), Dayton, OH	0.344	0.050	Nov-04					0.000	0.394	0.394
J-View Integration into AFRL Imagery Viewer	C/CPFF	CACI-MTL Systems, Inc., Beavercreek, OH	0.194	0.100	Nov-04					0.000	0.294	0.294
Map-Based Interface for Geospatial Product Library Client	C/CPFF	LPA Systems, Fairport, NY	0.194	0.075	Nov-04					0.000	0.269	0.269
UAV Motion Imagery Exploitation (MIE)	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.432	0.250	Nov-04	0.381	Nov-05			0.000	1.063	1.063
Dynamic Motion Imagery Annotation & Exploitation Tools	C/CPFF	SAIC, Fairborn, OH	0.000	0.150	Mar-05	0.479	Nov-05	0.320	Nov-06	0.000	0.949	0.949
Operational Imagery Protection and Authentication	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.000	0.218	Mar-05	0.476	Nov-05	0.415	Nov-06	0.000	1.109	1.109
Multi-View Toolkit for Imagery Assessment and Exploitation	C/TBD	TBD	0.000	0.000		0.000		0.679	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			1.584	0.943		1.336		1.414		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			1.584	0.943		1.336		1.414		Continuing	TBD	TBD

Project 3480

R-1 Shopping List - Item No. 40-10 of 40-21

Exhibit R-3 (PE 0603260F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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

Fiscal Year	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
<b><u>Automated Imagery Exploitation (BPAC 643480)</u></b>																												
- Imagery Assurance & Exploitation																												
- Distributed Common Ground System (DCGS) Video Proc Capability (VPC)																												
- J-View Integration into AFRL Imagery Viewer																												
- Map-Based Interface for Geospacial Product Library Client																												
- UAV Motion Imagery Exploitation (MIE)																												
- Dynamic Motion Imagery Annotation Exploitation Tools																												
- Operational Imagery Protection and Authentication																												
- Multi-View Toolkit for Imagery Assessment and Exploitation																												
- Persistent Surveillance																												



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced  
Development

PROJECT NUMBER AND TITLE

3480 Automated Imagery Exploitation

(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed Imagery Assurance & Exploitation	4Q		
(U) Completed Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)	4Q		
(U) Completed J-View Integration into AFRL Imagery Viewer	4Q		
(U) Completed Map-Based Interface for Geospacial Product Library Client	4Q		
(U) Continued / Complete UAV Motion Imagery Exploitation (MIE)	1-4Q	4Q	
(U) Initiated / Continue / Complete Dynamic Motion Imagery Annotation Exploitation Tools	2Q	1-4Q	4Q
(U) Initiated / Continue / Complete Operational Imagery Protection and Authentication	2Q	1-4Q	4Q
(U) Initiate Multi-View Toolkit for Imagery Assessment and Exploitation			2Q



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

## PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For Intelligence

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3481 Knowledge Based Tech For Intelligence	2.037	1.361	1.441	1.465	1.488	1.522	1.545	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed Trusted Transfer Agent -- Completed Phase 3, Starguard	0.450		
(U) Completed Infrastructure Operations Tool Access / Secure Intelligence Data Enterprise (IOTA / SIDEARM)	0.225		
(U) Continued / Complete Counter Terrorism / Information Operations (CT / IO) Target Data Access	0.250	0.275	
(U) Continued / Complete High Throughput Imagery Guard (H-TIG)	0.250	0.325	
(U) Continued / Complete Multi Information Domain Access Web Server (MIDAS)	0.350	0.156	
(U) Initiated / Continue Enterprise Workflow Management (EWM)	0.512	0.325	0.350
(U) Initiate / Continue Non-Traditional Intelligence / Surveillance / Reconnaissance (ISR) Production Management		0.280	1.091
(U) Total Cost	2.037	1.361	1.441

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</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 Intelligence Surveillance and Reconnaissance Center (AFC2ISRC). Development of new / improved capabilities to meet the requirements is managed by AF Research Laboratories (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced  
Development

PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For  
Intelligence

contracts within this project are awarded after full and open competition.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006			
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			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>	
(U) <u>Product Development</u>													
Trusted Transfer Agent (TTA) Phase 3 - Secure Trusted Automated Routing (STAR) Guard	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.447	0.450	Nov-04	0.000		0.000		0.000	0.897	0.897	
Information Operations Tool Access (IOTA) / Secure Intelligence Data Enterprise-Aware Repository Middleware (SIDEARM)	C/IDIQ	Northrop Grumman Corp, Bellevue, NE	0.300	0.225	Nov-04	0.000		0.000		0.000	0.525	0.525	
Counter Terrorism /Information (CT / IO) Operations Target Data Access	C/CPFF	Northrop Grumman Corp, Bellevue, NE	0.193	0.250	Nov-04	0.275	Nov-05	0.000		0.000	0.718	0.718	
High Throughput Imagery Guard (H-TIG)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.142	0.250	Nov-04	0.325	Nov-05	0.000		0.000	0.717	0.717	
Multi-Information Domain Access Web Server (MIDAS)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.200	0.350	Nov-04	0.156	Nov-05	0.000		0.000	0.706	0.706	
Enterprise Workflow Management	C/CPFF	Northrop Grumman Corp, Bellevue, NE	0.000	0.512	Mar-05	0.325	Nov-05	0.350	Nov-06	Continuing	TBD	TBD	
Non-Traditional ISR Production Management (NTIPM)	C/TBD	TBD	0.000	0.000		0.280	Mar-06	1.091	Nov-06	Continuing	TBD	TBD	
Subtotal Product Development			1.282	2.037		1.361		1.441		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			1.282	2.037		1.361		1.441		Continuing	TBD	TBD	

Project 3481

R-1 Shopping List - Item No. 40-15 of 40-21

Exhibit R-3 (PE 0603260F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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

Fiscal Year	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
<b><u>Knowledge Based Technologies for Intelligence (BPAC 643481)</u></b>																												
- Trusted Transfer Agent Phase 3 (Star Guard)																												
- Infrastructure Operations Tools Access / Secure Intel Data Enterprise Aware Repository Middleware (IOTA / SIDEARM)																												
- Counter Terrorism / Info Ops (CT/IO) Target Data Access																												
- High Throughput Imagery Guard (H-TIG)																												
- Multi-Info Domain Access Web-Server (MIDAS)																												
- Enterprise Workflow Management																												
- Non Traditional ISR Production Mgmt																												
- Dynamic ISR for Non- Traditional Adversarial Methods																												



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced  
Development

PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For  
Intelligence(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Completed Trusted Transfer Agent (TTA) -- Completed Phase 3, Starguard

4Q

(U) Completed Infrastructure Operations Tools Access (IOTA) / Secure Intelligence Data  
Enterprise-Aware Repository Middleware (IOTA / SIDEARM)

4Q

(U) Continued / Complete Counter-Terrorism/Information Operations (CT / IO) Target Data Access

1-4Q

4Q

(U) Continued / Complete High Throughput Imagery Guard (H-TIG)

1-4Q

4Q

(U) Continued / Complete Multi Information Domain Access Web Server (MIDAS)

1-4Q

4Q

(U) Initiated / Continue Enterprise Workflow Management Tool

2Q

1-4Q

1-4Q

(U) Initiate / Continue Non Traditional ISR Production Management

2Q

1-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

## PROJECT NUMBER AND TITLE

3482 Science &amp; Tech Intelligence Methodology

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3482 Science & Tech Intelligence Methodology	0.758	1.085	1.150	1.171	1.195	1.221	1.241	Continuing	TBD
Quantity of RDT&E Articles	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)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed Joint Integrated Air Defense System (IADS) View	0.200		
(U) Continued / Complete DIODE / Automated Correspondence Analysis System (ACAS)	0.250	0.350	0.100
(U) Initiated / Continue / Complete Command & Control (C2) Process Models	0.308	0.351	0.281
(U) Initiate / Continue Integrated Denial & Deception Signatures and Materials (IDMATS)		0.384	0.290
(U) Initiate Adversary Tactics Training & Readiness Knowledge Base (ATT&RKB)			0.479
(U) Total Cost	0.758	1.085	1.150

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(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 Laboratories (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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3482 Science &amp; Tech Intelligence Methodology

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Joint Integrated Air Defense System (IADS) View	C/CPFF	SAIC, Fairborn, OH	0.309	0.200	Nov-04	0.000		0.000		0.000	0.509	0.509
DIODE / Automated Correspondent Analysis System (ACAS)	C/CPFF	Prediction Systems, Inc., Spring Lake, NJ	0.180	0.250	Nov-04	0.350	Nov-05	0.100	Nov-06	0.000	0.880	0.880
Command and Control (C2) Process Models	C/CPFF	PRC, Inc., Dayton, OH	0.000	0.308	Feb-05	0.351	Nov-05	0.281	Nov-06	0.000	0.940	0.940
Integrated Denial & Deception Signatures and Materials (IDMATS)	C/CPFF	TBD	0.000	0.000		0.384	May-06	0.290	Nov-06	Continuing	TBD	TBD
Adversary Tactics & Training Readiness Knowledge Base	C/TBD	TBD		0.000		0.000		0.479	Feb-07	Continuing	TBD	TBD
Subtotal Product Development			0.489	0.758		1.085		1.150		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.489	0.758		1.085		1.150		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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

Fiscal Year	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
<b><u>Science and Technology Intelligence Methodology</u></b> <b><u>(BPAC 643482)</u></b>																												
- Joint Integrated Air Defense System (IADS) View																												
- DIODE/Automated Correspondence Analysis System (ACAS)																												
- Command and Control (C2) Process Models																												
- Integrated Denial & Deception Signatures & Materials (IDMATS)																												
- Adversary Tactics & Training Readiness Knowledge Base (AT&TRKB)																												



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced  
Development

PROJECT NUMBER AND TITLE

3482 Science & Tech Intelligence  
Methodology(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Completed Joint IADS View

4Q

(U) Continue / Complete DIODE / Automated Correspondence Analysis System (ACAS)

1-4Q

1-4Q

4Q

(U) Initiated / Continue / Complete Command and Control (C2) Process Models

2Q

1-4Q

4Q

(U) Initiate / Continue IDMATs Program

3Q

1-4Q

(U) Initiate Adversary Tactics &amp; Training Readiness Knowledge Base (ATT &amp; RKB)

2Q



## UNCLASSIFIED

PE NUMBER: 0603287F

PE TITLE: Physical Security Equipment

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603287F Physical Security Equipment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.915	25.563	0.298	0.461	0.475	0.476	0.490	Continuing	TBD
5121 Physical Security Equipment	25.915	25.563	0.298	0.461	0.475	0.476	0.490	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	24.621	21.937	0.298
(U) Current PBR/President's Budget	25.915	25.563	0.298
(U) Total Adjustments	1.294	3.626	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.235	-0.374	
Congressional Increases	2.220	4.000	
Reprogrammings			
SBIR/STTR Transfer	-0.691		

(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.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603287F Physical Security  
Equipment

## PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5121 Physical Security Equipment	25.915	25.563	0.298	0.461	0.475	0.476	0.490	Continuing	TBD
Quantity of RDT&E Articles	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

FY 2005FY 2006FY 2007

15.946

- Received MDA approval of the acquisition plan for the Light Kit, Motion Detector (LKMD) (previously EFT).
- Corrected ASPSS design deficiencies and developed a production model.
- Completed development of a RDTS over-water detection enhancement.
- Completed the development and testing of the PICS.
- Developed Identification of Friend or Foe capability to work with wide area sensors.
- Began Smart Gate P3I efforts to improve base access control.
- Developed and documented Operational, System, and Technical Architectures.
- 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.



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0603287F Physical Security Equipment	5121 Physical Security Equipment		
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)	FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT			11.466	
	<ul style="list-style-type: none"> <li>- Award LKMD SDD contract. Conduct Production Qualification LKMD Testing</li> <li>- Issue Federal Business Opportunities Announcement for the Tactical Video Surveillance System (TVSS).</li> <li>- Conduct market survey for the TVSS.</li> <li>- Conduct Concept Exploration for best technical approach to integrate TVSS with other phenomenology for Tactical Intrusion Detection.</li> <li>- Conduct Operational Testing of ASPSS.</li> <li>- Refine or research improvements for the Smart Gate program.</li> <li>- Continue TASS P3I efforts including improvements to the annunciator.</li> <li>- Continue to manage, develop, evaluate, and test Delay/Denial products.</li> <li>- Continue to manage sensor and assessment product developments and tests.</li> <li>- Continue to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.</li> <li>- Continue to prepare operational systems improvement plans; develop technology roadmap, update system architecture.</li> <li>- Continue to test, develop, and integrate equipment to improve security and access to facilities.</li> </ul>				
(U)	FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT				0.298
	<ul style="list-style-type: none"> <li>- Conduct a Leap Ahead assessment of current PSE capability.</li> </ul>				
(U)	ROBOTIC SECURITY SYSTEMS INTEGRATION		0.850		
	<ul style="list-style-type: none"> <li>- Designed MPP modular architecture.</li> <li>- Built a smaller weatherized/ruggedized MPP prototype.</li> <li>- Developed interface between sensors and communications modules for the MPP.</li> <li>- Performed lab and field analysis of mobile intrusion detection from an external robotics platform.</li> <li>- Transitioned Doppler sensor and processing for the capability to detect intruders from a moving platform.</li> <li>- Made FPASS improvements relative to battery life, IR and EO imaging, and airframe durability.</li> </ul>				
(U)	ROBOTIC SECURITY SYSTEMS INTEGRATION			1.788	
	<ul style="list-style-type: none"> <li>- Demonstrate ability to network robotic systems to provide enhanced detection, surveillance, and response in all aspects of installation force protection and installation security.</li> <li>- Continue efforts to improve the operational capability and safety of integrated weapon systems and robotics platforms employed in force protection and security missions.</li> <li>- Continue imagery improvements for the FPASS.</li> </ul>				
(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 2007 accomplishments.				
(U)	WATERSIDE SECURITY SYSTEM		1.700		
	<ul style="list-style-type: none"> <li>- Conducted a comprehensive test program for the Reson, Thales, Lockheed, and other sonars in support of Subsurface Threat Detection.</li> <li>- Conducted in-water tests of Sea Fence and a composite material lightweight barrier developed by the Naval Facilities Engineering Support Center to provide Swimmer Delay,</li> </ul>				
Project 5121		R-1 Shopping List - Item No. 41-3 of 41-13		Exhibit R-2a (PE 0603287F)	



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
	Denial, and Response capability.				
	- Integrated subsurface response capabilities to the baseline weapon system security architecture at high profile naval facilities.				
	- Tested and evaluated COTS VMD products that may integrate to provide shoreline intrusion detection.				
	- Began behavioral testing in support of Non-Lethal Diver Deterrence.				
	- Began human effects testing in support of Non-Lethal Diver Deterrence.				
	- Collected data on divers using various types of equipment in an effort to use a Passive Broadband to Classify Underwater Intruders.				
	- Conducted surface WSS surveys of sister Air Force installations to maximize their protection from waterborne threats.				
(U)	WATERSIDE SECURITY SYSTEM			2.500	
	- C3 Integration of Pierside and Shipboard Security Systems.				
	- Begin upgrade of Swimmer Detection sonars.				
(U)	WATERSIDE SECURITY SYSTEM				
	In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2007 accomplishments.				
(U)	EXPLOSIVE DETECTION EQUIPMENT		3.705		
	- Repackage MMW prototype systems to meet operational requirements.				
	- Refine the MMW technology for optimization in the stand-off detection of IEDs and suicide bombers.				
	- Initiate LRIP of the Laser IMS Handheld Explosive Detector.				
	- Complete the development of the basic Remote/Stand-off Explosive Detection System design and transition the basic design to industry.				
	- Optimize technology identified in the Counter Bomb/Counter Bomber Advanced Concept Technology Demonstration (ACTD).				
	- Invest in the integration of image and chem/bio detection to counter the WMD threat.				
(U)	EXPLOSIVE DETECTION EQUIPMENT			7.066	
	- Invest in the integration of image and chem/bio detection to counter the WMD threat.				
	- Invest in the reduction of the manpower footprint associated with the detection of vehicle and cargo explosive threats.				
	- Award development contract for Video/Radar Concealed Bomb Detection.				
(U)	EXPLOSIVE DETECTION EQUIPMENT				
	In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2007 accomplishments.				
(U)	LOCKS, SAFES, VAULTS		1.314		
	- Developed a light-weight weapons armory door ILD system.				
	- Incorporated design improvements for the ILD to increase operation and forced entry resistance.				
	- Evaluated Storage Magazine construction for the purpose of determining the security of storage structures through testing and engineering analysis.				
	- Initiated development of cost effective upgrade packages for substandard magazine door systems.				
Project 5121		R-1 Shopping List - Item No. 41-4 of 41-13		Exhibit R-2a (PE 0603287F)	



## UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>							DATE <b>February 2006</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603287F Physical Security Equipment</b>		<b>PROJECT NUMBER AND TITLE</b> <b>5121 Physical Security Equipment</b>		

<p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <p style="margin-left: 20px;">- Acted as a repository/center of excellence for ILD information and provide ILD installation coordination, support and training for DoD activities.</p> <p>(U) LOCKS, SAFES, VAULTS <span style="float: right;">1.332</span></p> <p style="margin-left: 20px;">- Complete the light-wight weapons armory door ILD prototype.</p> <p style="margin-left: 20px;">- Develop ILD design improvements to increase operational capbility and improve resistance against forced entry.</p> <p style="margin-left: 20px;">- Continue evaluating Lock technology and attack tools.</p> <p>(U) LOCKS, SAFES, VAULTS</p> <p style="margin-left: 20px;">In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2007 accomplishments.</p> <p>(U) COMMERCIAL-OFF-THE-SHELF TESTING <span style="float: right;">2.400</span></p> <p style="margin-left: 20px;">- Executed FPED V.</p> <p style="margin-left: 20px;">- Continued to seek near-term (commercial) solutions for immediate force protection needs.</p> <p style="margin-left: 20px;">- Continued to support all testing of PSE products (COTS, NDI, Developmental), systems testing and development of required documentation.</p> <p>(U) COMMERCIAL-OFF-THE-SHELF TESTING <span style="float: right;">1.411</span></p> <p style="margin-left: 20px;">- Deliver FPED V After Action Report</p> <p style="margin-left: 20px;">- Distribute FPED V CDs</p> <p style="margin-left: 20px;">- Launch FPED VI on-line registration</p> <p style="margin-left: 20px;">- Prepare to execute FPED VI.</p> <p style="margin-left: 20px;">- Continue to seek near-term (commercial) solutions for immediate force protection needs.</p> <p>(U) COMMERCIAL-OFF-THE-SHELF TESTING</p> <p style="margin-left: 20px;">In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2007 accomplishments.</p> <p>(U) Total Cost <span style="float: right;">25.915      25.563      0.298</span></p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b></p> <table style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <tr> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>FY 2008</u></th> <th style="text-align: center;"><u>FY 2009</u></th> <th style="text-align: center;"><u>FY 2010</u></th> <th style="text-align: center;"><u>FY 2011</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> <tr> <td colspan="9">(U) Not Applicable</td> </tr> </table> <p>(U) <b><u>D. Acquisition Strategy</u></b></p> <p style="margin-left: 20px;">Not Applicable</p>	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable									
<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>																				
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																					
(U) Not Applicable																												



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
HQ ESC (Air Force)	PO		6.273	7.915	Nov-05	8.283	Nov-06	0.298	Nov-07	Continuing	TBD	TBD
PM-PSE (US Army)	MIPR		5.702	5.610	Nov-05	5.102	Nov-06			Continuing	TBD	TBD
CNO-N34 (US Navy)	MIPR		7.456	6.910	Nov-05	7.276	Nov-06			Continuing	TBD	TBD
DTRA	MIPR		1.850	2.040	Nov-05	1.816	Nov-06			Continuing	TBD	TBD
Subtotal Product Development			21.281	22.475		22.477		0.298		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Support			2.238	3.440	Nov-05	3.086	Nov-06			Continuing	TBD	TBD
Subtotal Management			2.238	3.440		3.086		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Not Applicable</u>												
(U) Total Cost			23.519	25.915		25.563		0.298		Continuing	TBD	TBD
Remarks:												



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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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				
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												▲																								

UNCLASSIFIED



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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				
Market Survey for TVSS														▲																						
TVSS Prototype Design, Fabrication, & Integration														▲																						
P&S Market Survey and Investigation														▲																						



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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				
Continue evaluating Lock technology and attack																▲																				
Begin upgrade of													▲																							
Executed FPED V											▲																									
Integrate biometric technology with high security lock technology																▲																				



**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>

[illegible]



**UNCLASSIFIED**

### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0603287F Physical Security  
Equipment**

PROJECT NUMBER AND TITLE	DATE	BY

## 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				
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&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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				
Award LRMD SDD contract													▲																							
Continue TASS P3I efforts including the annunciator													▲																							
Continue Imagery improvements for the FPASS.														▲																						
Begin Smart Gate P3I									▲																											
Design MPP modular architecture										▲																										



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE	
		February 2006	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE	
04 Advanced Component Development and Prototypes (ACD&P)	0603287F Physical Security Equipment	5121 Physical Security Equipment	
(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conduct market survey for the TVSS		2Q	
(U) TVSS Prototype Design, Fabrication, & Integration		2Q	
(U) PAS Market Survey and Investigation		2Q	
(U) Award LKMD SDD contract	2Q		
(U) Continue TASS P3I efforts including the annunciator		1Q	
(U) Conduct a Leap Ahead assessment of current PSE technology			3Q
(U) Begin Smart Gate P3I	1Q		
(U) Design MPP modular architecture	2Q		
(U) T&E COTS VMD products for Shoreline Intrusion Detection	1Q		
(U) Follow-on Early User Appraisal for MDARS		3Q	
(U) Buy Equipment to build a Hybrid Image/Trace EDE system		4Q	
(U) Refine MMW technology to counter standoff and suicide bomber threats	2Q		
(U) C3 integration of Pierside and Shipboard Secuirty Systems		3Q	
(U) Initiate LRIP of Laser IMS HH ED	3Q		
(U) Develop a light weight ILD for weapons armory doors	4Q		
(U) Execute FPED V	3Q		
</			



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## UNCLASSIFIED

PE NUMBER: 0603421F

PE TITLE: GLOBAL POSITIONING SYSTEM

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603421F GLOBAL POSITIONING SYSTEM

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.773	85.172	315.314	492.094	781.671	912.128	839.576	Continuing	TBD
4993 GPS III	33.773	85.172	315.314	492.094	781.671	912.128	839.576	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 Block III Space and Control Segments. 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.

Increased funding in FY07 supports the GPS III Space Vehicle (SV) and the new modernized control segment development efforts. Funding for the GPS III SV supports the addition of revised GPS III requirements in light of the US-European Union agreement for a compatible signal (L1C) on both GPS III and Galileo and the US Space-Based Position, Navigation and Timing Policy directing the inclusion of the Distress Alert Satellite System (DASS) secondary payload to enhance search and rescue capabilities and operations prior to adding new GPS III SV capabilities and operations.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	39.913	87.364	236.635
(U) Current PBR/President's Budget	33.773	85.172	315.314
(U) Total Adjustments	-6.140	-2.192	
(U) Congressional Program Reductions		-0.947	
Congressional Rescissions		-1.245	
Congressional Increases			
Reprogrammings	-5.031		
SBIR/STTR Transfer	-1.109		

(U) **Significant Program Changes:**

FY05: -\$5.031M for higher Air Force priorities; FY07: +\$50.900M for GPS III space vehicle requirements and +\$27.779 for new modernized control segment (OCX)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING  
SYSTEM

## PROJECT NUMBER AND TITLE

4993 GPS III

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4993 GPS III	33.773	85.172	315.314	492.094	781.671	912.128	839.576	Continuing	TBD
Quantity of RDT&E Articles	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 Block III Space and Control Segments. 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.

Increased funding in FY07 supports the GPS III Space Vehicle (SV) and the new modernized control segment development efforts. Funding for the GPS III SV supports the addition of revised GPS III requirements in light of the US-European Union agreement for a compatible signal (L1C) on both GPS III and Galileo and the US Space-Based Position, Navigation and Timing Policy directing the inclusion of the Distress Alert Satellite System (DASS) secondary payload to enhance search and rescue capabilities and operations prior to adding new GPS III SV capabilities and operations.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)			
(U) Continue GPS III/Modernization Development	26.214	63.532	149.392
(U) Begin Modernized Control Segment (OCX)	0.000	0.000	144.193
(U) Continue Program Support for GPS III/Modernization	7.559	21.640	21.729
(U) Total Cost	33.773	85.172	315.314

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) PE 0305165F Navstar GPS (Space & Ground), R-191	128.349	184.756	177.792	106.837	77.123	56.396	35.103	Continuing	TBD
(U) Other APPN									

Project 4993

R-1 Shopping List - Item No. 42-3 of 42-7

Exhibit R-2a (PE 0603421F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>																															
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603421F GLOBAL POSITIONING SYSTEM</b>			PROJECT NUMBER AND TITLE <b>4993 GPS III</b>																																
<p>(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b></p> <table border="1"> <tr> <td>(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)</td> <td>55.569</td> <td>68.787</td> <td>77.664</td> <td>84.376</td> <td>85.116</td> <td>93.212</td> <td>102.326</td> <td>Continuing</td> <td>TBD</td> </tr> <tr> <td>(U) Missile Procurement (PE 0305165F, BA 5-Space and Other Support, P-22, 23)</td> <td>327.423</td> <td>313.089</td> <td>140.441</td> <td>267.468</td> <td>326.219</td> <td>162.245</td> <td>520.155</td> <td>Continuing</td> <td>TBD</td> </tr> <tr> <td>(U) Other Procurement (PE 0305165F, BP 83-Electronics and Telecommunications Equipment, WSC 836790, P-70 and WSC 836730; BP 86 - Spares &amp; Repair Parts WSC 86190A, P-62)</td> <td>7.777</td> <td>13.454</td> <td>12.280</td> <td>5.653</td> <td>6.234</td> <td>11.008</td> <td>69.051</td> <td>Continuing</td> <td>TBD</td> </tr> </table> <p>(U) <b><u>D. Acquisition Strategy</u></b></p> <p>On 15 Sep 03, the USecAF signed an Acquisition Decision Memorandum directing the GPS JPO to re-initiate Phase A activities (concept exploration/risk reduction) for GPS III. Two Phase A contracts were awarded in Jan 04 to Lockheed-Martin and Boeing, with direction to mature the GPS III program through Systems Requirements Review (SRR), culminating in a Key Decision Point-B (KDP-B) by 3QFY05. In Dec 04, the National Security Space Acquisition Policy was updated, which now requires the completion of a System Design Review (SDR) prior to KDP-B. To comply with this policy, the program will now conduct RFP release, source selection and contract award prior to KDP-B in order to minimize budget and schedule impacts. The winning contractor will then conduct SDR in 2QFY07, and KDP-B in 3QFY07. Concept exploration/risk reduction activities will evaluate the potential for incremental delivery of GPS III capabilities, which could potentially be fielded sooner than FY13.</p>										(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	55.569	68.787	77.664	84.376	85.116	93.212	102.326	Continuing	TBD	(U) Missile Procurement (PE 0305165F, BA 5-Space and Other Support, P-22, 23)	327.423	313.089	140.441	267.468	326.219	162.245	520.155	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)	7.777	13.454	12.280	5.653	6.234	11.008	69.051	Continuing	TBD
(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	55.569	68.787	77.664	84.376	85.116	93.212	102.326	Continuing	TBD																														
(U) Missile Procurement (PE 0305165F, BA 5-Space and Other Support, P-22, 23)	327.423	313.089	140.441	267.468	326.219	162.245	520.155	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)	7.777	13.454	12.280	5.653	6.234	11.008	69.051	Continuing	TBD																														
<div>Project 4993</div> <div>R-1 Shopping List - Item No. 42-4 of 42-7</div> <div>Exhibit R-2a (PE 0603421F)</div>																																							



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING  
SYSTEM

PROJECT NUMBER AND TITLE

4993 GPS III

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Phase A Continuation Contracts											0.000	
Boeing	CPFF	Huntington Bch, CA	12.774	5.917	Jan-05	2.800	Jan-06	0.000		0.000	21.491	24.257
Lockheed Martin	CPFF	King of Prussia, PA	12.774	5.894	Jan-05	2.800	Jan-06	0.000		0.000	21.468	24.234
Anticipated OCX Contract	CPAF	TBD	0.000	0.000		0.000		144.193	Nov-06	Continuing	TBD	
Anticipated Block IIIA Contract	CPAF	TBD	0.000	0.000		4.500	Sep-06	102.500	Nov-06	Continuing	TBD	
GPS III Development PRDAs	Various	Various	0.000	1.805	Jul-05	2.547	Sep-06	0.000		0.000	4.352	
GPS III/Modernization System Engineering & Technical Support	Various	Various	57.637	12.598	Dec-04	50.885	Jan-06	46.892	Nov-06	Continuing	TBD	
Subtotal Product Development			83.185	26.214		63.532		293.585		Continuing	TBD	48.491
Remarks:												
(U) <u>Support</u>												
JPO Support for GPS III / Modernization	Various	Various	19.865	5.085	Nov-04	16.360	Jan-06	16.129	Nov-06	Continuing	TBD	
Other Agency Support for GPS III/ Modernization	Various	Various	9.200	2.474	Nov-04	5.280	Jan-06	5.600	Nov-06	Continuing	TBD	
Subtotal Support			29.065	7.559		21.640		21.729		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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) Total Cost			112.250	33.773		85.172		315.314		Continuing	TBD	48.491



February 2006

#### 04 Advanced Component Development and Prototypes (ACD&P)

0603421F GLOBAL POSITIONING  
SYSTEM

## 4993 GPS III



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING  
SYSTEM

PROJECT NUMBER AND TITLE

4993 GPS III

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Joint Requirements Oversight Council (JROC) Capabilities Development Document (CDD)

3Q

(U) System Requirements Review (SRR)

3Q

(U) Acquisition Strategy Panel (ASP)

2Q

(U) Block IIIA System Development Review (SDR) Request for Proposal (RFP) Released

2Q

(U) Block IIIA (SDR) Contract Award

4Q

(U) OCX System Development Review (SDR) Request for Proposal (RFP) Released

1Q

(U) OCX (SDR) Contract Award

1Q

(U) Block IIIA SDR

2Q

(U) OCX SDR

2Q



## UNCLASSIFIED

PE NUMBER: 0603430F

PE TITLE: Advanced (EHF MILSATCOM (Space))

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603430F Advanced (EHF MILSATCOM (Space))

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	607.254	655.779	633.258	429.268	227.743	83.767	70.118	Continuing	TBD
4050 Advanced MILSATCOM	607.254	655.779	633.258	429.268	227.743	83.767	70.118	Continuing	TBD

Beginning FY06, the Exhibit R-2a, Planned Program shows FFRDC funding breakout in an effort to better define program support efforts.

(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 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 in the FY06 President's Budget to meet Full Operational Capability (FOC). At that time, 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 reaffirmed the decision to buy three AEHF satellites and use the first TSAT satellite to complete the Extended Data Rate (XDR) ring. 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	606.659	665.257	631.991
(U) Current PBR/President's Budget	607.254	655.779	633.258
(U) Total Adjustments	0.595	-9.478	
(U) Congressional Program Reductions	-0.465		
Congressional Rescissions		-9.478	
Congressional Increases			
Reprogrammings	17.924		
SBIR/STTR Transfer	-16.864		
(U) <u>Significant Program Changes:</u>			
N/A			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603430F Advanced (EHF  
MILSATCOM (Space))

## PROJECT NUMBER AND TITLE

4050 Advanced MILSATCOM

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4050 Advanced MILSATCOM	607.254	655.779	633.258	429.268	227.743	83.767	70.118	Continuing	TBD
Quantity of RDT&E Articles	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 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 in the FY06 President's Budget to meet Full Operational Capability (FOC). At that time, 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 reaffirmed the decision to buy three AEHF satellites and use the first TSAT satellite to complete the Extended Data Rate (XDR) ring. 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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	519.972	548.345	532.703
(U) Continue satellite cryptographic development	34.888	40.199	31.566
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	21.000	20.000	21.000
(U) Government Furnished Property (e.g., Launch Prep, Radiation Hardening Testing, Communication Circuit)		5.005	4.352
(U) Continue Technical Support		23.606	23.241
(U) Continue Program Office and related support activities	31.394	18.624	20.396
(U) Total Cost	607.254	655.779	633.258

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Related Proc:									
(U) MPAF, PE 0303604F, Advanced	78.226	521.147	0.000	12.233	15.808	16.677	17.796	0.000	661.887

Project 4050

R-1 Shopping List - Item No. 43-2 of 43-6

Exhibit R-2a (PE 0603430F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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)**

EHF, P-17/18

(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-52	22.550	3.627	6.659	5.186	5.728	5.809	6.286	Continuing	TBD
(U) OPAF, PE 03033600F Wideband Gapfiller System, Project #836780, CCS-C	3.328	0.286	0.000	0.000	0.000	0.000	0.000	0.000	17.137
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-175	245.582	269.218	271.562	187.419	215.910	192.994	188.437	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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603430F Advanced (EHF  
MILSATCOM (Space))

## PROJECT NUMBER AND TITLE

4050 Advanced MILSATCOM

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
NSA	MIPR	Camden, NJ	140.782	34.888	Oct-04	40.199	Feb-06	31.566	Nov-06	0.000	247.435	
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		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		1,811.823	519.972	Oct-04	548.345	Nov-05	532.703	Nov-06	Continuing	TBD	
Radiation Hardened parts developers	Various		38.000	21.000		20.000		21.000		84.205	184.205	
None											0.000	
Subtotal Product Development			2,432.012	575.860		608.544		585.269		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Various	Various		123.696							Continuing	TBD	
Technical Support						23.606	Oct-05	23.241	Oct-06	Continuing	TBD	
GFP						5.005		4.352		Continuing	TBD	
Program Office Support				31.394	Oct-04	18.624		20.396		Continuing	TBD	
Subtotal Support			123.696	31.394		47.235		47.989		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC			0.000							Continuing	TBD	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			2,555.708	607.254		655.779		633.258		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

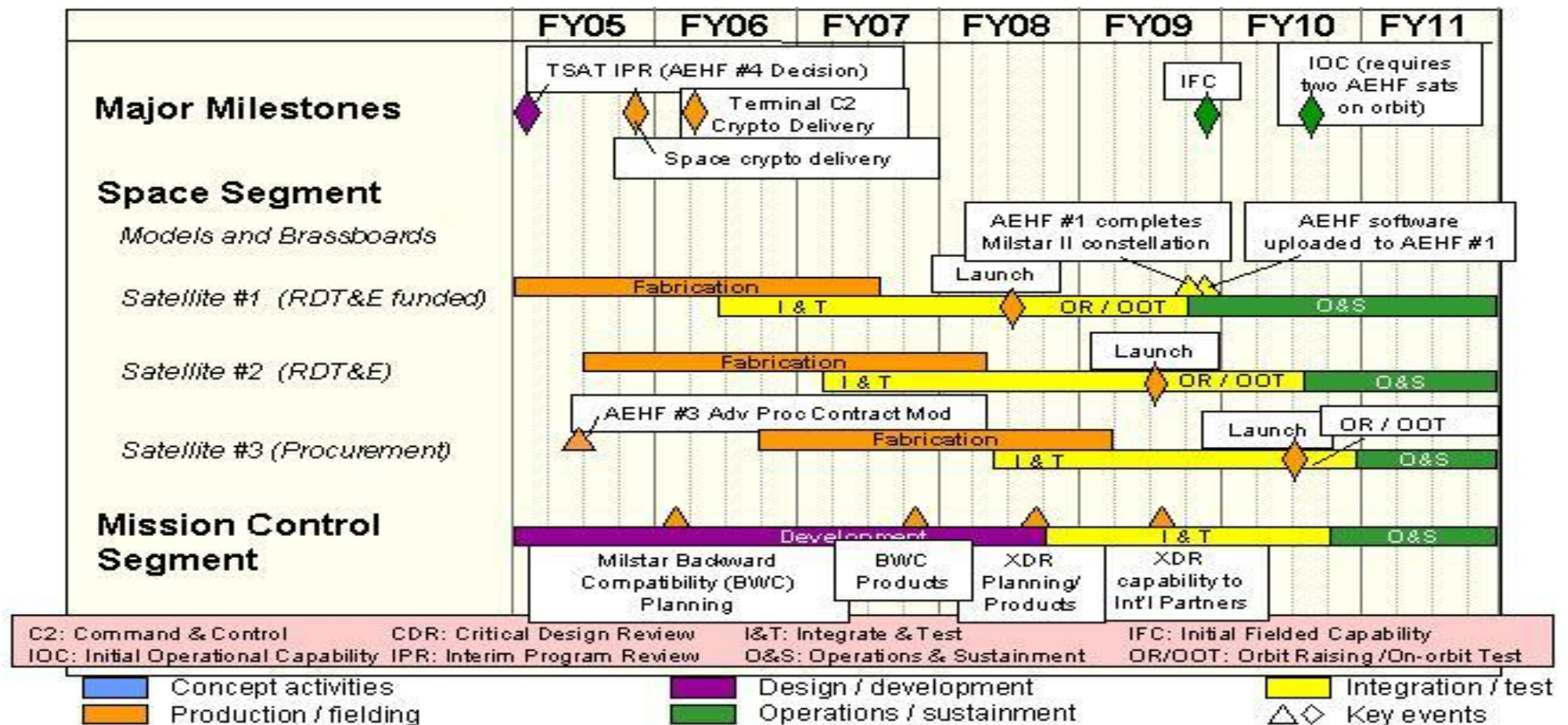
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603430F Advanced (EHF)  
MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4050 Advanced MILSATCOM





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603430F Advanced (EHF  
MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4050 Advanced MILSATCOM

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Interim Program Review

1Q

(U) Completed Ground Segment Software Increment 3 (World-wide Planning for Resource  
Allocation of 5 Milstar payloads and 1st AEHF Comm Payload)

1Q

(U) Complete Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5  
Milstar satellites and 1 AEHF satellite)

4Q

(U) Payload delivery for integration onto Space Vehicle

2Q



## UNCLASSIFIED

PE NUMBER: 0603432F

PE TITLE: Polar MILSATCOM (Space)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603432F Polar MILSATCOM (Space)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.894	2.154	35.685	121.481	129.581	188.945	128.507	Continuing	TBD
4052 Polar Satellite Communications	0.894	2.154	35.685	121.481	129.581	188.945	128.507	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 three low data rate (LDR) Milstar packages onto three classified host satellites as an expedited, interim solution to protected connectivity requirements in the north polar region. One package is on-orbit, and the final two LDR packages will be available in FY06 and FY07, respectively. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, the Polar MILSATCOM system will acquire the next generation capability with two more polar packages via the same host program. Both the host 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. FY06 funds requirements analyses and design trade studies based on an updated Polar Capability Development Document (CDD) and FY07 begins design/development of an Enhanced Polar System.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.895	2.185	35.281
(U) Current PBR/President's Budget	0.894	2.154	35.685
(U) Total Adjustments	-0.001	-0.031	
(U) Congressional Program Reductions	-0.001		
Congressional Rescissions		-0.031	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

## PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4052 Polar Satellite Communications	0.894	2.154	35.685	121.481	129.581	188.945	128.507	Continuing	TBD
Quantity of RDT&E Articles	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 three low data rate (LDR) Milstar packages onto three classified host satellites as an expedited, interim solution to protected connectivity requirements in the north polar region. One package is on-orbit, and the final two LDR packages will be available in FY06 and FY07, respectively. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, the Polar MILSATCOM system will acquire the next generation capability with two more polar packages via the same host program. Both the host 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. FY06 funds requirements analyses and design trade studies based on an updated Polar Capability Development Document (CDD) and FY07 begins design/development of an Enhanced Polar System.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed integration and test of Polar package 3 with host vehicle	0.894		
(U) Conduct requirements analyses and design trade studies for Enhanced Polar packages.		1.000	2.000
(U) Conduct design and development of Enhanced Polar packages			30.447
(U) Provide Program Office Support and other related support activities		1.154	1.638
(U) Provide Technical Support			1.600
(U) Total Cost	0.894	2.154	35.685

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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 Polar MILSATCOM.

(U) **D. Acquisition Strategy**

The Air Force has provided funds to the classified host program office to modify the host satellite system contract to include three Interim Polar (Low Data Rate)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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**

packages. The host program office has total acquisition responsibility for Interim Polar. Under the direction of the Program Executive Officer for Space, the Program Office is developing the Enhanced Polar System Acquisition Strategy through studies and activities leading to a Sep 06 Acquisition Strategy Panel.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

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February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

## PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Classified	Classified		298.700	0.894							299.594	
EPS Requirement Analyses and Design Trade Studies	Various	Various				1.000	Feb-06	2.000	Nov-06		3.000	
EPS Design/Development Contract	TBD	TBD						30.447	Nov-06	Continuing	TBD	
Subtotal Product Development			298.700	0.894		1.000		32.447		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Technical Support	Various					0.000		1.600	Nov-06	Continuing	TBD	
Program Office Support	Various					1.154	Feb-06	1.638	Nov-06	Continuing	TBD	
Subtotal Support			0.000	0.000		1.154		3.238		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; 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
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			298.700	0.894		2.154		35.685		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

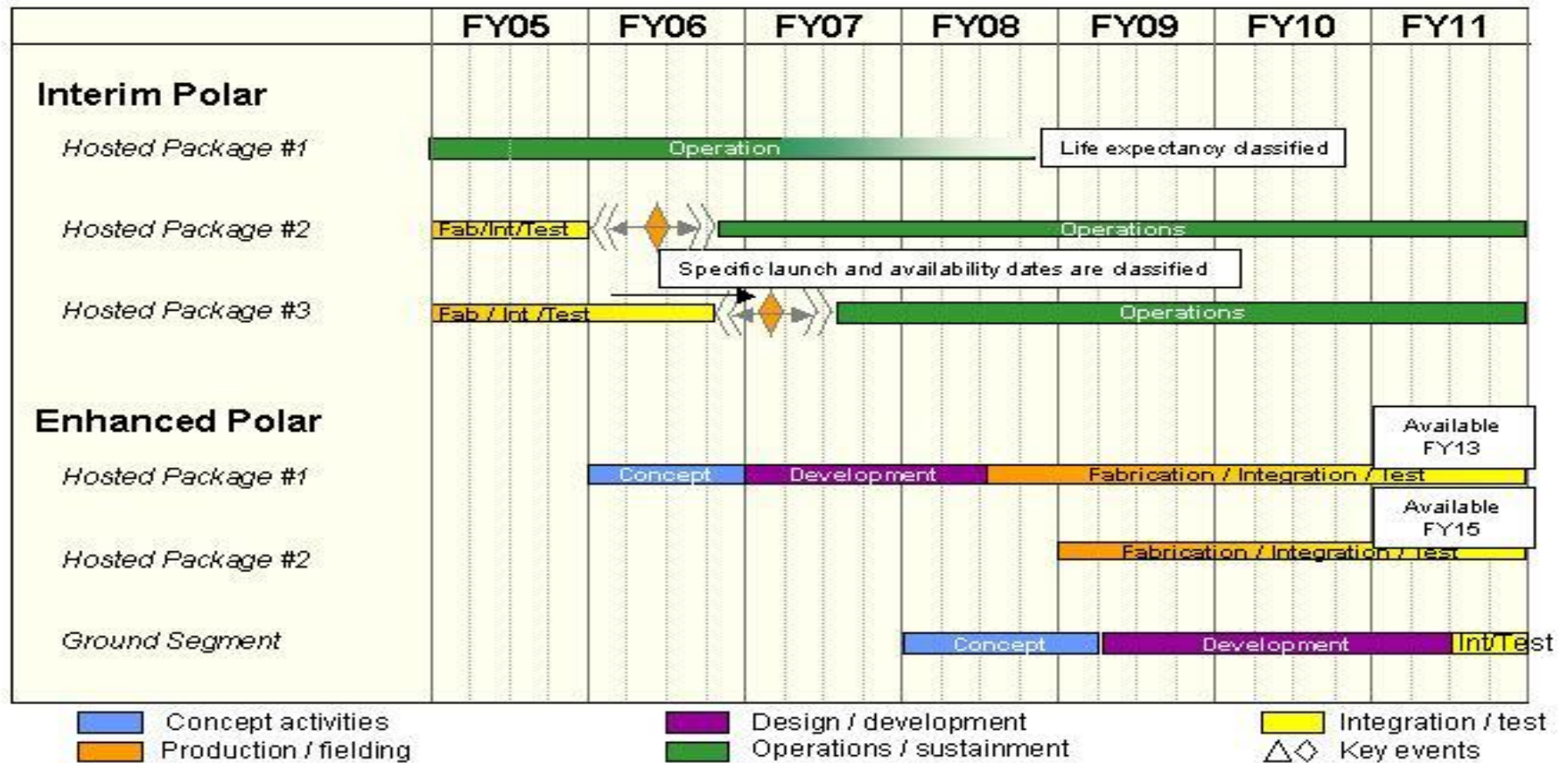
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Begin requirements analysis for Enhanced Polar packages

1Q

(U) Begin design and development of Enhanced Polar packages

1Q



## UNCLASSIFIED

PE NUMBER: 0603438F

PE TITLE: Space Control Technology

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603438F Space Control Technology

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.493	15.606	27.076	37.252	52.179	53.635	54.839	Continuing	TBD
2611 Technology Insertion Planning and Analysis	8.232	10.991	21.237	25.302	30.516	31.513	32.326	Continuing	TBD
A007 Space Range	6.261	4.615	5.839	11.950	21.663	22.122	22.513	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 system architecture 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&amp;E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603438F Space Control Technology

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	14.914	14.205	23.303
(U) Current PBR/President's Budget	14.493	15.606	27.076
(U) Total Adjustments	-0.421	1.401	
(U) Congressional Program Reductions		-0.073	
Congressional Rescissions	-0.012	-0.226	
Congressional Increases		1.700	
Reprogrammings			
SBIR/STTR Transfer	-0.409		
(U) <u>Significant Program Changes:</u>			
FY 2006: \$1.700M Congresssional Add for Multifunctional Daytime Optical System			
FY 2007: \$3.773M increase for prototyping, demonstration and test of space control technologies and techniques			



## Exhibit R-2a, RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2611 Technology Insertion Planning and Analysis	8.232	10.991	21.237	25.302	30.516	31.513	32.326	Continuing	TBD
Quantity of RDT&E Articles	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.

## Budget Activity Justification

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies for monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space for use in the Space Control mission area.	2.229	3.942	4.370
(U) Defensive Counterspace efforts. Continue vulnerability assessments to include vulnerabilities of space/link/ground segments of DoD space systems. Perform assessments on DoD space systems. Continue looking at protection measures against optical jammers. Continue investigations in key technology areas such as data fusion, data mining, radiation effects, kinetic energy impacts, anomaly resolution. Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field. Includes techniques and technologies for denying adversary use of blue systems on communications, sensor, and navigation platforms. Includes funding for architectural engineering leading to an overall Space Control architecture.	3.126	3.266	4.498
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, to include bandwidth on demand communications techniques. Continue exploring technologies leading to future generation counter-communications systems and advanced target characteristics. Includes development of countermeasures for insertion into counter-communications weapons systems. Continue	1.405	2.159	2.557



## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603438F Space Control Technology

## PROJECT NUMBER AND TITLE

2611 Technology Insertion Planning and Analysis

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

development of critical signal processing technology. Continue to develop, prototype, and demonstrate advanced counter surveillance, reconnaissance techniques. Continue investigation into technologies to counter adversary surveillance and reconnaissance capabilities. Additionally, funding for architectural engineering leading to an overall Space Control architectures is included in this effort.

(U) Conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.

7.585

(U) Program Office and Other Technical Support

1.472

1.624

2.227

(U) Total Cost

8.232

10.991

21.237

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(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. Most funding is either executed in-house by the program office or transferred via MIPR to other agencies for execution.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

2611 Technology Insertion Planning and Analysis

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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	7.094	2.229	Nov-04	3.942	Nov-05	4.370	Nov-06	Continuing	TBD	TBD
DCS Activities	Various	Various	19.097	3.126	Nov-04	3.266	Nov-05	4.498	Nov-06	Continuing	TBD	TBD
OCS Development	Various	Various	39.188	1.405	Nov-04	2.159	Nov-05	2.557	Nov-06	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	0.000	0.000		0.000		7.585	Nov-06	Continuing	TBD	
Subtotal Product Development			65.379	6.760		9.367		19.010		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	4.856	1.472	Nov-04	1.624	Nov-05	2.227	Nov-06	Continuing	TBD	TBD
Subtotal Support			4.856	1.472		1.624		2.227		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
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)											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			70.235	8.232		10.991		21.237		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

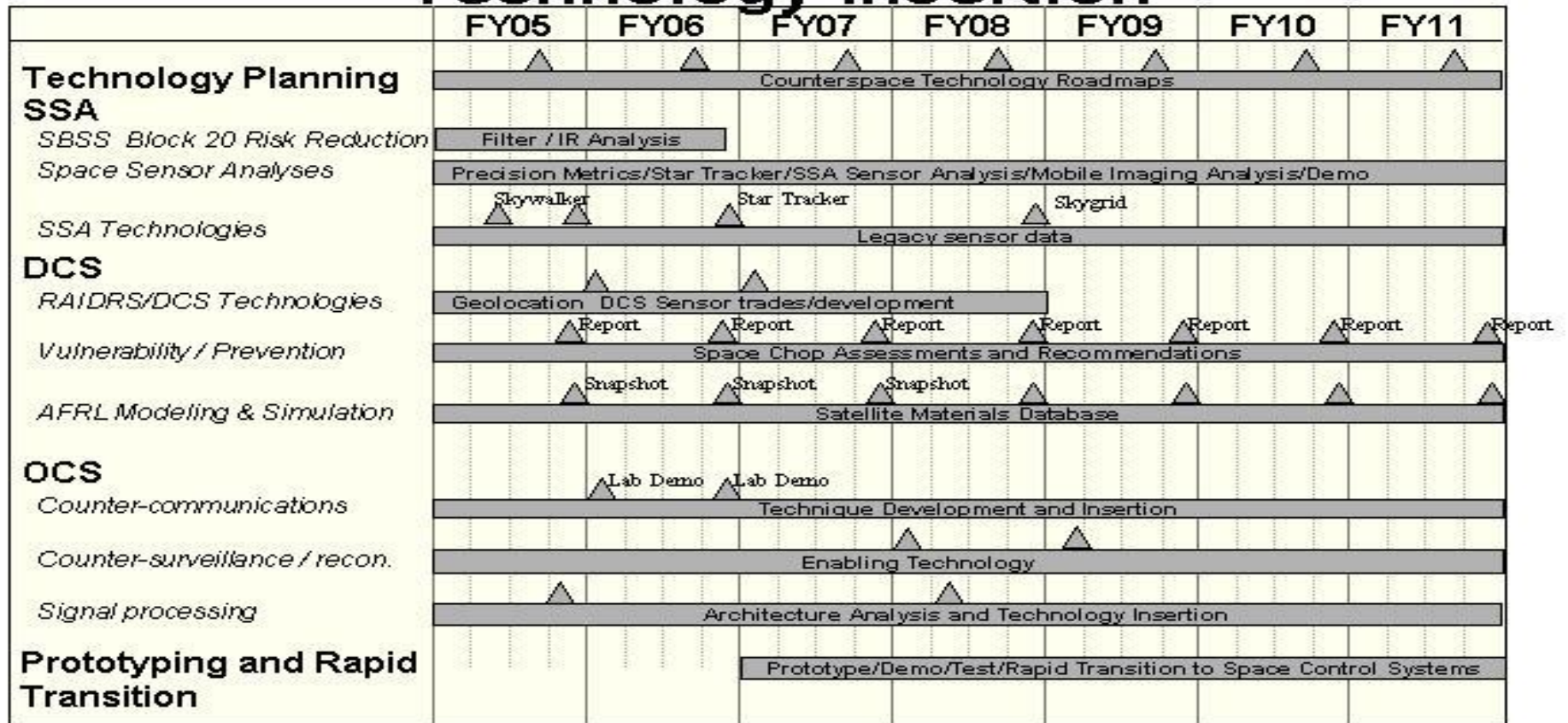
PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

2611 Technology Insertion Planning and Analysis

# SCT Schedule Technology Insertion





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

2611 Technology Insertion Planning  
and Analysis(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Continue Technology Roadmaps &amp; Planning

1-4Q

1-4Q

1-4Q

(U) SSA- Continue SBSS Risk Reduction

1-4Q

1-4Q

(U) SSA- Continue sensor development

1-4Q

1-4Q

1-4Q

(U) SSA - Continue technologies development and evaluation

1-4Q

1-4Q

1-4Q

(U) DCS - Continue RAIDRS/DCS technology development and evaluation

1-4Q

1-4Q

1-4Q

(U) DCS - Continue Vulnerability and threat assessments

1-4Q

1-4Q

1-4Q

(U) DCS - Continue AFRL Data Modelling and Simulation

1-4Q

1-4Q

1-4Q

(U) OCS- Continue Counter Communications technique development and demonstration

1-4Q

1-4Q

1-4Q

(U) OCS- Continue Counter Surveillance/Reconnaissance technology development

1-4Q

1-4Q

1-4Q

(U) OCS- Continue Signal Processing development

1-4Q

1-4Q

1-4Q

(U) Prototyping and Rapid Transition to Weapons Systems

1-4Q



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## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603438F Space Control Technology

## PROJECT NUMBER AND TITLE

A007 Space Range

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A007 Space Range	6.261	4.615	5.839	11.950	21.663	22.122	22.513	Continuing	TBD
Quantity of RDT&E Articles	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 assets required to support developmental and operational test, exercises, training, and tactics development for Space Control systems and related architecture.

## Budget Activity Justification

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Threat Simulators	2.469	1.022	1.400
(U) Continue development of the system architecture and acquisition of Space Control elements of the Space Range. Continue demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems.	2.860	2.500	2.086
(U) Program Office and Other Technical Support	0.932	1.093	2.353
(U) Total Cost	6.261	4.615	5.839

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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. Current contracts are Cost Plus Award Fee. Future contracts TBD.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

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## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603438F Space Control Technology

## PROJECT NUMBER AND TITLE

A007 Space Range

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Leased Bandwidth	CPAF	G2 Satellite Systems, Long Beach, CA		2.860	Dec-04	2.500	Jan-06	2.086	Jan-07	0.000	7.446	
TMC	CPAF	Las Cruces, NM	2.050	2.469	Jan-05	1.022	Jan-06	1.400	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			2.050	5.329		3.522		3.486		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Program Office and Other Technical Support	Various	SMC, El Segundo, CA	0.236	0.932	Jan-05	1.093	Dec-06	2.353	Dec-07	Continuing	TBD	TBD
Subtotal Support			0.236	0.932		1.093		2.353		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; 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
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			2.286	6.261		4.615		5.839		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

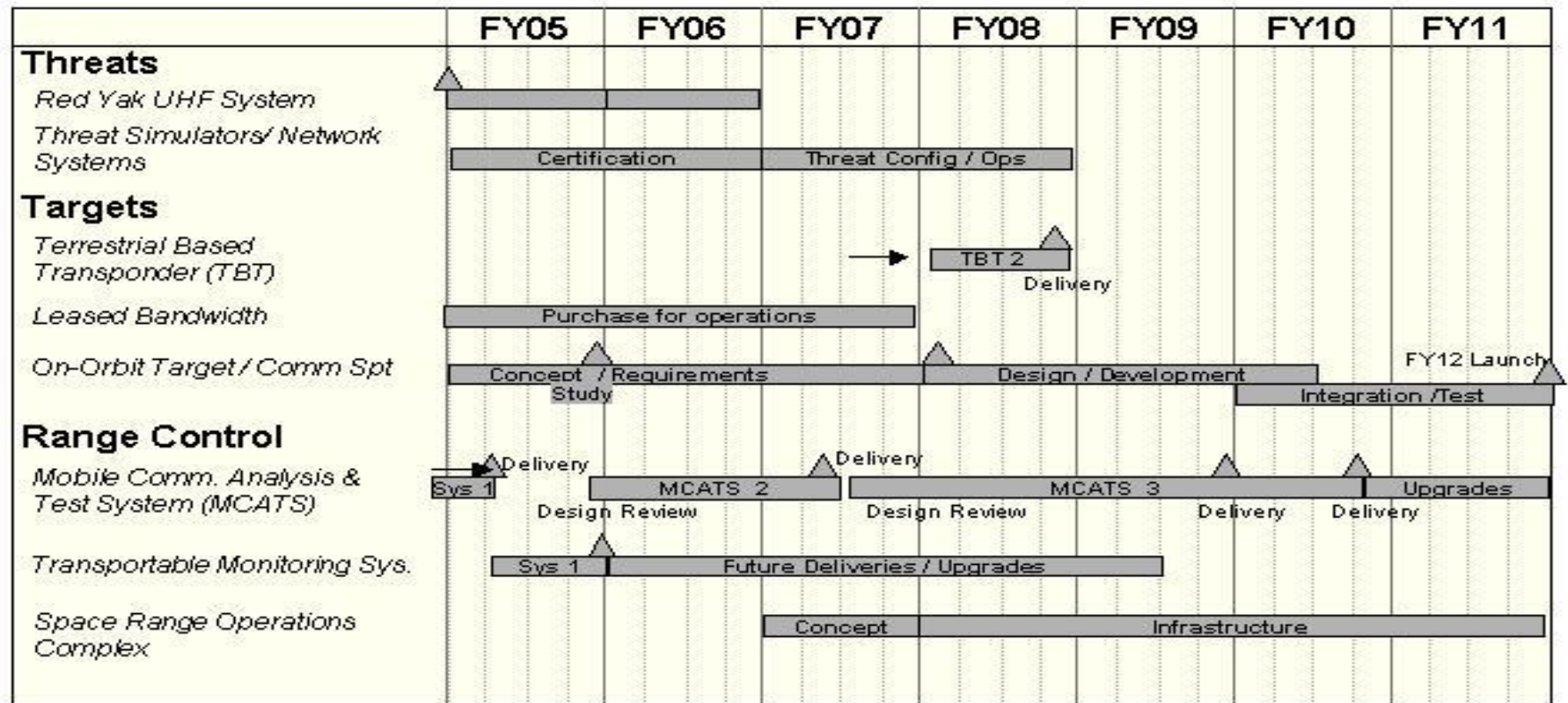
0603438F Space Control Technology

PROJECT NUMBER AND TITLE

A007 Space Range

# SCT Schedule

## Space Test and Training Range





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

A007 Space Range

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) Develop STTR Architecture	1-4Q	1-4Q	1-4Q
(U) THREATS			
(U) Red Yak UHF System	1-4Q	1-4Q	
(U) Threat Simulators/Network Systems	1-4Q	1-4Q	1-4Q
(U) TARGETS			
(U) Leased Bandwidth	1-4Q	1-4Q	1-4Q
(U) Develop on Orbital Target/Communications Support	1-4Q	1-4Q	1-4Q
(U) RANGE CONTROL			
(U) Develop Mobile Comm Analysis and Test System	1-4Q	1-4Q	1-2Q
(U) Deliver MCATS			2Q
(U) Continue developing a Transportable Monitoring System	1-4Q	1-4Q	1-4Q
(U) Space Range Operations Complex concept development			1-4Q



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## UNCLASSIFIED

PE NUMBER: 0603742F

PE TITLE: Combat Identification Technology

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

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## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603742F Combat Identification Technology

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.634	51.146	26.517	20.643	20.882	21.242	21.482	Continuing	TBD
2597 Noncooperative Identification Subsystems	23.634	28.226	20.327	20.643	20.882	21.242	21.482	Continuing	TBD
2599 Cooperative Identification Techniques	0.000	22.920	6.190	0.000	0.000	0.000	0.000	0.000	38.121

(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 (ID). High confidence combat ID in all weather and day/night enables combatant commanders to effectively command and control their forces. 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.

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.

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), as well as other Advanced Laser System (ALS) imaging technologies, 2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; and 3) the High Range Resolution (HRR) program that uses radar signals processing to increase ID range and confidence. 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). A robust database program underwrites all these techniques.

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.

Current and future space-based systems can facilitate these processes leading ultimately to Automatic Target Recognition (ATR) fusion and net-centric warfare. ATR focuses on development, demonstration, and integration of technologies drawing upon all available information data elements or platforms e.g. (national, tactical,



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603742F Combat Identification Technology

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

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	19.582	51.893	20.160
(U) Current PBR/President's Budget	23.634	51.146	26.517
(U) Total Adjustments	4.052	-0.747	
(U) Congressional Program Reductions		-0.008	
Congressional Rescissions	-0.178	-0.739	
Congressional Increases			
Reprogrammings	4.230		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

The Air Force reprogrammed nearly \$5.0M in FY05 to accelerate the development of Mode 5 because this capability is needed to prevent fratricide. An additional \$32.0M was provided in the FY06 President's Budget, the year when the bulk of the development work is being done. The work then tapers off in FY07 as the development concludes and the capability is integrated on various weapons platforms beginning in FY08, which is being programmed for by the receiving platforms.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

## PROJECT NUMBER AND TITLE

2597 Noncooperative Identification  
Subsystems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2597 Noncooperative Identification Subsystems	23.634	28.226	20.327	20.643	20.882	21.242	21.482	Continuing	TBD
Quantity of RDT&E Articles	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), as well as other Advanced Laser System (ALS) imaging technologies, 2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; and 3) the High Range Resolution (HRR) program that uses radar signals processing to increase ID range and confidence. 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). A robust database program underwrites all these techniques. The non-cooperative CID programs 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 4 - Advanced Component Development and Prototypes (ACD&P), because it includes advanced technology demonstrations that help transition technologies from laboratory to operational use.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue the High Range Resolution (HRR) synthetic target database development in conjunction with National Air and Space Intelligence Center (NASIC). Implement enhancement techniques to improve the HRR algorithm and increase the fidelity of the HRR database. Prepare for the transition of database management and maintenance from the lab environment to a SPO.	7.389	5.536	5.776
(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 laser vibrometry, and insertion of mature/hardened camera technologies into alternate platforms. Radar Vision's air-to-ground radar imaging technology is in its second phase and will release its third spiral development during FY06 which will integrate selected algorithms, data sets, and enhanced technologies into designated platforms.	8.663	19.838	11.779
(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.	0.824	0.863	1.063

Project 2597

R-1 Shopping List - Item No. 46-4 of 46-13

Exhibit R-2a (PE 0603742F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>	PROJECT NUMBER AND TITLE <b>2597 Noncooperative Identification Subsystems</b>		

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue funding the CID Integrated Management Team and other engineering support necessary for management of CID efforts.	1.055	1.566	1.681
(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.	0.367	0.423	0.028
(U) Continued the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). Funded the Mode 5 upgrade to the UPX-40 interrogator on the AWACS. Provided systems engineering and program management for other planned platform integrations, including test planning. Funding for these efforts in FY05 was through funds reprogrammed into Project number 2597; in FY06 and beyond through the FY06 POM under Project number 2599, Cooperative Identification Techniques	5.336		
(U) Total Cost	23.634	28.226	20.327

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) <b><u>D. Acquisition Strategy</u></b>	
The acquisition strategy for CID programs is and will continue to be 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.	



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

## PROJECT NUMBER AND TITLE

2597 Noncooperative Identification  
Subsystems

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
				<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
Raytheon Co	C/CPFF	El Segundo CA		4.278	Nov-04	4.098	Feb-06	4.118	Dec-06	Continuing	TBD	TBD
Northrop Grumman Corp	C/CPFF	Baltimore MD		2.500	Apr-05	7.029	Feb-06	8.215	Dec-06	Continuing	TBD	TBD
Lockheed Martin	OTA	Orlando FL				0.146	Dec-05			0.000	0.146	TBD
Northrop Grumman	CPFF	Linthicum Heights, MD		2.999	Apr-05	4.519	Mar-06	0.851	Mar-07	Continuing	TBD	TBD
Science Applications Internation Corp	SS/CPFF	Dayton OH		3.691	Dec-04	2.502	Feb-06	2.400	Feb-07	Continuing	TBD	TBD
AIMS Program Office	MIPR/PO	Warner Robins, GA		1.060	Oct-04	0.863	Oct-05	0.906	Oct-06	Continuing	TBD	TBD
Raytheon	CPFF	Baltimore, MD		4.700	Jul-05						4.700	TBD
Veridian Engineering	C	Buffalo, NY		0.655	Apr-05						0.655	TBD
Sverdrup Technology	C	Ft Walton Beach, FL		0.590	Apr-05	1.030	Feb-06	0.600	Jan-07	Continuing	TBD	TBD
DOE - Sandia National Labs	MIPR	Albuquerque, NM				1.140	Feb-06				1.140	TBD
JSTARS Platform	AF616	Hanscom AFB, MA				1.600	Mar-06				1.600	
AFRL -ERIM DCS	AF616	WPAFB, OH				0.770	Mar-06				0.770	
AFIT	MIPR/PO	WPAFB, OH		0.027	Jan-05	0.023	Jan-06				0.050	
Subtotal Product Development			0.000	20.500		23.720		17.090		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO support	Various	Hanscom AFB, MA		1.327	Oct-04	1.560	Oct-05	1.600	Oct-06	Continuing	TBD	
Air Force Research Laboratory	MIPR	Dayton OH		0.260	Oct-04	0.370	Oct-05	0.381	Oct-06	Continuing	TBD	
MITRE	Various	Hanscom AFB, MA		0.115	Nov-05	0.270	Nov-05	0.278	Nov-06	Continuing	TBD	
Subtotal Support			0.000	1.702		2.200		2.259		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46th Test Wing	MIPR/PO	Eglin AFB, FL		0.635	Mar-05	0.250	Jan-06	0.300	Jan-07	Continuing	TBD	
412th Test Wing	MIPR/PO	Edwards AFB, CA		0.360	Dec-04	0.926	Dec-05	0.400	Dec-06	Continuing	TBD	
AFRL/DE Maui Test	MIPR	Kirtland AFB, NM				0.040	Feb-06				0.040	
Navy Systems Mgmt Activity	MIPR	Arlington, VA		0.080	May-05						0.080	
NASIC	AF616	WPAFB, OH		0.095	Jan-05						0.095	
Aberdeen Proving Ground	MIPR	MD				0.020	Feb-06				0.020	

Project 2597

R-1 Shopping List - Item No. 46-6 of 46-13

Exhibit R-3 (PE 0603742F)



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis								DATE	
								February 2006	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE	
04 Advanced Component Development and Prototypes (ACD&P)				0603742F Combat Identification Technology				2597 Noncooperative Identification Subsystems	
Western Test Range		MIPR/PO	CA		0.750	Feb-06		0.750	
ROC-V Fielding		MIPR	Ft. Belvoir, VA		0.050	Apr-06		0.050	
Subtotal Test & Evaluation				0.000	1.170	2.036	0.700	Continuing	TBD
Remarks:									0.000
(U)	<u>Management</u>								
SAF/AQ Support					0.262	0.270	0.278		0.810
Subtotal Management				0.000	0.262	0.270	0.278	0.000	0.810
Remarks:									0.000
(U)	Total Cost			0.000	23.634	28.226	20.327	Continuing	TBD
									TBD
</									



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

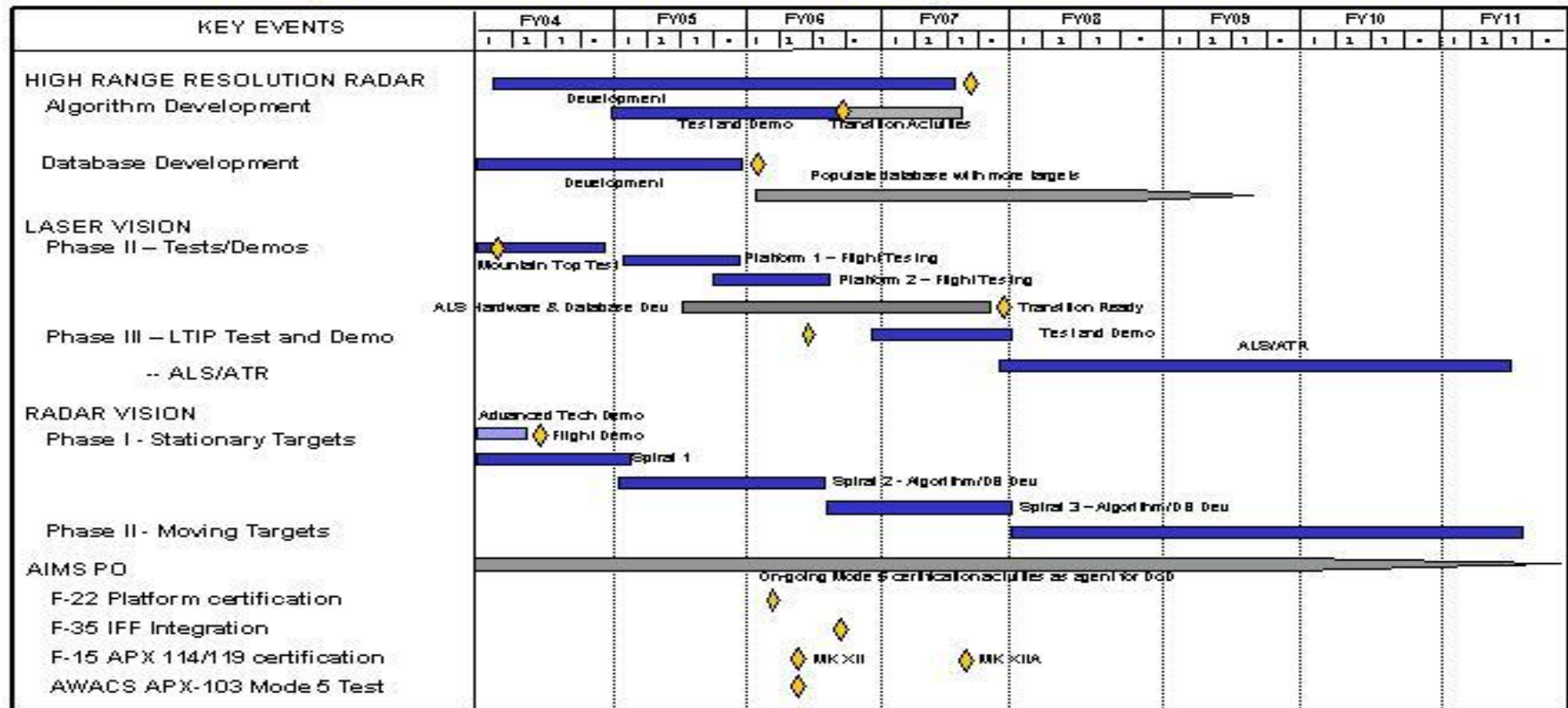
BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

PROJECT NUMBER AND TITLE

2597 Noncooperative Identification  
Subsystems***Non-cooperative Identification Subsystems Schedule Profile***

As of January 2006



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)	0603742F Combat Identification Technology	2597 Noncooperative Identification Subsystems		
(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) 1. HRR Classifier Dev/Qual		1-4Q	1-4Q	
(U) Algorithm Development	3Q	1-4Q		
(U) Algorithm Test and Demo	1-4Q	3Q		
(U) Database Development	1-4Q	1Q		
(U) Database Population		1-3Q	1-4Q	
(U) 2. LASER VISION / ADVANCED LASER SENSING (ALS)	4Q	1Q		
(U) LV Flight Testing	1-4Q	1Q		
(U) Completion of Phase II		2Q		
(U) LTIP Fligt Testing		3-4Q	1-4Q	
(U) LTIP/Advanced LTIP	3Q	1-4Q	1-4Q	
(U) ALS Development			1-4Q	
(U) 3. RADAR VISION (Development and transition of air-to-ground radar imaging automatic target recognition)	4Q			
(U) Phase 1 - Stationary Target Recognition	1-4Q	1-4Q	1-4Q	
(U) Radar Vision Spiral 1	1Q			
(U) Radar Vision Spiral 2	1-4Q	1-4Q		
(U) Radar Vision Spiral 3		4Q	1-4Q	
(U) Phase 2 - Moving Target Recognition			4Q	
(U) 4. AIMSPO Integration and Certification Support	1-4Q	1-4Q	1-4Q	
(U) F-22 IFF Platform certification		1Q		
(U) F-35 IFF Integration		3Q		
(U) F-15 APX-114/119 certification (MK XII/MK XIIA)		2Q	3Q	
(U) AWACS APX-103 Mode 5 test		2Q		
(U) 5. INTEGRATED MANAGEMENT TEAM	1-4Q	1-4Q	1-4Q	
(U) Air-to-Air CID Tech Roadmap Update	3Q	3Q	3Q	
(U) Air-to-Ground CID Tech Roadmap Update	4Q	3Q	3Q	
(U) 6. CID Studies and Demos	4Q	1-4Q	1-4Q	
(U) AFSAA AoA Completion	1Q			



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Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>			PROJECT NUMBER AND TITLE <b>2599 Cooperative Identification Techniques</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2599 Cooperative Identification Techniques	0.000	22.920	6.190	0.000	0.000	0.000	0.000	0.000	38.121
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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.</p> <p>This project is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&amp;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.</p>									
						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>									
(U) Continue the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). Fund the Mode 5 upgrade to the UPX-40 interrogator on the AWACS. Provide systems engineering and program management for other planned platform integrations, including test planning. Funding in this project is a continuation of funds originally listed in FY04 and FY05 under Project number 2597. Funding in FY06 and beyond is broken out separately in this project number to provide greater insight into the "cooperative" combat ID portion of the PE.							22.920	6.190	
(U) Total Cost							0.000	22.920	6.190
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									
(U) <b><u>D. Acquisition Strategy</u></b>									
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 integrate into all AF mission design series (MDS), or platforms, and transition the AF cooperative ID capability to Mark XIIA.									
Project 2599									
R-1 Shopping List - Item No. 46-10 of 46-13									
Exhibit R-2a (PE 0603742F)									



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

## PROJECT NUMBER AND TITLE

2599 Cooperative Identification  
Techniques

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
BAE	C	Greenlawn, NY				6.350	Feb-06	2.480	Nov-07		8.830	TBD
Boeing/Telephonics	C	Farmingdale, NY				7.200	Mar-06				7.200	TBD
Raytheon	C	Townson, MD				6.220	Feb-06	3.710	Nov-07		9.930	
Subtotal Product Development			0.000	0.000		19.770		6.190		0.000	25.960	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Systems Engineering/Program Management	Various	Various				3.150	Nov-05	0.000		Continuing	TBD	
Subtotal Management			0.000	0.000		3.150		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		22.920		6.190		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

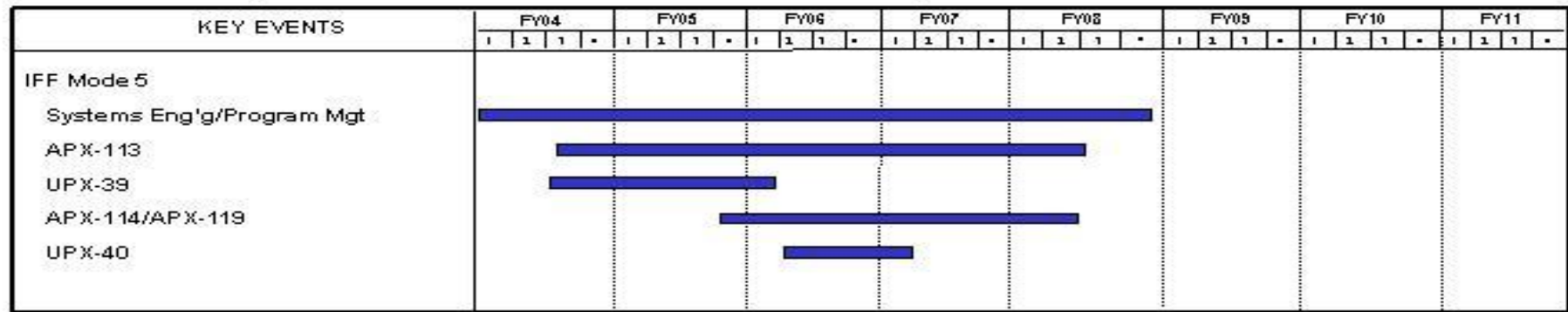
BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

PROJECT NUMBER AND TITLE

2599 Cooperative Identification  
Techniques**Cooperative Identification Techniques Schedule Profile**

As of January 2006



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603742F Combat Identification  
Technology

PROJECT NUMBER AND TITLE

2599 Cooperative Identification  
Techniques(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) IFF MODE 5 RDT&amp;E

1-4Q

1-4Q

1-4Q

(U) Systems Eng'g/Program Mgt

1-4Q

1-4Q

1-4Q

(U) APX-113

1-4Q

1-4Q

1-4Q

(U) UPX-39

1-4Q

1Q

(U) APX-114/APX-119

4Q

1-4Q

1-4Q

(U) UPX-40

2-4Q

1Q



## UNCLASSIFIED

PE NUMBER: 0603790F

PE TITLE: NATO Cooperative R&amp;D

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603790F NATO Cooperative R&amp;D

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.819	3.916	4.095	4.234	4.312	4.412	4.486	Continuing	TBD
NATO Nato Coop R&D	3.819	3.916	4.095	4.234	4.312	4.412	4.486	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.895	3.916	3.972
(U) Current PBR/President's Budget	3.819	3.916	4.095
(U) Total Adjustments	-0.076	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.076		
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Change Summary Explanation: N/A			



Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>			PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
NATO Nato Coop R&D	3.819	3.916	4.095	4.234	4.312	4.412	4.486	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&amp;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&amp;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&amp;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&amp;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&amp;E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&amp;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.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Aero-Engine Component Life Extension (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 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.						0.700	0.500	0.100	
(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.						0.650	0.298	0.000	
(U) Strike Warrior (AFRL / UK) - Ongoing cooperative project to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and						0.050	0.000	0.000	



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
information. In FY03, flight testing and trials will continue.			
(U) C-2 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.	0.750	0.100	0.000
(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 will 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.	0.758	0.345	0.000
(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 systems for DMT to include ultra-high resolution laser projector, image generator, and collimating display screen materials.	0.271	0.200	0.000
(U) Enhanced C3 Team Training in Sustained Operations (AFRL / The Netherlands) - Planned cooperative project to evaluate team performance in advanced capabilities. This effort will evaluate the effects of fatigue on adaptive team performance in unpredictable, time-critical and long-duration high-ops tempo events. The primary goal will be to enhance a simulated environment for developing operational teamwork under wartime conditions characterized by mental fatigue, uncertainty, unexpected events, high-ops tempo, and/or sustained operations.	0.025	0.000	0.000
(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	0.240	0.000
(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	0.175	0.200	0.000



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
experiments and tests.					
(U) Refractive Turbulence and Transient Electronic Disconnectivity (AFRL/VS / Australia) - This Cooperative project falls within 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.			0.125	0.175	0.000
(U) Tropospheric Refraction and Propagation Modeling For Airborne Surveillance Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurements of refraction of Airborne Warning and Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation were conducted to determine the adverse performance of microwave and infrared systems that perform surveillance, communication, signal intelligence, and direct energy functions in electronic battlespace.			0.075	0.000	0.000
(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 context 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.			0.000	0.225	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			0.000	0.150	0.150



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.					
(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 new construction and for retrofit of existing conventional facilities.			0.000	0.200	0.400
(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.			0.000	0.150	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			0.000	0.200	0.215
Project NATO		R-1 Shopping List - Item No. 47-5 of 47-17	Exhibit R-2a (PE 0603790F)		



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
on direct broadcast and very small aperture terminal (VSAT) internet capability in the rapidly advancing worldwide satellite broadcast industry.					
(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 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.			0.000	0.200	0.215
(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			0.000	0.200	0.100
(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.			0.000	0.150	0.150



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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 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.			0.000	0.083	0.200
(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.			0.000	0.100	0.125
(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 collaborative display technologies will include on and off head, in and out of the cockpit, and wireless and tethered technologies.			0.000	0.100	0.200



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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	0.000	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 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			0.000	0.000	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		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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	0.000	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" 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.			0.000	0.000	0.100
(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			0.000	0.000	0.200



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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)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
	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.				
(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.		0.000	0.000	0.690
(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, 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	0.000	0.250
(U)	Management and administrative support and travel		0.100	0.100	0.100
(U)	Total Cost		3.819	3.916	4.095



## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

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NATO Nato Coop R&amp;D

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

<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

## PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
				<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>			
(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			3.019	Nov-05	3.266	Nov-06	3.395	Nov-07	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	3.019		3.266		3.395		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
AFRL Hanscom AFB, MA						0.550		0.600		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	0.000		0.550		0.600		Continuing	TBD	0.000
Remarks:												

Project NATO

R-1 Shopping List - Item No. 47-12 of 47-17

Exhibit R-3 (PE 0603790F)



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

## PROJECT NUMBER AND TITLE

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(U) Test & Evaluation

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	0.700	Nov-05			Continuing	TBD	
Fora laser system	PO					0.000	0.000	
Subtotal Test & Evaluation		0.000	0.700	0.000	0.000	Continuing	TBD	0.000
Remarks:								

(U) Management

		0.100		0.100	0.100		0.300	
Subtotal Management		0.000	0.100	0.100	0.100	0.000	0.300	0.000
Remarks:								

(U) Total Cost		0.000	3.819	3.916	4.095	Continuing	TBD	TBD
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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

Name of ICR&D Project & Int'l Agreement Schedule	Start Date	END IA	PE
Optical Sensor Protection Development	FY 04	FY 07	63790
C-2 Warrior	FY 04	FY 08	63790
Coalition Mission Training	FY 04	FY 08	63790
DMT Technologies	FY 04	FY 06	63790
Enhanced C3 Team Training in Operations	FY 04	FY 06	63790
Visual Fit and Accommodation Consulting Tools	FY 04	FY 06	63790
High-Power Microwave Narrowband Effects	FY 04	FY 07	63790
Aero-Engine Component Life Enhancement, Phase II	FY 05	FY 07	63790
HPM Effects Testing & Analysis	FY 05	FY 07	63790
Refractive Turbulence & Transient Electronic Disconnectivity	FY 05	FY 07	63790
Strike Information Displays	FY 06	FY 08	63790
Resilient Structural and Blast Suppression Systems....	FY 06	FY 08	63790
Policy Enabled Coalition Comm. Environment	FY 06	FY 09	63790
Network-Centric Strike Controller	FY 06	FY 09	63790
Material & Technology for Laser Protection	FY 06	FY 09	63790
Hard Target Defeat	FY 06	FY 08	63790
Operator and State Assessment and Aiding Implementation	FY 06	FY 08	63890
Coalition Interoperable SATCOM Data Broadcast Protocols	FY 06	FY 08	63790
Multimodal Situational Awareness Displays....	FY 06	FY 08	63790
International Mission Training Research	FY 06	FY 08	63790
3-Dimensional laser Radar Technology and Phen....	FY 06	FY 08	63790
Theater Battle Management Core Systems	FY 07	FY 09	63790
Coalition/Joint Force Air Component Commander Battle Bd.	FY 07	FY 09	63790
Engagement-level Modeling for HPM Weapons Applications	FY 07	FY 09	63790
High-Cycle Fatigue Reduction	FY 07	FY 09	63790
Hypersonic Flight Research and Development	FY 07	FY 09	63790
US Theater Battle Management Core Systems and NATO...	FY 07	FY 09	63790
Development of Electro-Optic and Infrared Countermeasures	FY 07	FY 09	63790



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Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
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>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Strike Warrior Project	4Q			
(U) Aero-Engine Component Life Extension		3Q		
(U) - Field testing		2Q		
(U) - Test report		1Q		
(U) Optical Sensor Protection Development and Evaluation	4Q			
(U) - Development, testing, and analyses		2Q		
(U) C-2 Warrior	4Q			
(U) - Development, testing, and analyses	4Q			
(U) - Test ISR Collection Manager against new requirements and situation	4Q			
(U) Coalition Mission Training	4Q			
(U) - Conduct and document coalition exercises in real-time simulators	4Q			
(U) Distributed Mission Training (DMT) Technologies	4Q			
(U) - Technology Development	4Q			
(U) Visual Process Fit and Accommodation Consulting Tools	3Q			
(U) - Dynamic and performance data gathering	4Q			
(U) - Digital pilot profiles and injury potential	4Q			
(U) - Signed international agreement	3Q			
(U) - Technology development	4Q			
(U) Enhanced C3 Team Training in Sustained Operations	4Q			
(U) - Technology development	2Q			
(U) - Experimental studies and data analysis	4Q			
(U) High-Power Microwave Narrowband Effects Investigations	4Q			
(U) - Develop detailed design baseline	2Q			
(U) - Test high fidelity model and performance analysis	4Q			
(U) - Report system performance results	4Q			
(U) Policy Enabled Coalition Communication Environment	3Q			
(U) - Technology development	1Q			
(U) - Testing & Analysis	2Q			
(U) Network-Centric Strike Controller			4Q	
(U) - Testing & Analysis			3Q	
(U) Operator and State Assessment Aiding Implementation		2-3Q		
(U) - Technology Development	2-3Q			
Project NATO				
R-1 Shopping List - Item No. 47-15 of 47-17				
Exhibit R-4a (PE 0603790F)				



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Exhibit R-4a, RDT&E Schedule Detail		DATE
		<b>February 2006</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>
(U) - Testing & Analysis	4Q	
(U) US Theater Battle Mngt Core System and NATO ACCS signed		2Q
(U) - Pre-study coordination activities	1Q	
(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	3Q	
(U) - Design methodology development	4Q	
(U) - Full-scale blast experiments		1Q
(U) Refractive Turbulence and Transient Electronic Disconnectivity	4Q	
(U) - Technical Development	3Q	
(U) - Testing and analysis	2Q	
(U) Tropospheric Refraction signed	4Q	
(U) Hard Target Defeat		3Q
(U) - Technical report preparation	3Q	
(U) - Testing and analysis	4Q	
(U) Coalition-Interoperable SATCOM Data Broadcast Protocols		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) International Mission Training Research		1Q
(U) - Technical report preparation	3Q	
(U) - Testing and Analysis	4Q	
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) 3-Dimensional Laser Radar Technology and Phenomenology		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) Strike Information Displays		2Q
(U) - Technical Development	3Q	
(U) - Testing and Analysis	4Q	
(U) Coalition/Joingt Force Air Component Commander (C/JFACC) Battle Board		2Q
(U) - Technical Development		3-4Q
Project NATO	R-1 Shopping List - Item No. 47-16 of 47-17	Exhibit R-4a (PE 0603790F)



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE
		<b>February 2006</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>
(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



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## UNCLASSIFIED

PE NUMBER: 0603791F

PE TITLE: International Space Cooperative R&amp;D

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603791F International Space Cooperative R&amp;D

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.532	0.566	0.593	0.612	0.625	0.639	0.649	Continuing	TBD
5035 Intl Space Coop R&D	0.532	0.566	0.593	0.612	0.625	0.639	0.649	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.547	0.566	0.575
(U) Current PBR/President's Budget	0.532	0.566	0.593
(U) Total Adjustments	-0.015	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.015		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>			PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5035 Intl Space Coop R&D	0.532	0.566	0.593	0.612	0.625	0.639	0.649	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&amp;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&amp;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&amp;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&amp;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&amp;E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&amp;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.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems (AFRL/ The United Kingdom (UK)) - Planned cooperative project to develop space weather specification, forecasting techniques, and data displays to provide reliable, timely warning of ionospheric disturbances that will seriously disrupt the performance of space-based communication, navigation and surveillance systems, as well as ground-based surveillance systems such as those employed for early missile warning and missile defense. In FY04, data collection will begin.						0.205	0.000	0.000	
(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						0.097	0.195	0.107	



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.					
(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 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.			0.135	0.100	0.018
(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.			0.095	0.121	0.152
(U) Forecasting Communication and Navigation Disruptions due to Ionospheric Disturbance During Solar Minimum (AFRL/VS BX) 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 C3I systems may be vulnerable. The Communication/Navigation Outage Forecast 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.			0.000	0.150	0.216
(U) Multidimensional 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 electromagnetic waves, which cause diffusion in the otherwise constant particle energy (E), equatorial pitch angle (a0), and radial distance (L shell parameter). The wave amplitudes can become greatly 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,			0.000	0.000	0.100
Project 5035		R-1 Shopping List - Item No. 48-4 of 48-8	Exhibit R-2a (PE 0603791F)		



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

## PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

a0, or both), which increases the risk to satellites in medium or low earth orbit. Wave-particle interactions are also a dominant loss mechanism for energetic electrons, so the detailed evolution of the particle distribution depends on a complex balance of several diffusion rates.

(U) Management and administrative support and travel.

0.000

0.000

0.000

(U) Total Cost

0.532

0.566

0.593

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

## PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
AFRL Hanscom AFB, MA	TBD									Continuing	TBD	TBD
AFRL, WPAFB				0.335	Nov-05	0.423	Oct-06	0.236	Oct-07	Continuing	TBD	TBD
AEDC/DO				0.097	Nov-05					Continuing	TBD	TBD
SMC, LAAFB, CA				0.100	Nov-05	0.143	Oct-06	0.357	Oct-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.532		0.566		0.593		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		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
TBD	TBD									Continuing	TBD	TBD
None											0.000	
Subtotal Test & Evaluation			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) Total Cost			0.000	0.532		0.566		0.593		Continuing	TBD	TBD



## UNCLASSIFIED

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

## PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

Name of ICR&D Project & Int'l Agreement Schedule	Start Date	END IA	PE
Impacts of Space Environment...	FY 03	FY 05	63791
Hypersonic Airbreathing Propulsion Test	FY 05	FY 08	63791
Measurement of High-Latitude Ionospheric	FY 05	FY 08	63791
Cooperation in Navigation Warfare Technology	FY 05	FY 08	63791
Forecasting Communication and Navigation Disruptions due to Ionospheric Disturbance During Solar Minimum	FY 06	FY 09	63791
Multidim. Diffusion of High Energy Radiation Belt Electrons	FY 07	FY 10	63791



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Impacts of the Space Environment on Communications, Navigation and Surveillance Systems	4Q		
(U) - Data collection	2Q		
(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) - Data collection begins		3Q	
(U) Measurement of High-Latitude Ionospheric Structures and System Effects		4Q	
(U) - Project agreement signed		1Q	
(U) - Data collection begins			1Q
(U) Multidimensional Diffusion of High Energy Radiation Belt Electrons		1-3Q	
(U) - Project Agreement Signed		4Q	
(U) - Data collection begins		3Q	



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## UNCLASSIFIED

PE NUMBER: 0603845F

PE TITLE: Transformational SATCOM (TSAT)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603845F Transformational SATCOM (TSAT)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	443.960	429.244	867.102	1,536.032	2,051.074	2,308.315	2,588.254	Continuing	TBD
4944 ADVANCED WIDEBAND SYSTEM	443.960	429.244	867.102	1,536.032	2,051.074	2,308.315	2,588.254	Continuing	TBD

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

The Transformational Satellite Communications (TSAT) System 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. The 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 FY07 the TMOS contractor will refine TSAT network requirements in support of the TSAT System Design Review and in support of the release of the TSAT space segment Request For Proposal, refine and coordinate a Network Architecture for the entire TSAT program, support development of the TSAT inter-segment Interface Control Documents, develop/coordinate the TSAT Network Integration and Test Plans, and develop TMOS Segment Design Description and Segment/Element Specification.

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, communications-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. FY06/FY07 will verify competing contractor approach readiness with subsystem hardware testing in an independent Government testing facility at Massachusetts Institute of Technology's Lincoln Laboratory to ensure that technologies are mature. This level of independent verification testing and applied design reviews (System Design Review level, 3QFY07) will all be accomplished before the selection of the single space segment contractor which lowers program risk going forward. The space segment contract will be awarded in 1QFY08. First launch is 4QFY14.

Fully successful Interim Space Segment Design Reviews were held in June 2005 and key testing was accomplished in August 2005 (Optical Standards Validation Suite testing and Laser comm interoperability testing). As a result of key risk reduction activities, the Technology Readiness Level (TRL) for three of the six key technologies were taken to TRL-6.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603845F Transformational SATCOM (TSAT)

In an effort to reduce overall program risk, the Department of Defense restructured the TSAT program to a block delivery approach. 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 1). Capacities for the remaining three satellites (Block 2) are higher, resulting in a constellation that meets all Key Performance Parameter requirements. Additionally, the Department of Defense is funding TSAT at an 80/20% cost confidence level vice prior 50/50% cost confidence level.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	467.163	835.769	1,068.213
(U) Current PBR/President's Budget	443.960	429.244	867.102
(U) Total Adjustments	-23.203	-406.525	
(U) Congressional Program Reductions	-0.361	-400.302	
Congressional Rescissions		-6.223	
Congressional Increases			
Reprogrammings	-10.000		
SBIR/STTR Transfer	-12.842		

(U) **Significant Program Changes:**

Due to the FY06 reduction and risk concerns, the program was restructured to a block approach and funding reduced resulting in a first launch delay from 2QFY13 to 4QFY14.



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603845F Transformational SATCOM (TSAT)</b>			PROJECT NUMBER AND TITLE <b>4944 ADVANCED WIDEBAND SYSTEM</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4944 ADVANCED WIDEBAND SYSTEM	443.960	429.244	867.102	1,536.032	2,051.074	2,308.315	2,588.254	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Transformational Satellite Communications (TSAT) System 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. The 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 FY07 the TMOS contractor will refine TSAT network requirements in support of the TSAT System Design Review and in support of the release of the TSAT space segment Request For Proposal, refine and coordinate a Network Architecture for the entire TSAT program, support development of the TSAT inter-segment Interface Control Documents, develop/coordinate the TSAT Network Integration and Test Plans, and develop TMOS Segment Design Description and Segment/Element Specification.

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, communications-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. FY06/FY07 will verify competing contractor approach readiness with subsystem hardware testing in an independent Government testing facility at Massachusetts Institute of Technology's Lincoln Laboratory to ensure that technologies are mature. This level of independent verification testing and applied design reviews (System Design Review level, 3QFY07) will all be accomplished before the selection of the single space segment contractor which lowers program risk going forward. The space segment contract will be awarded in 1QFY08. First launch is 4QFY14.

Fully successful Interim Space Segment Design Reviews were held in June 2005 and key testing was accomplished in August 2005 (Optical Standards Validation Suite testing and Laser comm interoperability testing). As a result of key risk reduction activities, the Technology Readiness Level (TRL) for three of the six key technologies were taken to TRL-6.

In an effort to reduce overall program risk, the Department of Defense restructured the TSAT program to a block delivery approach. This strategy reduces risk in the



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

## PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM

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 1). Capacities for the remaining three satellites (Block 2) are higher, resulting in a constellation that meets all Key Performance Parameter requirements. Additionally, the Department of Defense is funding TSAT at an 80/20% cost confidence level vice prior 50/50% cost confidence level.

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>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.	97.006	91.579	153.295
(U) Provide Technical Support	34.485	33.430	37.600
(U) Provide Program Support	5.947	6.668	9.904
(U) Initiated engineering design activities including risk reduction and system definition for the first TSAT satellite.	238.872		
(U) Continue engineering design activities including risk reduction, and complete system design review for the first TSAT satellite.		198.044	459.811
(U) Continue TSAT Mission Operations System ground segment and network management/operations management software.	33.275	68.615	154.473
(U) Continue systems engineering and integration support	34.375	30.908	52.019
(U) Total Cost	443.960	429.244	867.102

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E, AF									
(U) PE 0603854F, Project 644870, CCS-C, R-52	22.550	3.627	6.659	5.186	5.728	5.809	6.286	Continuing	TBD
(U) PE 0603854F, Project 644811, WGS, R-52	31.863	88.660	31.013						314.976
(U) Other APPN									
(U) MPAF, PE 0303600F, WGS, P-19,20	35.370	72.026	414.351	323.670	22.629	36.222	41.595	Continuing	TBD
(U) OPAF, PE 0303600F, CCS-C	3.328	0.286							17.137



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

## PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM(U) C. Other Program Funding Summary (\$ in Millions)

(U) OPAF, PE 0303600F, WGS	21.528	7.172				55.448
(U) MILCON, PE 0303602F, TSAT			5.322	50.212	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. TMOS Program Research and Development Agreement (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 early FY08, after a full and open competition, the final space segment development contractor will be selected.

In an effort to account for risk that is historically encountered in complex development programs, the Department of Defense is funding TSAT at an 80/20% cost confidence level.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

## PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Architecture Studies	CPAF	Various	14.900								14.900	
Lockheed Martin: Technology Maturation/Risk Reduction & Program System Definition	CPFF	Sunnyvale, CA	42.180	119.436	Oct-04	99.022	Oct-05	229.905	Nov-06		490.543	
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA	42.180	119.436	Oct-04	99.022	Oct-05	229.905	Nov-06		490.543	
Booz Allen Hamilton: System Engineering & Integration	Time & Materials w/ IF	El Segundo, CA	27.405	34.375	Oct-04	30.908	Oct-05	52.019	Nov-06	Continuing	TBD	
TMOS PRDAs	FFP	Various	19.179	33.275	Oct-04	2.700	Dec-05				55.154	
TMOS: Lockheed Martin Integrated Systems and Solutions	CPAF	San Jose, CA				65.915	Jan-06	154.473	Nov-06	Continuing	TBD	
Risk Reduction: Technology Maturation	Various	Various	187.421	97.006	Oct-04	91.579	Nov-05	153.295	Nov-06	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	
Subtotal Product Development			388.567	403.528		389.146		819.598		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Technical Support	Various		33.985	34.485		33.430	Nov-05	37.600	Nov-06	Continuing	TBD	
Program Support	Various		11.756	5.947		6.668	Nov-05	9.904	Nov-06	Continuing	TBD	
Subtotal Support			45.741	40.432		40.098		47.504		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			434.308	443.960		429.244		867.102		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

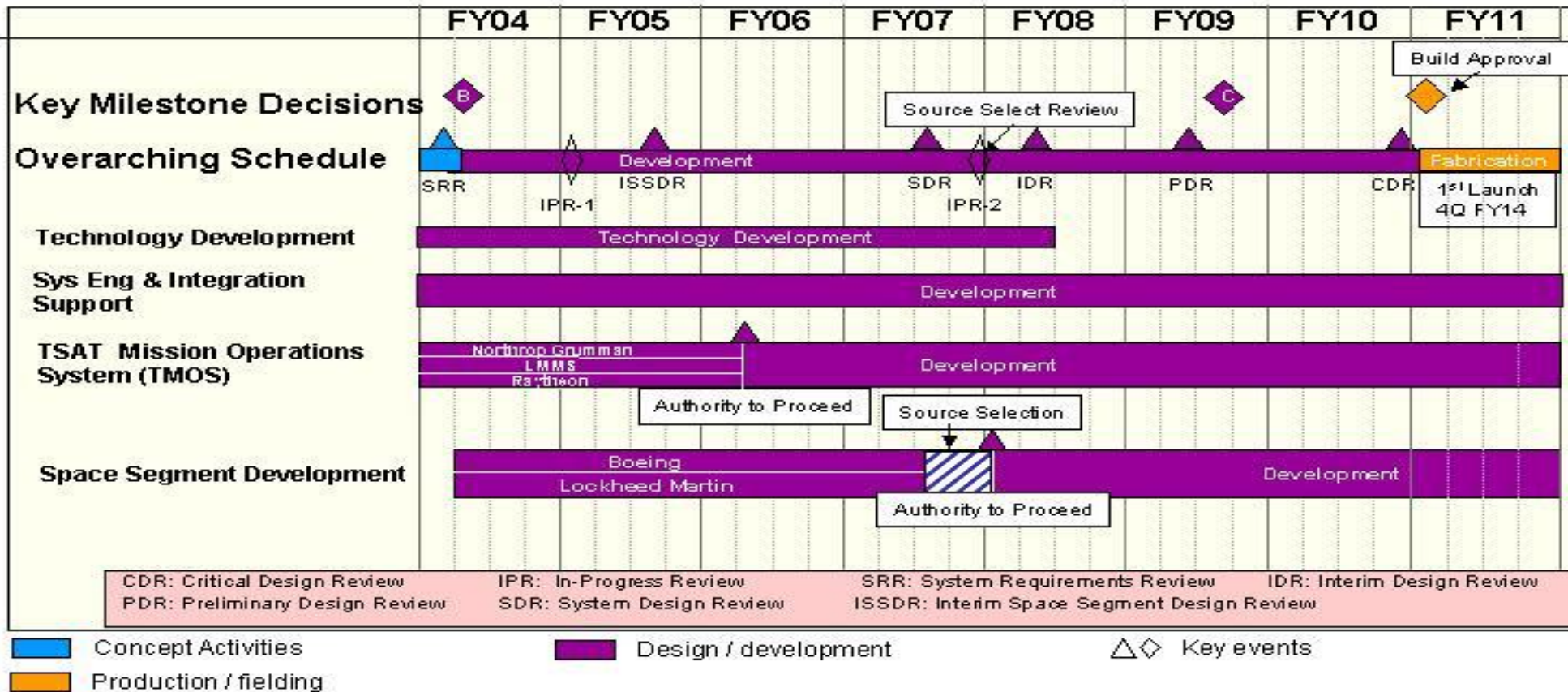
BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Interim Program Review I

1Q

(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) Interim Program Review II

4Q



## UNCLASSIFIED

PE NUMBER: 0603850F

PE TITLE: Integrated Broadcast Service (DEM/VAL)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603850F Integrated Broadcast Service (DEM/VAL)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.309	15.063	20.592	21.089	21.248	21.568	21.862	Continuing	TBD
4778 Integrated Broadcast Service	23.309	15.063	20.592	21.089	21.248	21.568	21.862	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. 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. This request funds the IBS system as described above, which includes spiral development of:

- 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).
- A centralized GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network-connected users.
- 4 regional Co-GINSs, 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.
- A Common Message Format (CMF) Data Element Dictionary (DED) for defining legacy format translation into the CMF in order to broadcast IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.
- A Joint Tactical Radio System (JTRS) Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	23.653	15.344	20.026
(U) Current PBR/President's Budget	23.309	15.063	20.592
(U) Total Adjustments	-0.344	-0.281	
(U) Congressional Program Reductions		-0.063	
Congressional Rescissions		-0.218	
Congressional Increases			
Reprogrammings	-0.344		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603850F Integrated Broadcast Service (DEM/VAL)**

Spiral 2A Testing Stopped

- Software rework required prior to fielding

Testing and certification required to meet 3rd Qtr FY06 LOC

Spiral 3 development continues to provide additional S/W capability to the field in the form of 120 day drops

Additional suites of H/W procured and delivered to meet FY09 IOC (IOC based on delivered H/W vice additional functionality)

Spiral development continues to provide additional functional capability within available funding profile



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>			PROJECT NUMBER AND TITLE <b>4778 Integrated Broadcast Service</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4778 Integrated Broadcast Service	23.309	15.063	20.592	21.089	21.248	21.568	21.862	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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. 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. This request funds the IBS system as described above, which includes spiral development of:</p> <ul style="list-style-type: none"> <li>- 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).</li> <li>- A centralized GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network-connected users.</li> <li>- 4 regional Co-GINSs, 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.</li> <li>- A Common Message Format (CMF) Data Element Dictionary (DED) for defining legacy format translation into the CMF in order to broadcast IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.</li> <li>- A Joint Tactical Radio System (JTRS) Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter</li> </ul> <p>This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.						1.427	1.507	1.700	
(U) Continue the Phase II/Engineering, Manufacturing, and Development of the GINS and TINs						15.801	9.889	13.426	
(U) Continue CMF Systems Engineering and Format Development						0.722	1.051	1.025	
(U) Satellite Communications (SATCOM) Broadcast Waveform Development (DISA/SPAWAR)						0.750			
(U) Joint Tactical Radio System (JTRS) Modular Advanced TRanslation and Interchange with XML (MATRIX) Reformatter						0.837		1.400	
(U) Continue Test & Evaluation						1.940	0.383	0.925	
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution.						1.832	2.233	2.116	
(U) Total Cost						23.309	15.063	20.592	
Project 4778			R-1 Shopping List - Item No. 50-3 of 50-8				Exhibit R-2a (PE 0603850F)		



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast  
Service (DEM/VAL)

PROJECT NUMBER AND TITLE

4778 Integrated Broadcast Service

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF/PE 0305179F	11.595	11.006	11.949	12.257	12.560	12.755	13.016	Continuing	TBD
(U) O&M/PE 0305179F	15.813	11.536	10.784	12.703	12.831	13.362	13.340	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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006			
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			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Product Development													
Spiral I	C/FFP	Lockheed Martin (Gaithersburg, MD)								0.000	0.000	TBD	
Spiral I	C/FFP	BTG, Inc. (Fairfax, VA)								0.000	0.000	TBD	
Spiral I	C/FFP	TRW, Inc. (Fairfax, VA)								0.000	0.000	TBD	
Spiral II - N	C/CPAF	BTG, Inc./Titan/L-3 Comm (Reston, VA)		15.801	Dec-04	9.889	Jan-06	13.426	Jan-07	Continuing	TBD	TBD	
CMF Systems Engineering and Format Development	C/FFP	SAIC (Columbia, MD)		0.722	Dec-04	1.051	Jan-06	1.025	Jan-07	Continuing	TBD	TBD	
SATCOM Broadcast Waveform Development	MIPR	SPAWAR Systems (San Diego, CA)		0.750	Dec-04					0.000	0.750	TBD	
JTRS MATRIX Reformatter	C/FFP	L-3 Comm (Greenville, TX)		0.837	Mar-05			1.400	Jan-07		2.237	TBD	
Subtotal Product Development			0.000	18.110		10.940		15.851		Continuing	TBD	TBD	
Remarks:													
(U) Support													
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Test & Evaluation													
Interoperability and Developmental Testing	MIPR/Proje ct Order	JITC (Ft Huachuca, AZ) & 46th OSS (Eglin AFB, FL)		1.940	Dec-04	0.383	Jan-06	0.925	Dec-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	1.940		0.383		0.925		Continuing	TBD	TBD	
Remarks:													
(U) Management													
SPO/ITSP	Various	Local Area (Bedford,		1.832	Mar-05	2.233	Mar-06	2.116	Mar-07	Continuing	TBD	TBD	
Project 4778													
			R-1 Shopping List - Item No. 50-5 of 50-8						Exhibit R-3 (PE 0603850F)				

R-1 Shopping List - Item No. 50-5 of 50-8

Exhibit R-3 (PE 0603850F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast  
Service (DEM/VAL)

PROJECT NUMBER AND TITLE

4778 Integrated Broadcast Service

MITRE	SS/CPFF (FFRDC)	MA)/Washingt on DC Area Bedford, MA	1.427	Oct-04	1.507	Oct-05	1.700	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	3.259	3.740		3.816		Continuing	TBD	TBD
Remarks:											
(U) Total Cost			0.000	23.309	15.063		20.592		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

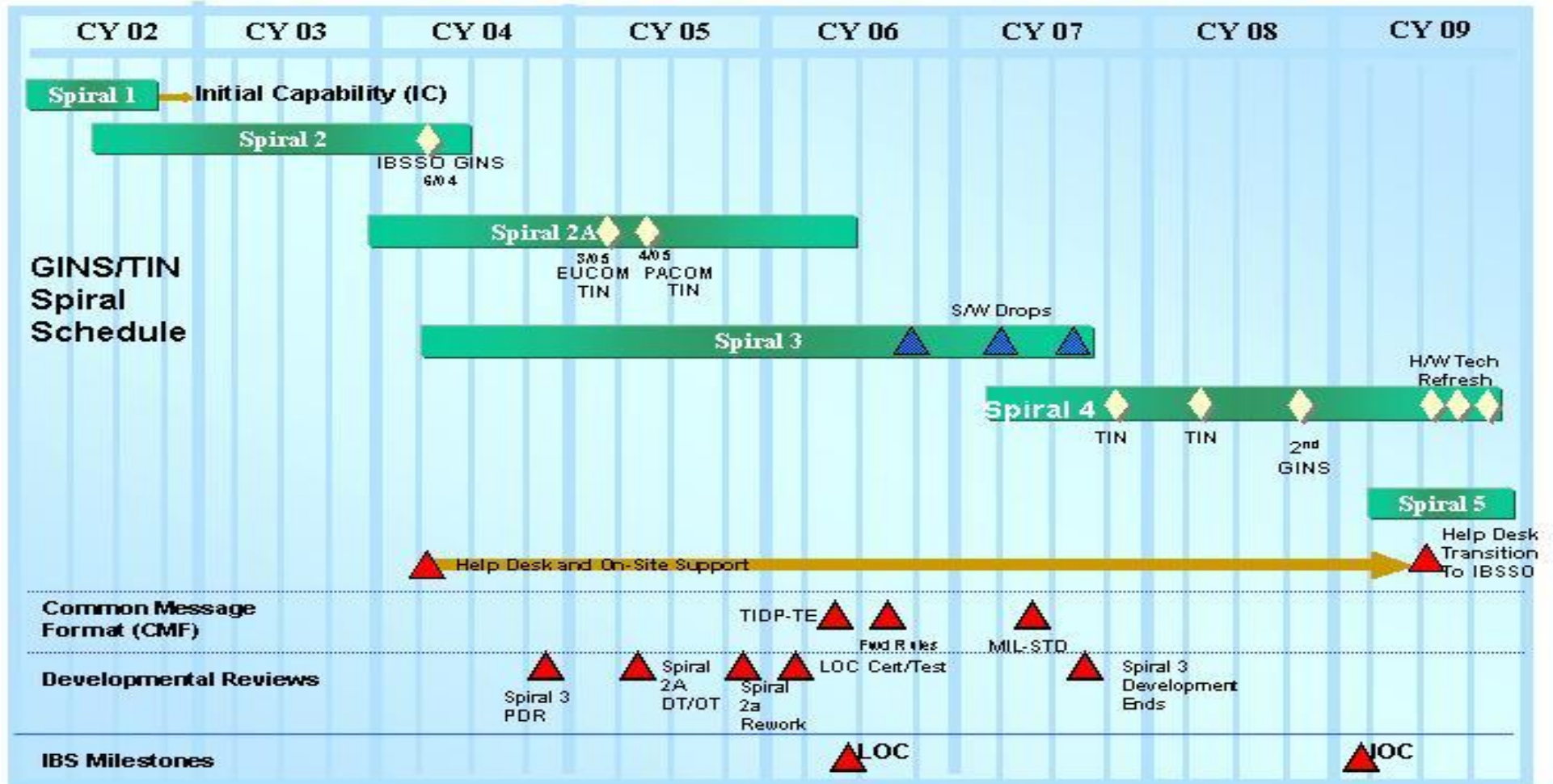
PE NUMBER AND TITLE

0603850F Integrated Broadcast  
Service (DEM/VAL)

PROJECT NUMBER AND TITLE

4778 Integrated Broadcast Service

## IBS RDT&amp;E Program Schedule (FY07 PB)





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast  
Service (DEM/VAL)

PROJECT NUMBER AND TITLE

4778 Integrated Broadcast Service

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Spiral 3 Program Design Review

1Q

(U) Spiral 2a Developmental/Operational Test (DT/OT)

3Q

(U) Spiral 2a Rework

1Q

(U) Limited Operational Capability (LOC) Certification/Test

2Q

(U) LOC

3Q

(U) Technical Interface Design Plan - Test Edition (TIDP-TE) Baseline 3

3Q

(U) Forwarding Rules

4Q

(U) MIL-STD

3Q

(U) Spiral 3 Development

4Q



## UNCLASSIFIED

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

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.908	57.087	45.538	41.271	42.018	42.835	43.469	Continuing	TBD
1020 ICBM Guidance Applications	13.160	8.919	9.276	9.508	9.646	9.986	10.166	Continuing	TBD
1021 ICBM Propulsion Applications	24.299	23.419	24.393	24.492	25.016	25.375	25.703	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	13.954	5.529	5.755	6.304	6.420	6.555	6.704	Continuing	TBD
1023 Rocket System Launch Program	0.031	0.033	0.028	0.029	0.027	0.026	0.025	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	0.028	3.250	0.000	0.000	0.000	0.000	0.000	0.000	3.278
4209 Long Range Planning (LRP)	5.436	15.937	6.086	0.938	0.909	0.893	0.871	Continuing	TBD
In FY 2007 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.									
(U) <b><u>A. Mission Description and Budget Item Justification</u></b>									
This program preserves and renews government and industry ICBM design, development, and systems engineering capabilities by demonstrating and validating emerging technologies in strategic ballistic missile applications. 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 options, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhancements to ensure command and control capabilities. The program's Long Range Planning efforts include pre-Milestone A activities for follow-on Land-Based Strategic Deterrent 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><u>B. Program Change Summary (\$ in Millions)</u></b>									
					FY 2005		FY 2006		FY 2007
(U) Previous President's Budget					69.884		44.672		45.322
(U) Current PBR/President's Budget					56.908		57.087		45.538
(U) Total Adjustments					-12.976		12.415		
(U) Congressional Program Reductions							-0.010		
Congressional Rescissions					-0.053		-0.825		
Congressional Increases							13.250		
Reprogrammings					-11.000				
SBIR/STTR Transfer					-1.923				
(U) <b><u>Significant Program Changes:</u></b>									
FY 2006: Reflects Appropriations Act adds as follows: +\$5.0 M for "Conventional Ballistic Missile System Engineering Studies"; +\$3.25M for "Infralynx Technology to									

R-1 Shopping List - Item No. 51-1 of 51-26

Exhibit R-2 (PE 0603851F)



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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	
<p>Support Secure Transportation of Strategic Assets"; +\$5.0M for "Adaptive Missile Engineering Modernization".</p>		

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## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1020 ICBM Guidance Applications	13.160	8.919	9.276	9.508	9.646	9.986	10.166	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The ICBM Guidance Applications Project is required to meet on-going needs in applied strategic guidance systems and their subcomponents. This project ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the US Strategic Command (USSTRATCOM) Strategic Advisory Group, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, reduced life cycle costs, and increased nuclear surety and safety. These activities leverage the efforts of the Science and Technology community. The efforts are coordinated with the Navy guidance applications efforts to avoid duplication while realizing maximum return on the invested dollars. The key elements of the Guidance Applications Project are the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems in the Minuteman guidance system, the assessment and mitigation of any degradation of aging hardware, and the development and analysis of future strategic guidance hardware.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development and prototype of concepts for future common strategic guidance system technology	2.513	4.455	4.641
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	0.535	0.603	0.611
(U) Continue development and test of alternate instrument technologies (e.g., accelerometers, gyros, micro electromechanical systems)	8.507	3.861	4.024
(U) Completed assessment, development and implementation of flight test experiment options to demonstrate future strategic guidance system concepts	1.605	0.000	0.000
(U) Total Cost	13.160	8.919	9.276

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	91.655	1.280	Dec-04	0.800	Dec-05	0.800	Dec-06	Continuing	TBD	TBD
Component/Technology Development	Various	AFRL Kirtland AFB and others TBD	0.100	11.800	Jan-05	8.039	Jan-06	8.396	Jan-07	Continuing	TBD	TBD
Subtotal Product Development Remarks:			91.755	13.080		8.839		9.196		Continuing	TBD	TBD
(U) <u>Support</u>												
SPO/Other Program Support	Various	526th Acquisition Group, Hill AFB	3.635	0.080	Jan-05	0.080	Jan-06	0.080	Jan-07	Continuing	TBD	TBD
Subtotal Support Remarks:			3.635	0.080		0.080		0.080		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>												
Program Management											0.000	
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			95.390	13.160		8.919		9.276		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

**Guidance Applications**

- Analyze, evaluate, develop concepts
- Future common system concepts
- Alternate instrument technologies

FY05				FY06				FY07				FY08				FY09				FY10				FY11			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4



Major test event

Report/Review/  
AnalysisPrototype  
hardware delivery



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Development/Demonstration of Future Common System Concepts (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Reports	4Q	4Q	4Q
(U) -- Prototype Hardware Delivery	4Q	4Q	4Q
(U) Alternate Instrument Technology Development (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) -- Engineering Demo/Prototype Hardware	4Q	4Q	4Q
(U) Radiation Hardened Parts Analysis (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) Flight Test Options Analysis	1-4Q		
(U) -- Progress Report	4Q		



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## Exhibit R-2a, RDT&amp;E Project Justification

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February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1021 ICBM Propulsion Applications	24.299	23.419	24.393	24.492	25.016	25.375	25.703	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue evaluation and test of solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing	16.750	12.409	14.303
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments	6.630	9.649	8.679
(U) Continue evaluation of test protocols in support of hazard classification methods for ICBM solid rocket motors	0.919	1.361	1.411
(U) Total Cost	24.299	23.419	24.393

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

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## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	23.091	14.949	Dec-04	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Component Development	Various	AFRL Edwards AFB, others TBD	0.000	9.250	Jan-05	23.319	Jan-06	24.293	Jan-07	Continuing	TBD	TBD
Subtotal Product Development Remarks:			23.091	24.199		23.319		24.293		Continuing	TBD	TBD
(U) <u>Support</u> SPO/Other Program Support	Various	526th Acquisition Group, Hill AFB	0.186	0.100	Jan-05	0.100	Jan-06	0.100	Jan-07	Continuing	TBD	TBD
Subtotal Support Remarks:			0.186	0.100		0.100		0.100		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			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
(U) Total Cost			23.277	24.299		23.419		24.393		Continuing	TBD	TBD



### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

BUDGET ACTIVITY

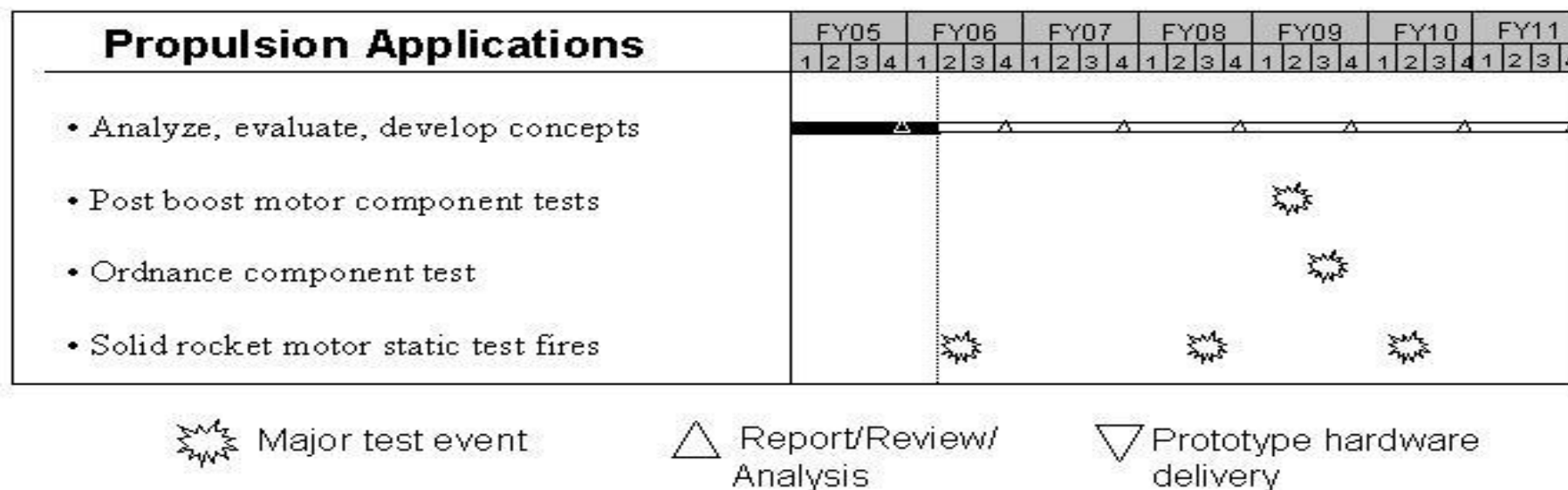
#### 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
---------------------

0603851F ICBM - DEM/VAL

	PROJECT NUMBER AND TITLE
--	--------------------------

## 1021 ICBM Propulsion Applications





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Evaluate and test solid propulsion technologies for ICBM application	1-4Q	1-4Q	1-4Q
(U) -- Periodic Status Reports/Review	4Q	4Q	4Q
(U) -- Solid rocket motor static test fire		2Q	
(U) Assessment/demonstration of ordnance and post-boost components technology	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	4Q	4Q	4Q
(U) Evaluate test protocols in support of hazard classification methods	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	4Q	4Q	4Q



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1022 ICBM Reentry Vehicle Applications	13.954	5.529	5.755	6.304	6.420	6.555	6.704	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

ICBM Reentry Vehicle (RV) Applications efforts ensure the Minuteman force is equipped with the safest and most reliable RVs and explore options to meet future requirements. These efforts support RVs beyond their original design life by addressing problems with operational reentry systems, meeting real on-going needs, and ensuring the availability of long-lead components/materials. This project develops methods to better predict aging phenomena and identify life cycle cost reduction methods. A key element of the RV Applications efforts is the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems, aging phenomena and future requirements. RV work under this program will leverage the Science & Technology community investments and coordinate with Navy reentry systems applications program to eliminate duplication and realize synergistic cost savings. Program products are tested on a space available basis on Minuteman 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue evaluation of RV material subsystems, aging, and replacements through ground and flight tests	4.408	1.960	1.980
(U) Continue identification and ground testing of potential replacement options for critical RV components	2.448	0.249	0.906
(U) Continue evaluation of improved accuracy measurements and methodologies	0.677	0.868	0.402
(U) Continue evaluation of alternate flight test experiment options	1.330	1.086	0.593
(U) Continue evaluation of advanced common RV designs, applications, and technologies	1.121	0.128	0.919
(U) Continue development and assessment of RV Test & Evaluation methodologies and subsystems	1.678	0.989	0.430
(U) Continue design, development, and prototype flight testing of selected fuze assessment/measurement	2.292	0.249	0.525
(U) Total Cost	13.954	5.529	5.755

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.



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Exhibit R-3, RDT&E Project Cost Analysis										DATE			
										February 2006			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)					0603851F ICBM - DEM/VAL					1022 ICBM Reentry Vehicle Applications			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Product Development ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield, UT	94.449	13.424	Dec-04	4.569	Dec-05	4.670	Dec-06	Continuing	TBD	TBD	
Component/materials development	Various	TBD	0.000	0.000	Jan-05	0.000	N/A	0.000	N/A	Continuing	TBD	TBD	
Subtotal Product Development			94.449	13.424		4.569		4.670		Continuing	TBD	TBD	
Remarks:													
(U) Support SPO/Other Program Support	Various	526th Acquisition Group, Hill AFB	1.216	0.060	Jan-05	0.510	Jan-06	0.510	Jan-07	Continuing	TBD	TBD	
Subtotal Support			1.216	0.060		0.510		0.510		Continuing	TBD	TBD	
Remarks:													
(U) Test & Evaluation Materials	MIPR	AFRL Materials Lab, Wright-Patters on AFB	2.740	0.290	Jan-05	0.450	Jan-06	0.450	Jan-07	Continuing	TBD	TBD	
Ground Testing	PO	Arnold Engineering & Development Center	3.702	0.180	Jan-05	0.000	N/A	0.125	Jan-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			6.442	0.470		0.450		0.575		Continuing	TBD	TBD	
Remarks:													
(U) Management Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			102.107	13.954		5.529		5.755		Continuing	TBD	TBD	



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

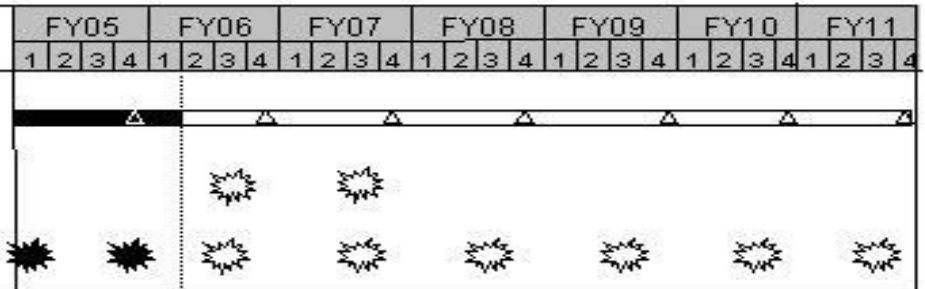
PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle  
Applications**Reentry Vehicle Applications**

- Analyze, evaluate, develop concepts
- Flight tests
- Component ground tests



Major test event

Report/Review/  
AnalysisPrototype hardware  
delivery



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle  
Applications

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) RV Test & Evaluation Methodologies Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Accuracy Assessment Methodologies Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Advanced Common RV Designs, Applications & Technologies Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Alternate Flight Test Options Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	4Q	4Q	4Q
(U) Flight Tests		3Q	3Q
(U) Component Level Ground Tests	1-4Q	3Q	3Q



## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program	0.031	0.033	0.028	0.029	0.027	0.026	0.025	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This task supports studies/analyses on hardware for 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.031	0.033	0.028
(U) Total Cost	0.031	0.033	0.028

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) None									

(U) **D. Acquisition Strategy**

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



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Various	Various	Various	8.338	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.338	8.338
Subtotal Product Development			8.338	0.000		0.000		0.000		0.000	8.338	8.338
Remarks:												
(U) <u>Support</u>												
Engineering Support	SS/T&M	Northrop Grumman	8.403	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.403	8.403
Engineering Support	Various	SMC Det 12 Kirtland AFB	1.517	0.031	Jan-05	0.033	Jan-06	0.028	Jan-07	Continuing	TBD	TBD
Subtotal Support			9.920	0.031		0.033		0.028		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
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) Total Cost			18.258	0.031		0.033		0.028		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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

FY05				FY06				FY07				FY08				FY09				FY10				FY11			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4



Major test event

Report/Review/  
AnalysisPrototype hardware  
delivery



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Start/Complete Annual Studies/Analysis

1-4Q

1-4Q

1-4Q



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## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1024 ICBM Command & Control (C2) Applications	0.028	3.250	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		

In FY2007 and beyond, project is discontinued to support higher Air Force priorities.

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

To maintain the ICBM weapon systems as a credible deterrent to a hostile attack requires an extremely high confidence in the Command and Control (C2) systems providing connectivity to the President and Secretary of Defense. To ensure the ICBMs can be tasked in all manners of hostile environments requires assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs). While assured connectivity is mandated for ICBMs, ways must be found to make the C2 systems more cost effective. Continuing studies are needed to identify existing and future technologies as well as concepts that exploit state-of-the-art communications and information transfer techniques that will guarantee the required C2 support to both the current ICBM mission and those ICBM systems and missions that will evolve in the 21st century. 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 of 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed development of concepts for transformation of ICBM command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture for future ICBM missions, including analysis of requirements for modeling, simulation, demonstrations, and flight tests; complete development of plans for preserving unique strategic C2 skills and capabilities.	0.028	0.000	0.000
(U) Demonstrate Infralynx technology to support secure transportation of strategic assets	0.000	3.250	0.000
(U) Total Cost	0.028	3.250	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	4.062	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.062	4.062
Infralynx technology demonstration	MIPR	Naval Research Lab	0.000	0.000	N/A	3.250	Mar-06	0.000	N/A	0.000	3.250	3.250
Subtotal Product Development			4.062	0.000		3.250		0.000		0.000	7.312	7.312
Remarks:												
(U) <u>Support</u>												
SPO/other program support	Various	526th Acquisition Group Hill AFB	0.052	0.028	Jan-05	0.000	N/A	0.000	N/A	0.000	0.080	0.062
Subtotal Support			0.052	0.028		0.000		0.000		0.000	0.080	0.062
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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) Total Cost			4.114	0.028		3.250		0.000		0.000	7.392	7.374



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)



PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications**Command & Control Applications**

- Analyze, evaluate, develop concepts
- Demonstrate Infralynx technology

FY05				FY06				FY07				FY08				FY09				FY10				FY11			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
																											
																											



Major test event

Report/Review/  
AnalysisPrototype hardware  
delivery



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Future Concepts Study for Command &amp; Control

1-4Q

(U) Infralynx technology demonstration

2-4Q

1-4Q

(U) -- Concept and prototype development

2-4Q

(U) -- Field demonstration and assessment

1-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

## PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4209 Long Range Planning (LRP)	5.436	15.937	6.086	0.938	0.909	0.893	0.871	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue support of the consolidated ICBM Master Plan	0.491	0.477	0.473
(U) Continue feasibility and life extension studies	0.000	0.507	0.520
(U) Completed Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD) capability	4.945	0.000	0.000
(U) Continue LBSD capability concept refinement and pre-Milestone A activities	0.000	4.953	5.093
(U) Conduct conventional ballistic missile systems engineering studies	0.000	5.000	0.000
(U) Conduct adaptive missile engineering modernization	0.000	5.000	0.000
(U) Total Cost	5.436	15.937	6.086

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
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)		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	8.605	0.491	Dec-04	0.332	Jan-06	0.330	Jan-07	Continuing	TBD	TBD
Conventional Ballistic Missile System Engineering Studies	C/CPAF	Northrop Grumman, San Bernardino CA	0.000	0.000	N/A	5.000	May-06	0.000	N/A	0.000	5.000	5.000
Adaptive Missile Engineering Modernization	C/CPAF	Northrop Grumman, San Bernardino CA	0.000	0.000	N/A	5.000	May-06	0.000	N/A	0.000	5.000	5.000
Studies	MIPR/PO	Various	1.110	0.000	N/A	0.507	Jan-06	0.525	Jan-07	Continuing	TBD	TBD
Land Based Strategic Deterrent (LBSD) AoA and pre-systems acquisition planning	Various	Various	5.437	4.800	Jan-05	0.000	N/A	0.000	N/A	0.000	10.237	10.237
LBSD concept refinement and pre-Milestone A activities	Various	Various	0.000	0.000	N/A	4.953	Oct-05	5.093	Oct-06	0.000	10.046	10.046
Subtotal Product Development			15.152	5.291		15.792		5.948		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> SPO/Other program support	Various	526th Acquisition Group, Hill AFB UT	2.782	0.145	Jan-05	0.145	Jan-06	0.138	Jan-07	Continuing	TBD	
Subtotal Support			2.782	0.145		0.145		0.138		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> None											0.000	
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) Total Cost			17.934	5.436		15.937		6.086		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

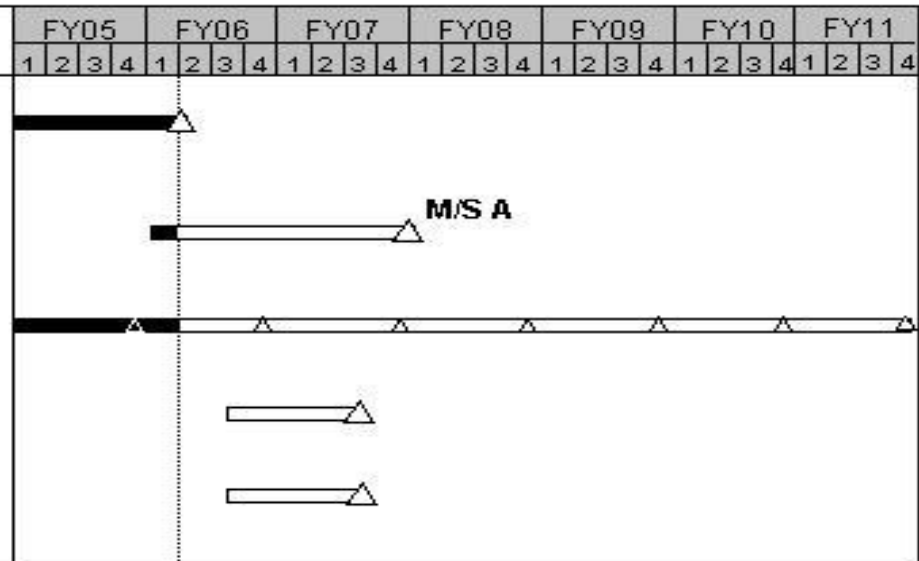
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

**Long Range Planning**

- LBSD Analysis of Alternatives
- LBSD Concept Refinement & pre-Milestone A activities
- Analyze, evaluate options
- Conventional ballistic missile studies
- Adaptive missile engineering modernization



Major test event

 Report/Review/  
Analysis

 Prototype hardware  
delivery



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Contract Award for Annual Studies/Analyses

2Q

2Q

2Q

(U) --Program Reviews/ Reports Received

4Q

4Q

4Q

(U) LBSD Analysis of Alternatives &amp; pre-acquisition planning

1-4Q

(U) -- AoA Report

2Q

(U) LBSD Concept Refinement and pre-Milestone A activities

1-4Q

1-4Q

(U) -- Milestone A

4Q

(U) Conventional ballistic missile system engineering study

3-4Q

1-3Q

(U) Adaptive missile engineering modernization

3-4Q

1-3Q



## UNCLASSIFIED

PE NUMBER: 0603854F

PE TITLE: Wideband MILSATCOM (Space)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603854F Wideband MILSATCOM (Space)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	54.413	92.287	37.672	5.186	5.728	5.809	6.286	Continuing	TBD
4811 Wideband Gapfiller	31.863	88.660	31.013	0.000	0.000	0.000	0.000	0.000	314.976
4870 Command & Control System Consolidated (CCSC)	22.550	3.627	6.659	5.186	5.728	5.809	6.286	Continuing	TBD

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

The Wideband Gapfiller Satellites (WGS) 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 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 Wideband Gapfiller 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.

Due to incorrect installation of rivet nut fasteners and subsequent quality assurance and inspection concerns, the first WGS launch is currently re-scheduled for Jun 07, second satellite launch is Dec 07, and third satellite launch is May 08.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Based on lessons learned from the delays associated with satellites one through three and historic estimates for similar satellite manufacture and test; the production, assembly, integration, and test (AI&T) period for satellites four and five has been extended 15 months. Launches for satellites 4-5 are now 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, Defense Satellite Communications System (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 to support:

WGS: Leveraging commercial technology and practices by modifying commercial satellites to better support unique military requirements

CCS-C: Development phase



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	69.386	93.858	37.672
(U) Current PBR/President's Budget	54.413	92.287	37.672
(U) Total Adjustments	-14.973	-1.571	
(U) Congressional Program Reductions	-0.055	-0.234	
Congressional Rescissions		-1.337	
Congressional Increases			
Reprogrammings	-12.924		
SBIR/STTR Transfer	-1.994		
(U) <u>Significant Program Changes:</u>			
N/A			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4811 Wideband Gapfiller	31.863	88.660	31.013	0.000	0.000	0.000	0.000	0.000	314.976
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Wideband Gapfiller Satellites (WGS) 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 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 Wideband Gapfiller 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.

Due to incorrect installation of rivet nut fasteners and subsequent quality assurance and inspection concerns, the first WGS launch is currently re-scheduled for Jun 07, second satellite launch is Dec 07, and third satellite launch is May 08.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Based on lessons learned from the delays associated with satellites one through three and historic estimates for similar satellite manufacture and test; the production, assembly, integration, and test (AI&T) period for satellites four and five has been extended 15 months. Launches for satellites 4-5 are now scheduled for FY11 and FY12, respectively.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support Unmanned Aerial Vehicle (UAV) Bypass (Airborne Intelligence, Surveillance and Reconnaissance support) non-recurring engineering for satellites 4 and 5	14.000	0.000	0.000
(U) Perform efforts such as payload/production studies (e.g., related to parts obsolescence), integration, tests, and support development of WGS control system	17.195	11.300	2.442
(U) Provide Program Office Support	0.668	0.860	0.629
(U) Perform parts obsolescence redesign for satellites 4 and 5, non-recurring engineering and other related activities		76.500	27.942
(U) Total Cost	31.863	88.660	31.013

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, PE 0303600F, WGS, P-19,20	35.370	72.026	414.351	323.670	22.629	36.222	41.595	61.400	1,600.190
(U) OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	21.528	7.172			0.000	55.464



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

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

(U) OPAF, PE 030600F, CCS-C	3.328	0.286	0.000	0.000	17.137
BA-11 Line-66					

(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 proposed. Contract award for satellites 4 and 5 (with option for 6th satellite) is expected in 2nd Qtr FY06.

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



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Parts Obsolescence Redesign	FPIF					76.500	Jan-06	27.942	Dec-06		104.442	
WGS Satellite EMD (satellites 1-3)	FFP		143.013								143.013	
UAV Bypass NRE	FFP			14.000	Jan-05						14.000	
Payload/Production Studies	Various			17.195	Dec-04	11.300	Dec-05	2.442	Dec-06		30.937	
Subtotal Product Development			143.013	31.195		87.800		30.384		0.000	292.392	0.000
Remarks:												
(U) <u>Support</u>												
JTEO	PR		6.618								6.618	
Pre-EMD	Form 277		5.579								5.579	
Program Support	Various		8.235	0.668	Jan-05	0.860	Jan-06	0.629	Jan-07		10.392	
Subtotal Support			20.432	0.668		0.860		0.629		0.000	22.589	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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) Total Cost			163.445	31.863		88.660		31.013		0.000	314.981	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

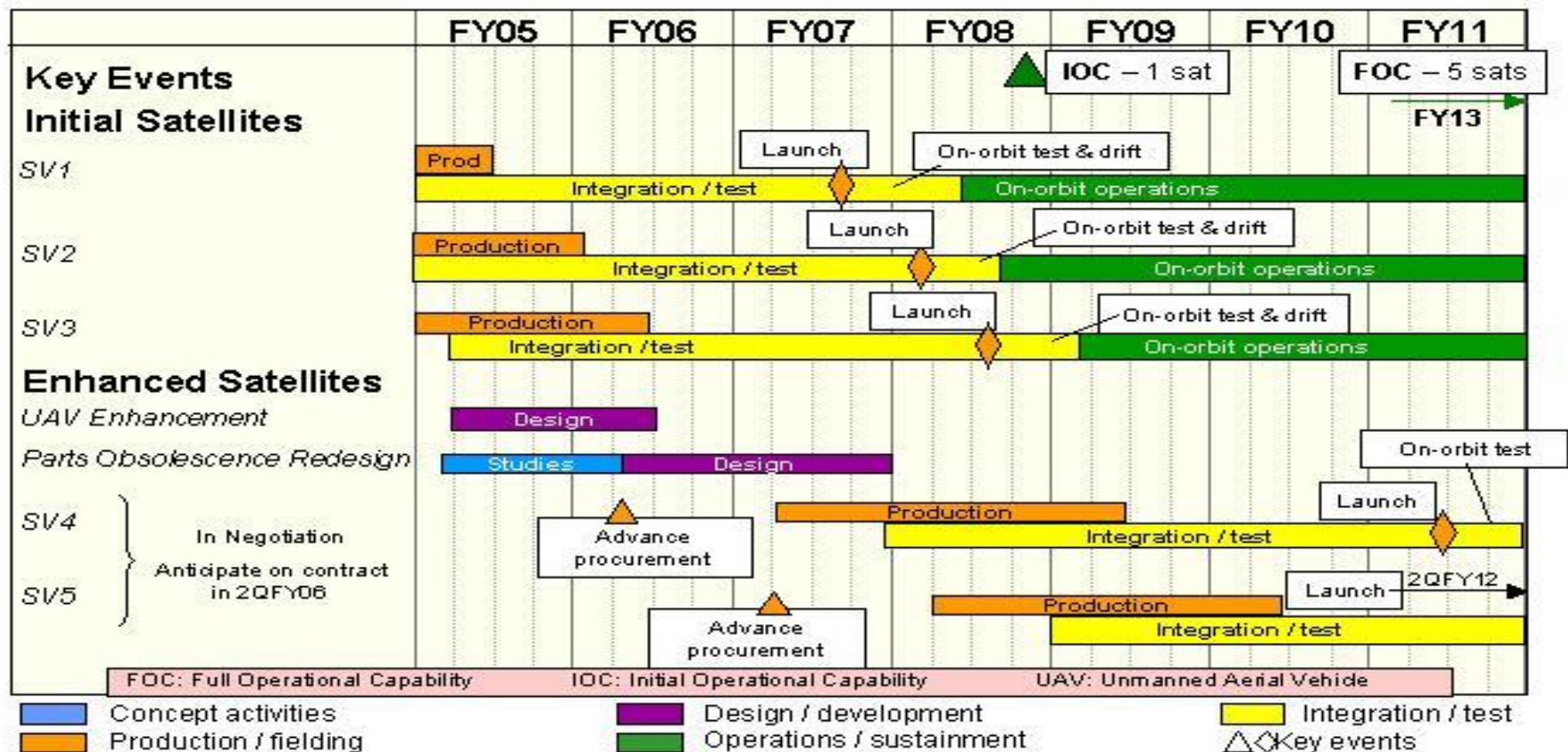
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Initiated Unmanned Aerial Vehicle (UAV) Bypass (AISR support) for Sats 4 and 5

2Q

(U) Initiate parts obsolescence redesign

2Q

(U) Launch satellite 1

3Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4870 Command & Control System Consolidated (CCSC)	22.550	3.627	6.659	5.186	5.728	5.809	6.286	Continuing	TBD
Quantity of RDT&E Articles	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 Gapfiller System (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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality Milstar.	19.175	2.548	4.415
(U) Continue Program Office and other related support activities	3.375	1.079	2.244
(U) Total Cost	22.550	3.627	6.659

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) OPAF, PE 030600F, CCS-C BA-11 Line-66	3.328	0.286	0.000	0.000	0.000	0.000	0.000	0.000	17.137

(U) **D. Acquisition Strategy**

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



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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	50.107	19.175	Oct-04	2.548	Oct-05	4.415	Oct-06	Continuing	TBD	
Subtotal Product Development			56.907	19.175		2.548		4.415		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
CCSC Program Support Cost			13.605	3.375	Oct-04	1.079	Oct-05	2.244	Oct-06	Continuing	TBD	
Subtotal Support			13.605	3.375		1.079		2.244		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			70.512	22.550		3.627		6.659		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

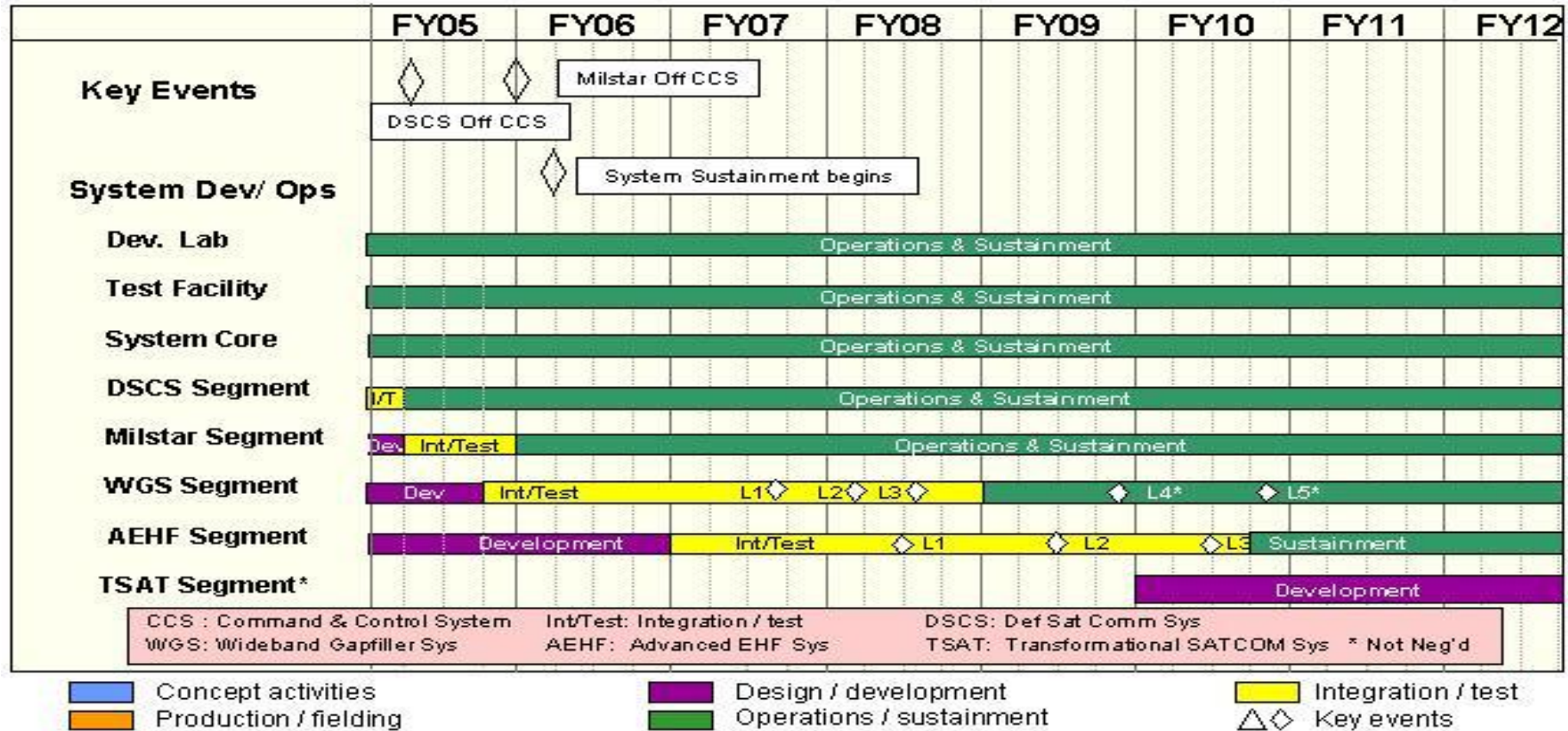
BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)(U) Schedule ProfileFY 2005FY 2006FY 2007(U) Completed Defense Satellite Communications System (DSCS) command and control  
functionality

1Q

(U) Began Wideband Gapfiller System (WGS) Integration &amp; Test

4Q

(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) Begin AEHF Integration &amp; Test

1Q



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## UNCLASSIFIED

PE NUMBER: 0603858F  
PE TITLE: Space Radar

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603858F Space Radar					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	67.820	98.253	266.401	565.470	1,068.093	1,316.383	1,410.309	Continuing	TBD
A004 SBR Concept and Technology Development	67.820	98.253	266.401	565.470	1,068.093	1,316.383	1,410.309	Continuing	TBD

(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 defense, 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. SR will be supported by a ground infrastructure and a space and terrestrial communications network that will permit SR data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. The SR system will be jointly managed and operated directly under the authorities of the DNI and the SECDEF. The SR system will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. SR's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict.

The 2007 program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation. The program integrates National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are addressed and the best available technologies explored for application. The program will implement a demonstration 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), 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.

R-1 Shopping List - Item No. 53-2 of 53-8

Exhibit R-2 (PE 0603858F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603858F Space Radar

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	73.847	225.839	356.178
(U) Current PBR/President's Budget	67.820	98.253	266.401
(U) Total Adjustments	-6.027	-127.586	
(U) Congressional Program Reductions	-0.057	-126.162	
Congressional Rescissions		-1.424	
Congressional Increases			
Reprogrammings	-4.000		
SBIR/STTR Transfer	-1.970		

(U) **Significant Program Changes:**

Given Congressional language and funding reductions in FY05/06, SR has re-focused the program to address stated concerns. Program planning is focused to satisfy DoD and the Intelligence Community's functional concepts addressing military, national, and civil missions. The development efforts have been adjusted to emphasize an integrated demonstration framework which maximizes the use of ground, airborne, and space assets to reduce risk, mature radar technologies, implement concepts for horizontal integration, mature data processing and exploitation techniques, conduct CONOPS experimentation, and seek new technology breakthroughs. These activities will significantly increase confidence in technology maturation, program cost estimating, and payload development.

Affordability continues to be a paramount consideration and the program has made major changes to ensure that it is responsive to that need. Specifically, SR is pursuing the path 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&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603858F Space Radar

## PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A004 SBR Concept and Technology Development	67.820	98.253	266.401	565.470	1,068.093	1,316.383	1,410.309	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(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 defense, 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. SR will be supported by a ground infrastructure and a space and terrestrial communications network that will permit SR data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. The SR system will be jointly managed and operated directly under the authorities of the DNI and the SECDEF. The SR system will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. SR's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict.

The 2007 program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation. The program integrates National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are addressed and the best available technologies explored for application. The program will implement a demonstration 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), 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Invest in technology and concept definition activities to include but not limited to up-front, in-depth system engineering, and risk reduction activities. Continue technology risk reduction activities on Electronically Scanned Array (ESA) and on-board processing efforts that include end-to-end payload test beds and prototype development of high-risk signal processing algorithms, expanded tactical integration effort that includes interface identification and definition, and support an Advanced Concept Technology Demonstration (ACTD). Additional near term efforts include technology risk reduction demonstrations, program system engineering, as well as, system-of-systems engineering activities, wargames and experiments, and Modeling & Simulation (M&S) capability, to include access to operational Command, Control, Communications, and Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems for enhanced data exploitation.	58.733	87.786	249.801



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

(U) Program Support activities include but are not limited to acquisition planning, schedule management, requirements/CONOPS development, source selection, and financial management.

9.087

10.467

16.600

(U) Total Cost

67.820

98.253

266.401

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) 0901211F Planning and Design

3.000

Continuing

TBD

(U) 0901212F

32.500

Continuing

TBD

(U) **D. Acquisition Strategy**

The Air Force will lead the SR Integrated Program Office (IPO) with the National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA), and the Office of the Director of National Intelligence (ODNI) as the principal 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 is planning to use evolutionary acquisition during the design, build, and operations phases to continue technical maturation and risk reduction throughout the life of the program.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Phase A Concept Development/Technology Risk Reduction Activities	Various Contracts	Various	189.821	58.733	Oct-04	87.786	Oct-05	249.801	Oct-06	Continuing	TBD	
Subtotal Product Development			189.821	58.733		87.786		249.801		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SMC, ESC, AFSPC, NRO & NGA	Various Contracts	Various	20.706	9.087	Oct-04	10.467	Oct-05	16.600	Oct-06	Continuing	TBD	
Subtotal Support			20.706	9.087		10.467		16.600		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
N/A											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			210.527	67.820		98.253		266.401		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

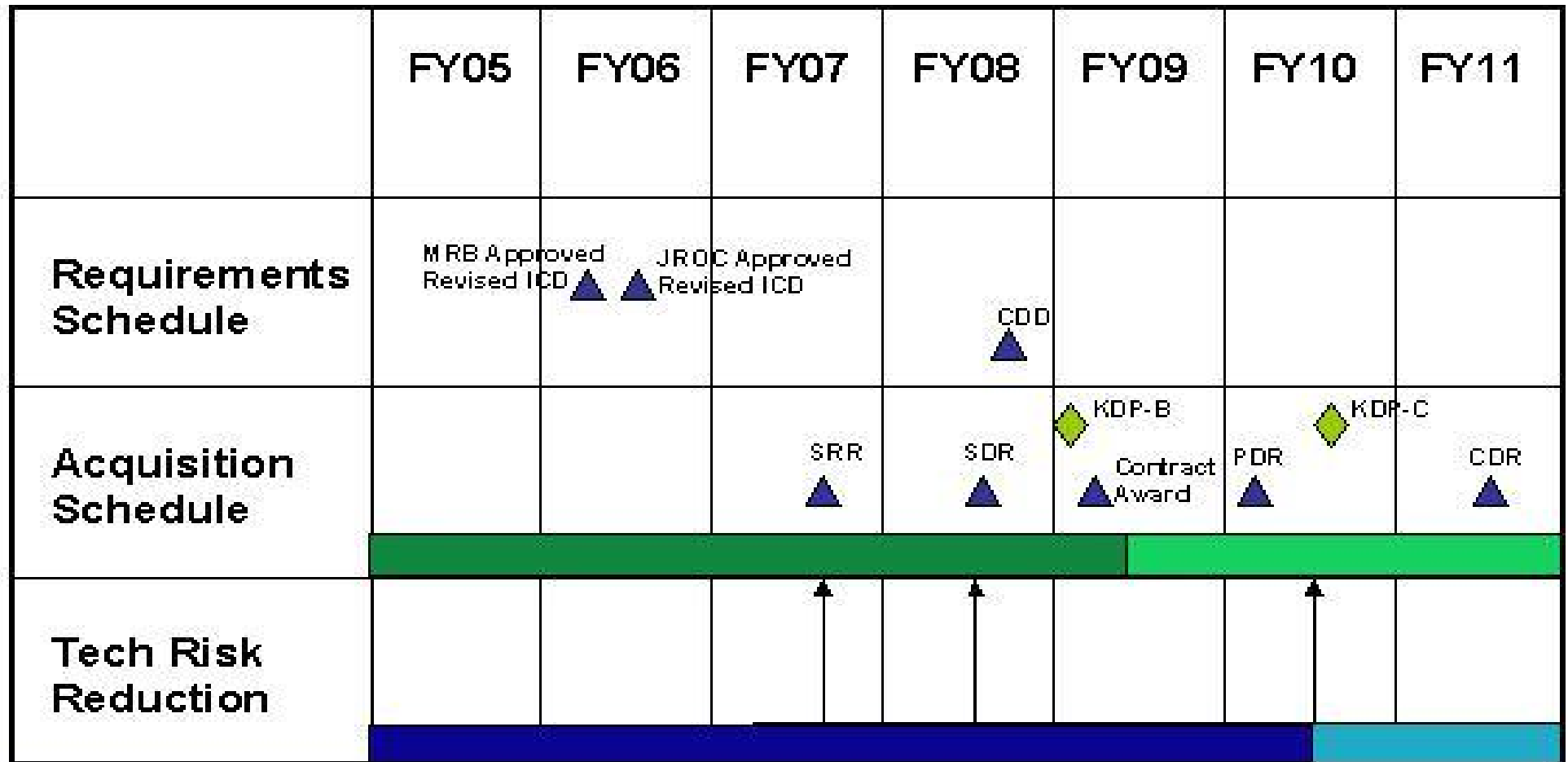
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development



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



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Prime Contractor Program Management Reviews (PMR)

1-4Q

1-4Q

1-4Q

(U) Government Reference Architecture (GRA) Update

1Q

(U) Program Office Estimate (POE ) Update

1Q

(U) JROC MRB Approved Revised ICD

2Q

(U) ACTD Military Utility Assessment

2Q

(U) CONOPS Revision B

4Q

(U) System Requirements Review (SRR)

3Q

(U) Cost Analysis Requirement Description (and POE update)

4Q



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## UNCLASSIFIED

PE NUMBER: 0603859F  
PE TITLE: Pollution Prevention

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603859F Pollution Prevention					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.768	10.483	2.853	2.808	2.862	2.928	2.979	Continuing	TBD
4852 Pollution Prevention	4.768	10.483	2.853	2.808	2.862	2.928	2.979	Continuing	TBD
(U) <b><u>A. Mission Description and Budget Item Justification</u></b>									
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><u>B. Program Change Summary (\$ in Millions)</u></b>									
						<u>FY 2005</u>	<u>FY 2006</u>		<u>FY 2007</u>
(U) Previous President's Budget						2.692	2.735		2.821
(U) Current PBR/President's Budget						4.768	10.483		2.853
(U) Total Adjustments						2.076	7.748		
(U) Congressional Program Reductions						-0.051	-0.152		
Congressional Rescissions									
Congressional Increases						2.800	7.900		
Reprogrammings						-0.520			
SBIR/STTR Transfer						-0.153			
(U) <b><u>Significant Program Changes:</u></b>									
Program increased in FY05 and FY06 due to two and three Congressional Inserts respectively.									

R-1 Shopping List - Item No. 54-2 of 54-6

Exhibit R-2 (PE 0603859F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603859F Pollution Prevention

## PROJECT NUMBER AND TITLE

4852 Pollution Prevention

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4852 Pollution Prevention	4.768	10.483	2.853	2.808	2.862	2.928	2.979	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	0.821	0.956	1.079
(U) Clean Air Act Compliance Burden Reduction	0.934	1.017	1.109
(U) O2 Diesel Air Quality Improvement (Congressional Insert)	0.963	1.100	0.000
(U) Laser Applications to Improve AF Operations and Readiness (Congressional Insert)	1.489	3.000	0.000
(U) Advanced Power Technologies (Congressional Insert)	0.000	3.800	0.000
(U) Clean Water Act Compliance Burden Reduction	0.170	0.185	0.201
(U) Hazardous Material Use Reduction	0.301	0.328	0.358
(U) Other	0.090	0.097	0.106
(U) Total Cost	4.768	10.483	2.853

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Not Applicable									

(U) **D. Acquisition Strategy**

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



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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 Subtotal Product Development Remarks:	Various	Various	2.989 2.989	1.716 1.716	Apr-05	2.944 2.944	Apr-06	0.792 0.792	Apr-07	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Support</u> Air Force Research Lab Subtotal Support Remarks:	Various	Various	2.715 2.715	1.175 1.175	Apr-05	2.472 2.472	Apr-06	0.664 0.664	Apr-07	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Management</u> Air Force Research Lab Subtotal Management Remarks:	Various	Various	0.407 0.407	0.131 0.131	Sep-05	0.575 0.575	Sep-06	0.152 0.152	Sep-07	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Prototype</u> Air Force Research Lab Subtotal Prototype Remarks:	Various	Various	4.385 4.385	1.746 1.746	Apr-05	4.492 4.492	Apr-06	1.245 1.245	Apr-07	Continuing Continuing	TBD TBD	TBD TBD
(U) Total Cost			10.496	4.768		10.483		2.853		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

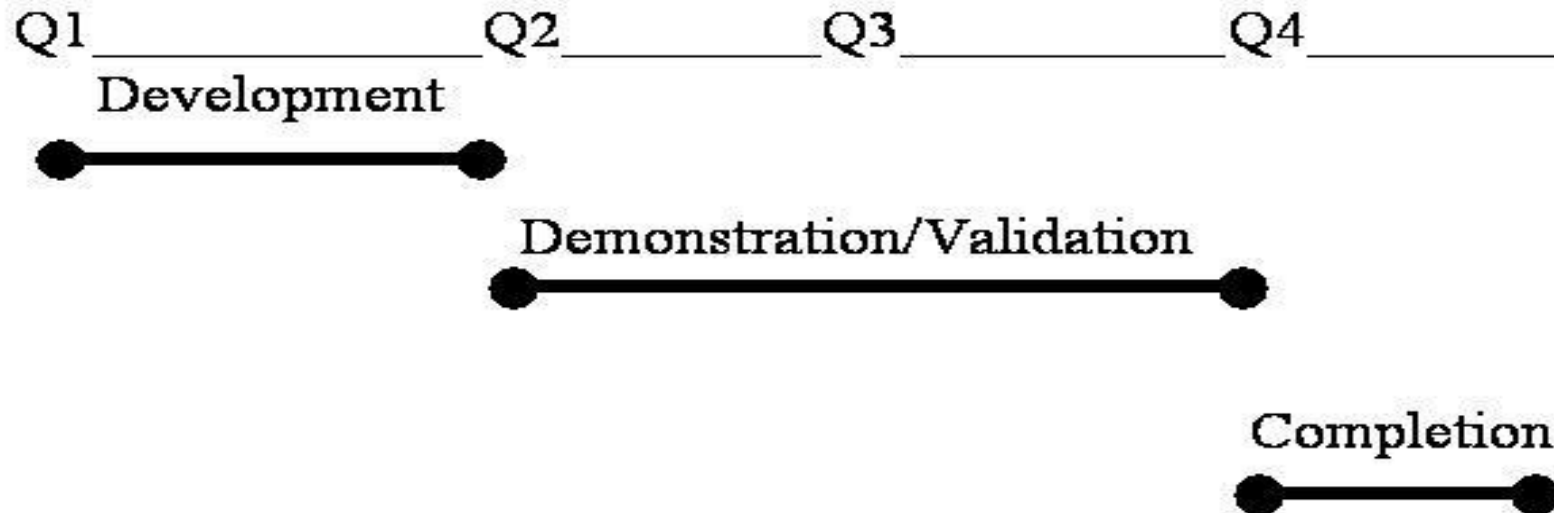
PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

# Pollution Prevention Demonstration Schedules





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Development

1Q

1Q

1Q

(U) Prototype

2-3Q

2-3Q

2-3Q

(U) Contract Completion

4Q

4Q

4Q



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## UNCLASSIFIED

PE NUMBER: 0603860F

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

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

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

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.623	10.951	10.011	10.169	19.130	4.845	4.357	Continuing	TBD
4652 Precision Landing Systems	12.623	10.951	10.011	10.169	19.130	4.845	4.357	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, and Army. The AF is designated as the lead service to develop the common system architecture. Following the Milestone B decision in FY07, 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 conventional and special operations missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will enhance DoD's ability to obtain civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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. 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 airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exists. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and provide interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance 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, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 13,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.

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&amp;E Budget Item Justification

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February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

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

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	16.784	11.211	18.684
(U) Current PBR/President's Budget	12.623	10.951	10.011
(U) Total Adjustments	-4.161	-0.260	
(U) Congressional Program Reductions		-0.100	
Congressional Rescissions	-0.667	-0.160	
Congressional Increases			
Reprogrammings	-3.000		
SBIR/STTR Transfer	-0.494		

(U) **Significant Program Changes:**

FY05/FY07: Reductions to fund higher AF and DoD priorities. Milestone B moved from 3QFY06 to 3QFY07 to accommodate Navy Technology Maturation.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

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

## PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4652 Precision Landing Systems	12.623	10.951	10.011	10.169	19.130	4.845	4.357	Continuing	TBD
Quantity of RDT&E Articles	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, and Army. The AF is designated as the lead service to develop the common system architecture. Following the Milestone B decision in FY07, 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 conventional and special operations missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will enhance DoD's ability to obtain civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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. 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 airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exists. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and provide interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance 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, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 13,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.

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.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develop land-based specifications	2.367		
(U) Develop JPALS common documents	0.067		
(U) Develop JPALS CONOPS	0.750		
(U) Perform Modeling & simulation studies	2.476	0.750	

Project 4652

R-1 Shopping List - Item No. 55-4 of 55-9

Exhibit R-2a (PE 0603860F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

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

## PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Perform Aircraft risk (anti-jam) analysis	3.327	0.350	
(U) Perform studies and analyses to refine LDGPS architecture	0.238	1.000	
(U) MS B preparation	0.700	2.911	
(U) Prepare for system demonstration	0.670	0.250	
(U) Perform aircraft integration studies	1.515	1.000	
(U) Develop test program	0.513	0.250	0.250
(U) Develop land based allocation requirements		2.220	3.970
(U) Design land based functionality		2.220	3.970
(U) Perform airborne system upgrade demonstration			1.821
(U) Total Cost	12.623	10.951	10.011

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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. After Milestone B, we will award one or more Cost Plus Award Fee (CPAF) contracts to complete the Systems Demonstration & Development (SDD) efforts.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;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</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> NAVY PM and Eng Support	MIPR	Navy OMA21381, NAS Pax River, MD	16.499	0.083	Jan-05	0.105	Jan-06	0.107	Jan-07	Continuing	TBD	TBD
ESC FFRDC Engineering Support	C/CPAF	MITRE Corporation, Bedford, MA	5.052	0.952	Jan-05	1.277	Jan-06	1.415	Jan-07	Continuing	TBD	TBD
Specialized Cost Services	C/IDIQ	MCR, Lexington, MA	1.033	0.487	May-05	0.631	May-06	0.086	May-07	Continuing	TBD	TBD
Initial Capabilities Document (ICD) Prep/Capabilities Development Document (CDD) Prep	C/T&M	Whitney, Bradley & Brown Inc., Vienna, VA	1.100	0.550	Apr-05					0.000	1.650	1.650
Common Documents Task	C/T&M	AES, California, MD		0.680	Aug-04					0.000	0.680	0.680
Common Architecture Task	C/T&M	AES, California, MD		0.238	Sep-04					0.000	0.238	0.238
Modeling & Simulation	C/T&M	AES, California, MD		0.769	Jan-05					0.000	0.769	0.769
Finalize Land-Based Specifications	C/T&M	AES, California, MD		2.369	Nov-04					0.000	2.369	2.974
POE Software Sizing	C/T&M	Galorath, El Segundo, CA		0.500	Apr-05					0.000	0.500	0.500
Develop JPALS CONOPS	C/T&M	AES, California, MD		0.750	Feb-05					0.000	0.750	0.750
Aircraft Integration Studies	C/T&M	AES, California, MD		1.515	Apr-05					0.000	1.515	1.515
Develop JPALS Ground & Air Segments	TBD	TBD				4.865	May-06	3.522	May-07	Continuing	TBD	TBD
Demonstration Airborne System Upgrade	TBD	TBD						1.821	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			23.684	8.893		6.878		6.951		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Flight Test Support	MIPR	46TG/XPRF, Holloman, NM	1.118	0.005	Mar-05	0.250	Mar-06	0.200	Mar-07	0.000	1.573	4.087
Subtotal Test & Evaluation			1.118	0.005		0.250		0.200		0.000	1.573	4.087
Remarks:												
(U) <u>Management</u> ESC FFRDC	C/T&M	MITRE Corp,	1.286	0.285	Jan-05	0.290	Jan-06	0.295	Jan-07	Continuing	TBD	TBD
Project 4652												

R-1 Shopping List - Item No. 55-6 of 55-9

Exhibit R-3 (PE 0603860F)



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

Program Management Support	C/T&M	Bedford, MA ESC/ITSP II (Various), Bedford, MA	12.829	1.540	May-05	1.798	May-06	2.033	May-07	Continuing	TBD	TBD
GA SPO Operations	Various	Various	2.019	1.900	May-05	1.735	May-06	0.532	May-07	Continuing	TBD	TBD
Subtotal Management			16.134	3.725		3.823		2.860		Continuing	TBD	TBD
Remarks:												
(U)											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			40.936	12.623		10.951		10.011		Continuing	TBD	TBD



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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

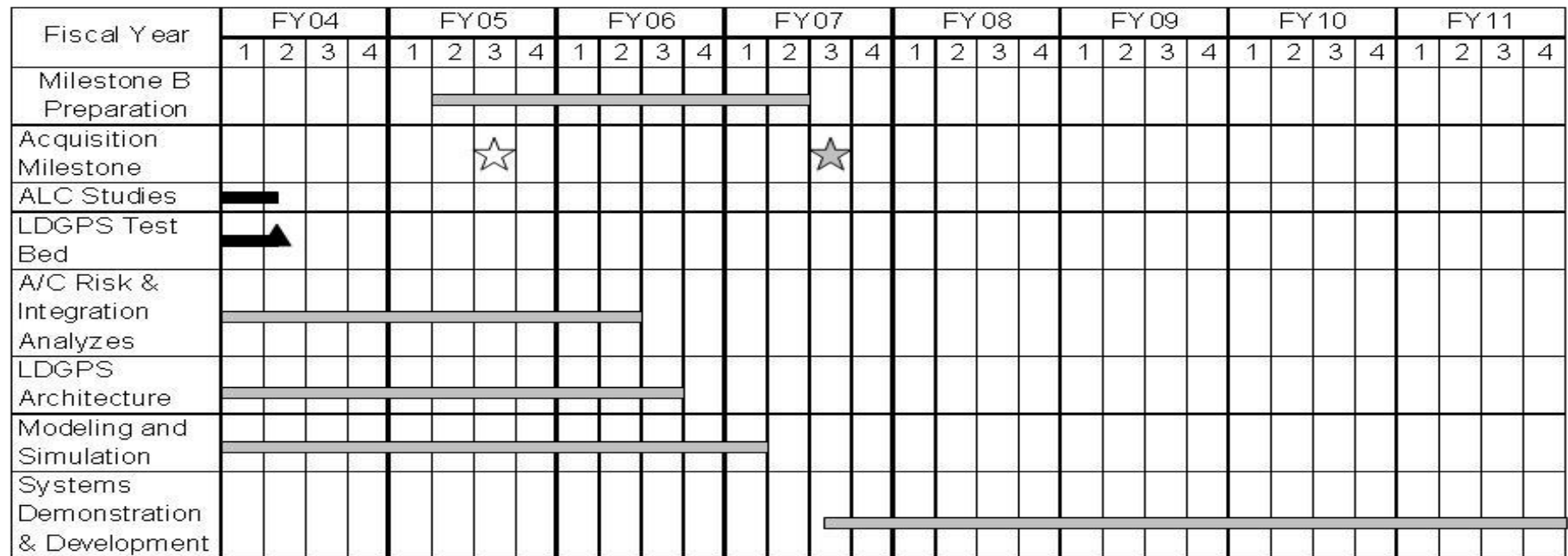
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems



As of January 2006



Acquisition Strategy Review (ASR)



Milestone B



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

UNCLASSIFIED



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Begin Milestone B prep work

2Q

(U) Acquisition Strategy Review (ASR)

3Q

(U) Complete aircraft risk (anti-jam) and integration analyses

2Q

(U) Complete LDGPS architecture studies and analyses

3Q

(U) Complete modeling and simulation

1Q

(U) Complete Milestone B prep work

2Q

(U) Milestone B

3Q

(U) Begin Systems Development and Design (SDD)

3Q



## UNCLASSIFIED

PE NUMBER: 0604015F

PE TITLE: Next Generation Long Range Strike (NGLRS)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0604015F Next Generation Long Range Strike (NGLRS)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.877	24.777	25.598	64.514	103.878	305.670	1,103.234	Continuing	TBD
3308 Next Generation Bomber	28.877	24.777	25.598	64.514	103.878	305.670	1,103.234	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	29.735	25.135	69.799
(U) Current PBR/President's Budget	28.877	24.777	25.598
(U) Total Adjustments	-0.858	-0.358	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.023	-0.358	
Congressional Increases			
Reprogrammings	-0.835		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congressionally directed program in FY 2004 and FY 2005. In FY 2006 and out, the Air Force added funding to continue next generation Long Range Strike efforts in support of Air Force Concept of Operations. If required, funding will be adjusted after the Analysis of Alternatives is complete and the Department determines which alternatives it will pursue.

C. Performance Metrics  
Under Development.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

## PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3308 Next Generation Bomber	28.877	24.777	25.598	64.514	103.878	305.670	1,103.234	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.	28.877	24.777	25.598
(U) In FY 2005: Refine system concepts and operational/system architectures. Perform Joint Capabilities Analysis. Formulate integrated concept for auto-target recognition, data fusion, and crew interface technologies. Test materials and structures for performance at high temperatures associated with high-speed platforms. Develop engine inlet and nozzle flowpath components for high-speed variable cycle propulsion. Develop fuel-cooled turbine components for improved range.			
(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 flowpath 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			



## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604015F Next Generation Long  
Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

Development Strategy (TDS). Initiate projects to mature key technologies including mitigating risk by developing and demonstrating key concept attributes of the preferred option. Begin initial development of acquisition documentation including, as a minimum: Life Cycle Management Plan, Systems Engineering Plan, Modeling and Simulation Support Plan, Capability Development Document and Test and Evaluation Strategy. Initiate execution of the Modeling and Simulation Support Strategy 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 identification capability. Develop high temperature and variable cycle engine core components, sensor/aperture integration technology, and advanced weapon integration technology

(U) Total Cost

28.877

24.777

25.598

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) N/A

(U) **D. Acquisition Strategy**

Acquisition strategy will be approved at Milestone A entry into technology development.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604015F Next Generation Long  
Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Long Range Strike</u>												
Concept Exploration and Refinement	TBD	TBD		28.877		24.777		25.598		Continuing	TBD	
Subtotal Long Range Strike			0.000	28.877		24.777		25.598		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	28.877		24.777		25.598		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

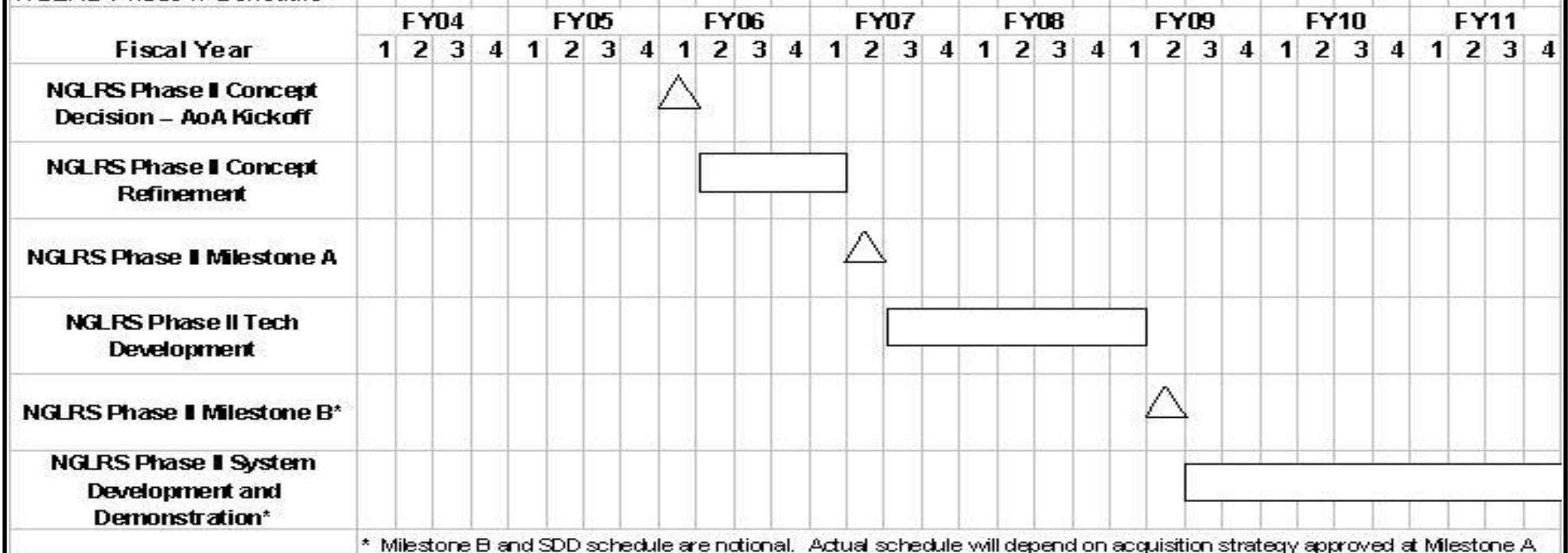
PE NUMBER AND TITLE

0604015F Next Generation Long  
Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

## NGLRS Phase II Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604015F Next Generation Long  
Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Enter Concept Refinement Phase -- AoA Start

1Q

(U) AoA Completion

2Q

(U) Enter Technology Development Phase - Milestone A

2Q



## UNCLASSIFIED

PE NUMBER: 0604327F

PE TITLE: Hardened Target Munitions

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0604327F Hardened Target Munitions

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.239	3.943	0.000	0.000	0.000	0.000	0.000	0.000	22.425
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	5.239	3.943	0.000	0.000	0.000	0.000	0.000	0.000	22.425

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

This program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. The Air Force is improving capability to attack hardened and/or deeply buried targets during adverse environmental conditions. The performance of the current 4,700-lb BLU-122, used on the GBU-28 GPS/laser-guided bomb, is being greatly enhanced through the design modification of the BLU-122 warhead, improving its penetration, lethality, and survivability. This modification will increase the number of deeply buried targets held at risk. In addition, some existing targets held at risk will require fewer weapons, therefore reducing the number of missions necessary to defeat a target. The MIL-STD 1760 conduit will also be extended to connect the guidance system to the fuze to support a future in-flight fuze reprogramming capability. The existing GBU-28 B/B--B-2 interface will be maintained and the GBU-28 will also be integrated onto the F-15E through the Joint Direct Attack Munition (JDAM) Smart Unknown Weapon Interface. This program was a NEW START in FY03. The program is in Budget Activity 04 (BA 04) because the program will develop and demonstrate a hard target munition capability to defeat hard and deeply buried targets not currently held at risk. This program entered initial production during the last two quarters of FY05.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	5.239	0.000	0.000
(U) Current PBR/President's Budget	5.239	3.943	0.000
(U) Total Adjustments	0.000	3.943	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.057	
Congressional Increases		4.000	
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	5.239	3.943	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		

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

This program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. The Air Force is improving capability to attack hardened and/or deeply buried targets during adverse environmental conditions. The performance of the current 4,700-lb BLU-122, used on the GBU-28 GPS/laser-guided bomb, is being greatly enhanced through the design modification of the BLU-122 warhead, improving its penetration, lethality, and survivability. This modification will increase the number of deeply buried targets held at risk. In addition, some existing targets held at risk will require fewer weapons, therefore reducing the number of missions necessary to defeat a target. The MIL-STD 1760 conduit will also be extended to connect the guidance system to the fuze to support a future in-flight fuze reprogramming capability. The existing GBU-28 B/B--B-2 interface will be maintained and the GBU-28 will also be integrated onto the F-15E through the Joint Direct Attack Munition (JDAM) Smart Unknown Weapon Interface. This program was a NEW START in FY03. The program is in Budget Activity 04 (BA 04) because the program will develop and demonstrate a hard target munition capability to defeat hard and deeply buried targets not currently held at risk. This program entered initial production during the last two quarters of FY05.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Design warhead, integrate explosive and upgrade case material	0.404		
(U) Weapon system and aircraft integration	0.925		
(U) Plan, prepare, and test for redesigned of warhead	3.383		
(U) Perform field agency activities, including project office and computer support to manage the Hardened Target Munitions program	0.260		
(U) System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototype warhead designs	0.267		
(U) Physics of Penetrating Geologic Media Study		3.943	
(U) Total Cost	5.239	3.943	0.000



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

4641 Hard and Deeply Buried Target  
Defeat System (HDBTDS)(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement of Ammunition, Air Force (PE 0208030F)	18.815	32.000	32.000					0.000	82.815

(U) **D. Acquisition Strategy**

The warhead design contract was awarded competitively and the weapon system modification and integration contract was awarded sole source because the GBU-28 was developed at contractor expense and the government does not own the technical data package.

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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
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)			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
General Dynamics Ordnance and Tactical Systems	CPFF/PI	Niceville, FL	5.052	0.139						0.000	5.191	5.720
Raytheon Company	T&M	Tucson, AZ	0.332							0.000	0.332	0.332
Raytheon Company	CPIF	Tucson, AZ	3.676	1.983							5.659	4.953
Subtotal Product Development			9.060	2.122		0.000		0.000		0.000	11.182	11.005
Remarks:	GD Contract was awarded in June 2003; Raytheon Contract awarded in January 2004.											
(U) <u>Support</u>												
Laboratory Support (AFRL Eglin AFB,FL)			0.475	0.000							0.475	
Air Armament Center SPO (AAC/YU)	MIPR	Various	0.482	0.260						0.000	0.742	
Warhead Pallets (AAC/YEC Eglin AFB, FL)	Various	Eglin AFB, FL	0.143	0.000						0.000	0.143	
Support Contracts	AFMC Form 277	Eglin AFB, FL	1.519	0.215	Oct-04					0.000	1.734	
Subtotal Support			2.619	0.475		0.000		0.000		0.000	3.094	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Eglin Ground Test Support			1.339	0.454							1.793	
Eglin Flight Test Support	AFMC Form 277	Eglin AFB, FL	0.494	1.213						0.000	1.707	
Defense Threat Reduction Agency (DTRA)	MIPR	White Sands Missile Range, NM	0.368	0.046	Dec-04					0.000	0.414	
Applied Research Associates - Test Design Support	MIPR	Albuquerque, NM	0.360	0.000							0.360	
B-2 Tests	MIPR	Edwards CA	0.874	0.000							0.874	
Naval Weapons Center - Arena and IM Testing	MIPR	China Lake, CA	0.305	0.044							0.349	
B-2 System Program Office (SPO)/SK Test Support	MIPR	Wright Patterson AFB, OH	0.577	0.885							1.462	
Subtotal Test & Evaluation			4.317	2.642		0.000		0.000		0.000	6.959	0.000
Remarks:												
(U) <u>Capability Integration</u>												
Penetrator Study			0.000	0.000		3.943				0.000	3.943	
Subtotal Capability Integration			0.000	0.000		3.943		0.000		0.000	3.943	0.000
Remarks:												
(U) Total Cost			15.996	5.239		3.943		0.000		0.000	25.178	11.005
Project 4641 R-1 Shopping List - Item No. 57-4 of 57-6 Exhibit R-3 (PE 0604327F)												

Project 4641

R-1 Shopping List - Item No. 57-4 of 57-6

Exhibit R-3 (PE 0604327F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

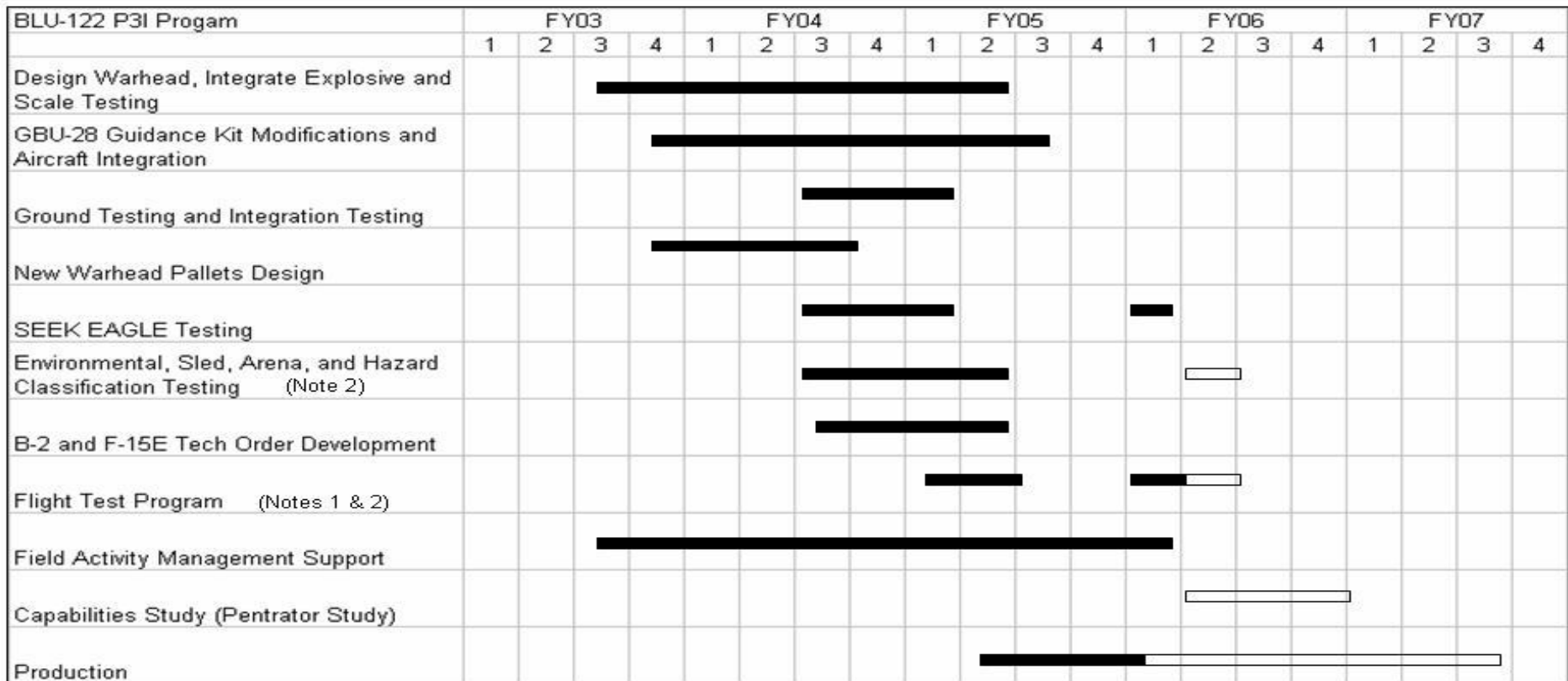
PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

4641 Hard and Deeply Buried Target Defeat System (HDBTDS)

# BLU-122 Program



As Of: JAN 06



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

4641 Hard and Deeply Buried Target  
Defeat System (HDBTDS)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Design Warhead, Integrate Explosive and Scale Testing (3Q FY03)

1-2Q

(U) GBU-28 Guidance Kit Modifications and Aircraft Integration (4Q FY03)

1-3Q

(U) Ground Testing and Integration Testing

1Q

(U) SEEK EAGLE Testing

1Q

1Q

(U) Environmental, Sled, Arena, and Hazard Classification Testing (Note 2)

1-2Q

2Q

(U) B-2 and F-15E Tech Order Development

1-2Q

(U) Flight Test Program (Notes 1 and 2)

1-2Q

1-2Q

(U) Field Activity Management Support

1-4Q

1Q

(U) Penetrator Study

2-4Q

Production 3Q FY2005 through 4Q FY2007



## UNCLASSIFIED

PE NUMBER: 0604400F

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

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS)						
Cost (\$ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost		0.000	227.857	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5058	Unmanned Combat Air Vehicle (UCAV)	0.000	227.857	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) <b><u>A. Mission Description and Budget Item Justification</u></b>										
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><u>B. Program Change Summary (\$ in Millions)</u></b>										
						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>		
(U) Previous President's Budget							272.300	400.100		
(U) Current PBR/President's Budget						0.000	227.857	0.000		
(U) Total Adjustments						0.000	-44.443			
(U) Congressional Program Reductions							-41.150			
Congressional Rescissions							-3.293			
Congressional Increases										
Reprogrammings										
SBIR/STTR Transfer										
(U) <b><u>Significant Program Changes:</u></b>										
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.										
Congressional Program Reductions contains \$-1.150M for Defense-wide Change Proposals.										
R-1 Shopping List - Item No. 58-1 of 58-6										
Exhibit R-2 (PE 0604400F)										



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5058 Unmanned Combat Air Vehicle (UCAV)	0.000	227.857	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	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) Continue development of J-UCAS systems, specifically the Boeing and Northrop Grumman demonstrator programs, as well as the common operating system and sensors

(U) Total Cost

FY 2005FY 2006FY 2007

227.857

0.000

0.000

227.857

0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Defense-Wide RDT&E (PE0603400D8Z)	344.344	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Defense-Wide RDT&E (PE0604400D8Z)	210.944	0.000	0.000	0.000	0.000	0.000	0.000		
(U) AF RDT&E (PE0603400F)	0.000	76.691	0.000	0.000	0.000	0.000	0.000		
(U) NAVY RDT&E (PE0604402N)	0.000	0.000	239.000	310.000	369.400	491.100	421.000	Continuing	TBD



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle  
(UCAV)(U) D. Acquisition Strategy

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



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

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

## PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle  
(UCAV)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
X-45; Common Operating System	Section 845, OTA Agreement	Boeing Co, St. Louis, MO				98.650					98.650	
X-47; Common Operating System	Section 845, OTA Agreement	Northrop Grumman, El Segundo, CA				87.797					87.797	
Common Operating System Integrator/Broker	Section 845, OTA Agreement	Johns Hopkins University Applied Physics Lab, Laurel Md.				5.310					5.310	
Common Systems & Technologies	Multiple	Various									0.000	
Subtotal Product Development			0.000	0.000		191.757		0.000		0.000	191.757	0.000
Remarks:												
(U) <u>Support</u>												
Other Gov't Costs						26.720					26.720	
Subtotal Support			0.000	0.000		26.720		0.000		0.000	26.720	0.000
Remarks:												
(U) <u>Test &amp; 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	0.000		9.380		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
Remarks:												
(U) Total Cost			0.000	0.000		227.857		0.000		0.000	227.857	0.000



Exhibit R-4, RDT&E Schedule Profile		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>	PROJECT NUMBER AND TITLE <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>
<p>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.</p>		

Project 5058

R-1 Shopping List - Item No. 58-5 of 58-6

Exhibit R-4 (PE 0604400F)



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle  
(UCAV)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) X-45A Flight Demonstrations Conclude

4Q

(U) Common Operating System Build 1 Begin

4Q

(U) Common Operating System Build 0 Complete

1Q

(U) X-47B Critical Design Review Complete

3Q



**UNCLASSIFIED**

**TERMINATION OF INVESTMENT-RELATED PROGRAMS**

**FY 2007 President's Budget**

**(Dollars in Millions)**

PE	BPAC	APPN	FY 2005		FY 2006		FY 2007		FY 2008		FY 2009		FY 2010		FY 2011	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0604400F	645058	3600	0.000	0	227.857	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0

**Effort Title**

Unmanned Combat Air Vehicle (UCAV)

**Program Description**

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.

**Status to Date**

First flight of the X-45A took place in May 2002. In March 2004 the X-45A successfully completed an inert GPS-guided bomb demonstration and went on to demonstrate a multi-vehicle flight test in August 2004. In December 2004 the X-45A successfully demonstrated a beyond line-of-sight SATCOM handoff and a multi-vehicle taxi demonstration. The X-45A demonstration program, which included 63 test flights and 63.4 flight hours, was successfully completed in August 2005. The X-45C passed mid-term design review in December 2003, the first X-45C airframe was jig loaded in June 2004 and the Final Design Review was completed in July 2005. The first flight of the X-47A occurred in February 2003. The X-47B preliminary design review was held in March 2005 and technical baseline review occurred in October 2005.

**Rationale for Termination**

The 2005 Quadrennial Defense Review (QDR) of the future force requirements for the United States military recommended termination of the Joint Unmanned Combat Air Systems (J-UCAS) Capability Demonstration Program. The Department of Defense is focusing its resources on delivering required capabilities to combatant commanders and the J-UCAS CDP does not directly deliver a combat capability. Accordingly, the Department will focus on specific areas of the overall joint capabilities portfolio to deliver capability to the warfighter. The Department of the Air Force will focus resources on delivering a new long-range strike capability. The Department of the Navy will conduct an aircraft carrier demonstration of a low-observable unmanned combat air system.



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## UNCLASSIFIED

PE NUMBER: 0604855F

PE TITLE: Operationally Responsive Launch

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0604855F Operationally Responsive Launch

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	32.142	38.519	0.000	0.000	0.000	0.000	0.000	0.000	87.686
A013 Small Launch Vehicle	32.142	38.519	0.000	0.000	0.000	0.000	0.000	0.000	87.686

In FY 2007 this PE is being 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 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 (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.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	33.068	23.480	35.504
(U) Current PBR/President's Budget	32.142	38.519	0.000
(U) Total Adjustments	-0.926	15.039	
(U) Congressional Program Reductions		-0.004	
Congressional Rescissions	-0.025	-0.557	
Congressional Increases		15.600	
Reprogrammings			
SBIR/STTR Transfer	-0.901		

(U) **Significant Program Changes:**

FY06: Congressional increases of +\$7.8M for TacSat launch, +\$5.7M for TacSat demos, and +\$2.1M for Near Space analysis.

FY07: This PE is being closed and funding transferred to PE 0604857F, Operationally Responsive Space.



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0604855F Operationally Responsive Launch</b>			PROJECT NUMBER AND TITLE <b>A013 Small Launch Vehicle</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A013 Small Launch Vehicle	32.142	38.519	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		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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.</p> <p>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 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.</p> <p>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.</p> <p>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.</p> <p>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.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Continued SLV system design and development, systems engineering and flight test planning for Phase II						22.196	17.300		
(U) Supported early demonstration flights and launch/test facilities evaluation and improvement						5.210	3.139		
(U) Performed analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support						2.068	2.480		
(U) Blue MAJIC						1.778			
(U) Advanced Rocket Components						0.890			
<div style="display: flex; justify-content: space-between;"> <span>Project A013</span> <span>R-1 Shopping List - Item No. 59-3 of 59-8</span> <span>Exhibit R-2a (PE 0604855F)</span> </div>									



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

## PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) TacSat Launch		7.800	
(U) Tactical Satellite Demonstrations		5.700	
(U) Near Space analysis and program development		2.100	
(U) Total Cost	32.142	38.519	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E, PE 0604857F, ORS (R-xx)			35.625	41.663	75.720	77.064	78.122	Continuing	TBD
(U) AF RDT&E, PE 0604856F, CAV (R-xx)	16.053	26.993						Continuing	TBD
(U) Defensewide RDT&E, DARPA, PE 0603285E, Falcon (R-xx)	12.500	40.000						Continuing	TBD
(U) NASA funding provided to support multiple contractors	2.000								2.350

(U) **D. Acquisition Strategy**

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Nine Phase I contracts were awarded in November 2003, Firm Fixed Price (FFP) with a duration of 6 months. An open competition was held for Phase II contracts in August 2004, resulting in four awards in September 2004 using an Other Transactions contract vehicle. At the completion of Phase II, a third phase will be considered to conduct additional developmental flight testing.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

## PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Nine Phase I contractors	FFP	various	3.490								3.490	3.490
Phase II contractors:				2.000	Sep-05					Continuing	TBD	TBD
Air Launch	OTA	Reno, NV	4.140	5.573	Oct-04	17.300	Oct-05			Continuing	TBD	TBD
Lockheed Martin	OTA	New Orleans, LA		6.083	Oct-04					Continuing	TBD	TBD
Microcosm	OTA	El Segundo		4.540	Oct-04					Continuing	TBD	TBD
Space-X	OTA	El Segundo	4.000	4.000	Oct-04					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			11.630	22.196		19.400		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test Stand 2A Modification	MIPR	Edwards AFB, CA		3.804	Jan-05						3.804	3.804
Range Services	MIPR	Army-Huntsvil le, AL		1.406	Mar-05					Continuing	TBD	TBD
Flight Demo Support	MIPR	various	6.254			3.139	Oct-05			Continuing	TBD	TBD
SLC-3W Modification	MIPR	Naval Research Lab/Wash DC	1.700								1.700	1.700
Blue MAJIC	CPFF	Sparta, Lake Forest CA		1.778	Mar-05						1.778	2.000
Advanced Rocket Components	SBIR	Rocket Prop. Eng., Mojave CA		0.890	Jan-06						0.890	1.000
TacSat Launch	TBD	SMC Det 12/RP/Kirtland AFB NM				7.800	May-06				7.800	
TacSat Demonstrations	TBD	SMC Det 12/RP/Kirtland AFB NM				5.700	May-06				5.700	
Subtotal Test & Evaluation			7.954	7.878		16.639		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Development Support and Management</u>												
Perform analysis and assess alternative concepts/requirements & program support	various	various	1.960	2.068	Oct-04	2.480	Oct-05			Continuing	TBD	TBD
Subtotal Development Support and Management			1.960	2.068		2.480		0.000		Continuing	TBD	TBD

Project A013

R-1 Shopping List - Item No. 59-5 of 59-8

Exhibit R-3 (PE 0604855F)



UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis						DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			PE NUMBER AND TITLE <b>0604855F Operationally Responsive Launch</b>		PROJECT NUMBER AND TITLE <b>A013 Small Launch Vehicle</b>		
Remarks:							
(U)	Total Cost		21.544	32.142	38.519	0.000	Continuing      TBD      TBD

Project A013

R-1 Shopping List - Item No. 59-6 of 59-8

Exhibit R-3 (PE 0604855F)

UNCLASSIFIED



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

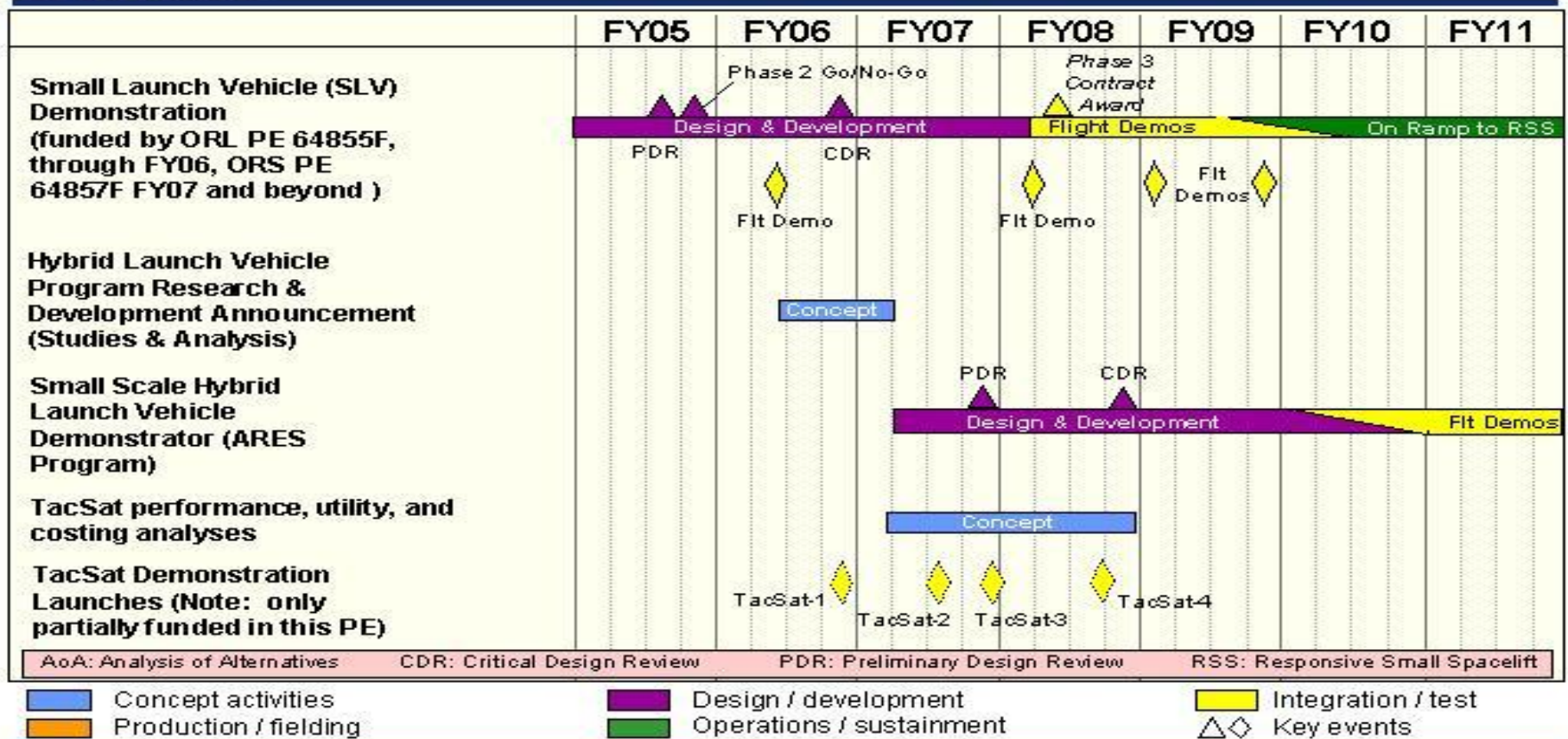
PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle



U.S. AIR FORCE

# ORS Schedule



## FY07 Staffer Brief



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604855F Operationally Responsive  
Launch

PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Phase II Preliminary Design Review

3Q

(U) Phase II Flight Demo

2Q

(U) Phase II Critical Design Review

4Q

(U) TacSat-1 Launch

4Q



## UNCLASSIFIED

PE NUMBER: 0604856F  
PE TITLE: Common Aero Vehicle

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0604856F Common Aero Vehicle</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	16.053	26.993	33.386	32.387	40.840	44.033	82.386	Continuing	TBD																																				
A012 Common Aerospace Vehicle	16.053	26.993	33.386	32.387	40.840	44.033	82.386	Continuing	TBD																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Prompt Global Strike (PGS) Mission Needs Statement (MNS) established the requirement for rapid conventional strike worldwide to counter the proliferation of weapons of mass destruction and provide a forward presence without forward deployment. 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 has been named Falcon and was 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) and all weaponization activities have been excluded from Falcon. This PE will be renamed HTV.</p> <p>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.</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">16.464</td> <td style="text-align: right;">27.394</td> <td style="text-align: right;">32.539</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">16.053</td> <td style="text-align: right;">26.993</td> <td style="text-align: right;">33.386</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-0.411</td> <td style="text-align: right;">-0.401</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td style="text-align: right;">-0.013</td> <td style="text-align: right;">-0.010</td> <td></td> </tr> <tr> <td>    Congressional Rescissions</td> <td></td> <td style="text-align: right;">-0.391</td> <td></td> </tr> <tr> <td>    Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Reprogrammings</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    SBIR/STTR Transfer</td> <td style="text-align: right;">-0.398</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	16.464	27.394	32.539	(U) Current PBR/President's Budget	16.053	26.993	33.386	(U) Total Adjustments	-0.411	-0.401		(U) Congressional Program Reductions	-0.013	-0.010		Congressional Rescissions		-0.391		Congressional Increases				Reprogrammings				SBIR/STTR Transfer	-0.398		
	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>																																										
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Congressional Increases																																													
Reprogrammings																																													
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## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604856F Common Aero Vehicle

## PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A012 Common Aerospace Vehicle	16.053	26.993	33.386	32.387	40.840	44.033	82.386	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) established the requirement for rapid conventional strike worldwide to counter the proliferation of weapons of mass destruction and provide a forward presence without forward deployment. 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 has been named Falcon and was 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) and all weaponization activities have been excluded from Falcon. This PE will be renamed HTV.

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)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue HTV system design and development, systems engineering and flight test planning/support for Phase II	11.464	20.470	24.745
(U) Perform analysis and assess alternative HTV concepts/requirements and program management support	4.589	2.530	2.915
(U) Perform Prompt Global Strike Analysis of Alternatives		3.993	5.726
(U) Total Cost	16.053	26.993	33.386

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E, PE 0604855F, ORL (R-60)	32.142	38.519						Continuing	TBD
(U) AF RDT&E, PE 0604857F, ORS			35.625	41.663	75.720	77.064	78.122	Continuing	TBD
(U) Other APPN									
(U) Defensewide RDT&E, DARPA, PE 0603285E, Falcon	12.500	40.000	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 36 month award using an Other Transaction Agreements contract vehicle. Phase II develops and launches the first HTV. Phase III is scheduled for one contractor with award set for 1QtrFY08. Phase

Project A012

R-1 Shopping List - Item No. 60-2 of 60-6

Exhibit R-2a (PE 0604856F)



UNCLASSIFIED

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2006**

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**

III will fabricate and launch the succeeding HTV demonstrations in the Falcon program.

UNCLASSIFIED



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604856F Common Aero Vehicle

## PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Four Phase I contracts	OTA	various	4.293								4.293	4.293
Phase II contract	OTA	Lockheed-Mart in, Palmdale, CA	3.000	11.464	Feb-05	20.470	Dec-05	24.745	Oct-06	Continuing	TBD	TBD
Phase III contract	TBD	TBD								Continuing	TBD	TBD
Subtotal Product Development			7.293	11.464		20.470		24.745		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
CAV/Penetrator Flight Support	MIPR	SMC Det 12/RP, Kirtland AFB NM	3.000								3.000	3.000
Prepare hypersonic test corridor	MIPR	AF Flt Test Center, Edwards AFB CA	0.500								0.500	0.500
Subtotal Test & Evaluation			3.500	0.000		0.000		0.000		0.000	3.500	3.500
Remarks:												
(U) <u>Development Support and Management</u>												
Perform analysis and assess alternative HTV concepts/requirements & program support	various	various	4.232	4.589	Oct-04	2.530	Oct-05	2.915	Oct-06	Continuing	TBD	TBD
Perform PGS AoA	TBD	TBD				3.993	Feb-06	5.726	Oct-06	Continuing	TBD	TBD
Develop critical CAV technology	MIPR	AFRL, Kirtland AFB, NM	2.000							0.000	2.000	2.000
Subtotal Development Support and Management			6.232	4.589		6.523		8.641		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			17.025	16.053		26.993		33.386		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604856F Common Aero Vehicle

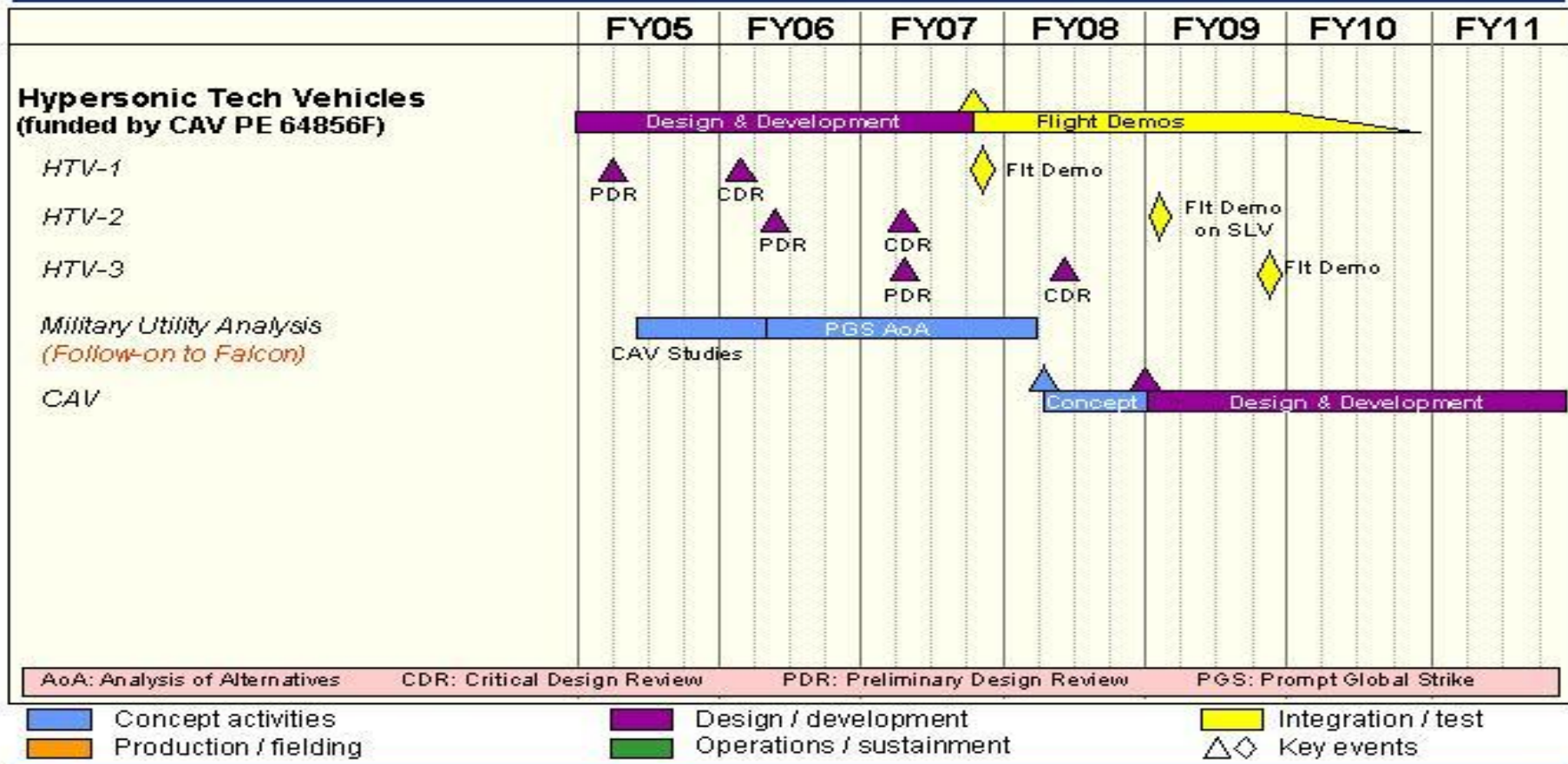
PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle



U.S. AIR FORCE

# HTV Schedule



FY07 OSD/OMB Budget Hearing



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Phase II Preliminary Design Review

2Q

(U) Phase II Critical Design Review

1Q

(U) PGS AoA

2-4Q

1-4Q

(U) Initial HTV Test Launch

4Q

(U) Complete Phase II

4Q



## UNCLASSIFIED

PE NUMBER: 0604857F

PE TITLE: Operationally Responsive Space

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0604857F Operationally Responsive Space

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	35.625	41.663	75.720	77.064	78.122	Continuing	TBD
A015 Tactical Satellites	0.000	0.000	0.101	0.102	0.000	0.000	0.000	Continuing	TBD
A016 Operationally Responsive Lift	0.000	0.000	35.524	41.561	75.720	77.064	78.122	Continuing	TBD

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

In FY 2007, the Affordable Responsive Spacelift (ARES) effort in Project 64A016 and the Tactical Satellite (TacSat) effort in Project 64A015 are new starts to meet some of the requirements of the Operationally Responsive Space Analysis of Alternatives.

(U) A. Mission Description and Budget Item Justification

Responsive Space is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and prompt global strike. 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. It includes small satellite demonstrations aimed at proving out the technologies needed to create a low-cost, operational capability for the rapid launch, checkout, and theater integration of space systems to support the tactical needs of the combatant commanders. It also requires on-demand, flexible, and cost effective range operations.

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 Operationally Responsive Space (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 ORS program; and demonstrations, modeling and simulations are the critical tools.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the Operationally Responsive Spacelift 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. AFSPC plans to operationalize the small scale hybrid vehicle to provide a 2,000 to 5,000 pound capability to low earth orbit.

In FY07 the Affordable Responsive Spacelift (ARES) hybrid launch vehicle demonstrator will be initiated. Early activities will include requirements development, preliminary design and test planning.

In parallel, operationally responsive satellite concepts and requirements will be studied, and in the future Operationally Responsive Range mission planning will be



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604857F Operationally Responsive Space

conducted.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	35.625
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY07: Initial funding for new PE, transferred from PE 0604855F, Operationally Responsive Launch



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>																					
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0604857F Operationally Responsive Space</b>			PROJECT NUMBER AND TITLE <b>A015 Tactical Satellites</b>																						
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																				
A015 Tactical Satellites	0.000	0.000	0.101	0.102	0.000	0.000	0.000	Continuing	TBD																				
Quantity of RDT&E Articles	0	0	0	0	0	0	0																						
<p>In FY 2007, Project 64A015, Tactical Satellites, is a new start to meet some of the requirements defined in the ORS Analysis of Alternatives</p> <p><b>(U) A. Mission Description and Budget Item Justification</b></p> <p>Responsive Space is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and prompt global strike. It includes small satellite demonstrations aimed at proving out the technologies needed to create a low-cost, operational capability for the rapid launch, checkout, and theater integration of space systems to support the tactical needs of the combatant commanders.</p> <p>Operationally Responsive Space 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.</p> <p>Tactical satellites will be optimized for dedicated theater use and/or surge, augmentation and replenishment of more traditional space capabilities. Current Concepts of Operation (CONOPS) call for the production of satellites as war reserve material, featuring high degrees of modularity and the use of plug and play payloads and buses, in support of the above missions. Further, responsive satellites must be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.</p> <p>The TACSAT Demonstration Program with participation from a wide consortium of operators, developers and technologists, including the Office of Force Transformation, Air Force Research Labs 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 FY07 effort will perform analysis, costing, and utility assessment of TACSAT concepts and requirements.</p> <p>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. TACSAT demonstrations will validate common interfaces, subsystems, new payloads, and new CONOPS. The TACSAT demonstrations also will facilitate the development of Joint Warfighting Space requirements and future mission(s) planning. Follow-on development of operational satellites will leverage lessons learned, processes and mature technology demonstrated in the TACSAT program.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 70%;"><b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b></td> <td style="width: 10%; text-align: center;"><u>FY 2005</u></td> <td style="width: 10%; text-align: center;"><u>FY 2006</u></td> <td style="width: 10%; text-align: center;"><u>FY 2007</u></td> </tr> <tr> <td>(U) Perform analysis, costing and assess utility for operationally responsive satellite concepts/requirements.</td> <td></td> <td></td> <td style="text-align: center;">0.101</td> </tr> <tr> <td>(U)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Total Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.101</td> </tr> </table>										<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Perform analysis, costing and assess utility for operationally responsive satellite concepts/requirements.			0.101	(U)				(U)				(U) Total Cost	0.000	0.000	0.101
<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>																										
(U) Perform analysis, costing and assess utility for operationally responsive satellite concepts/requirements.			0.101																										
(U)																													
(U)																													
(U) Total Cost	0.000	0.000	0.101																										
<div style="display: flex; justify-content: space-between; padding: 5px;"> <span>Project A015</span> <span>R-1 Shopping List - Item No. 61-3 of 61-12</span> <span>Exhibit R-2a (PE 0604857F)</span> </div>																													



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

PROJECT NUMBER AND TITLE

A015 Tactical Satellites

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E, PE 0604855F, ORL (R-xx)		13.500	0.000	0.000	0.000	0.000	0.000	0.000	13.500
(U) Defensewide RDT&E, PE 0605799D8Z, Force Transformation (R-xx)	20.000	39.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) D. Acquisition Strategy

Use existing government contracts.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

PROJECT NUMBER AND TITLE

A015 Tactical Satellites

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Perform analysis and assess alternative concepts/requirements & program support	various	various						0.101	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.101		Continuing	TBD	TBD
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		0.101		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

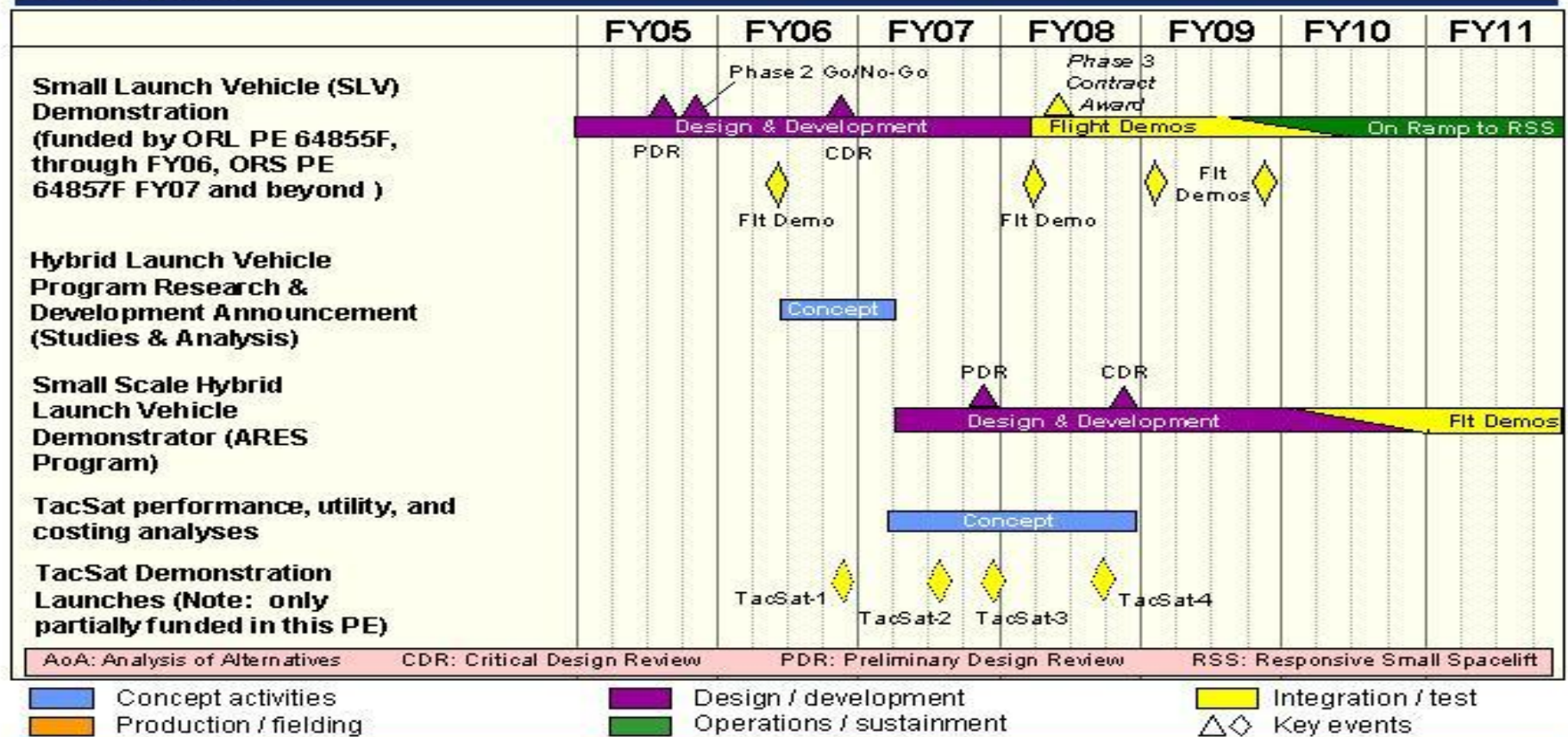
PROJECT NUMBER AND TITLE

A015 Tactical Satellites



U.S. AIR FORCE

# ORS Schedule



## FY07 Staffer Brief



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

PROJECT NUMBER AND TITLE

A015 Tactical Satellites

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) TACSAT performance, utility and costing analyses

2-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604857F Operationally Responsive Space

## PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A016 Operationally Responsive Lift	0.000	0.000	35.524	41.561	75.720	77.064	78.122	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Responsive Space is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and prompt global strike. 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 Operationally Responsive Space (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.

In FY07 the Affordable Responsive Spacelift (ARES) hybrid launch vehicle demonstrator will be initiated. Early activities will include requirements development, preliminary design and test planning. Early ARES demonstration and development effort will consist of a series of phases designed to: 1) Reduce technology risk/mature integration technology, 2) Validate a Concept of Operations (CONOPS) for use of the system, 3) Execute smaller scale subsystem and system demonstrations which validate requirements and test methods for system evaluation, and 4) Enhance the ability of the developer to design reliability, responsiveness, and affordability into a future operational system.

Phase I will consist of the design and development of the ARES Subscale Demonstrator. This effort will include concept definition, demonstration planning, preliminary and detailed design, Demonstrator production, and ground and flight tests.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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			3.240
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support			1.760
(U) Begin ARES development			19.524
(U) Total Cost	0.000	0.000	35.524



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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)**

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E, PE 0604855F, ORL (R-XX)	32.142	23.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) NASA funding provided to support multiple contractors	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.350

(U) **D. Acquisition Strategy**

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 four awards in September 2004 using an Other Transactions contract vehicle. One or more contractors will be carried to a launch. At the completion of Phase II, a third phase will be considered to conduct additional developmental flight testing.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604857F Operationally Responsive Space

## PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Phase II contractors:	OTA	Air Launch, Kirkland, WA						11.000	Oct-06	Continuing	TBD	TBD
TBD Phase III contractors										Continuing	TBD	TBD
ARES Design and Development	TBD	TBD						19.524	Dec-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		30.524		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Perform Range readiness and mission assurance for launch	TBD	various						3.240	Oct-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		3.240		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Perform analysis and assess alternative concepts/requirements & program support								1.760	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		1.760		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		35.524		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

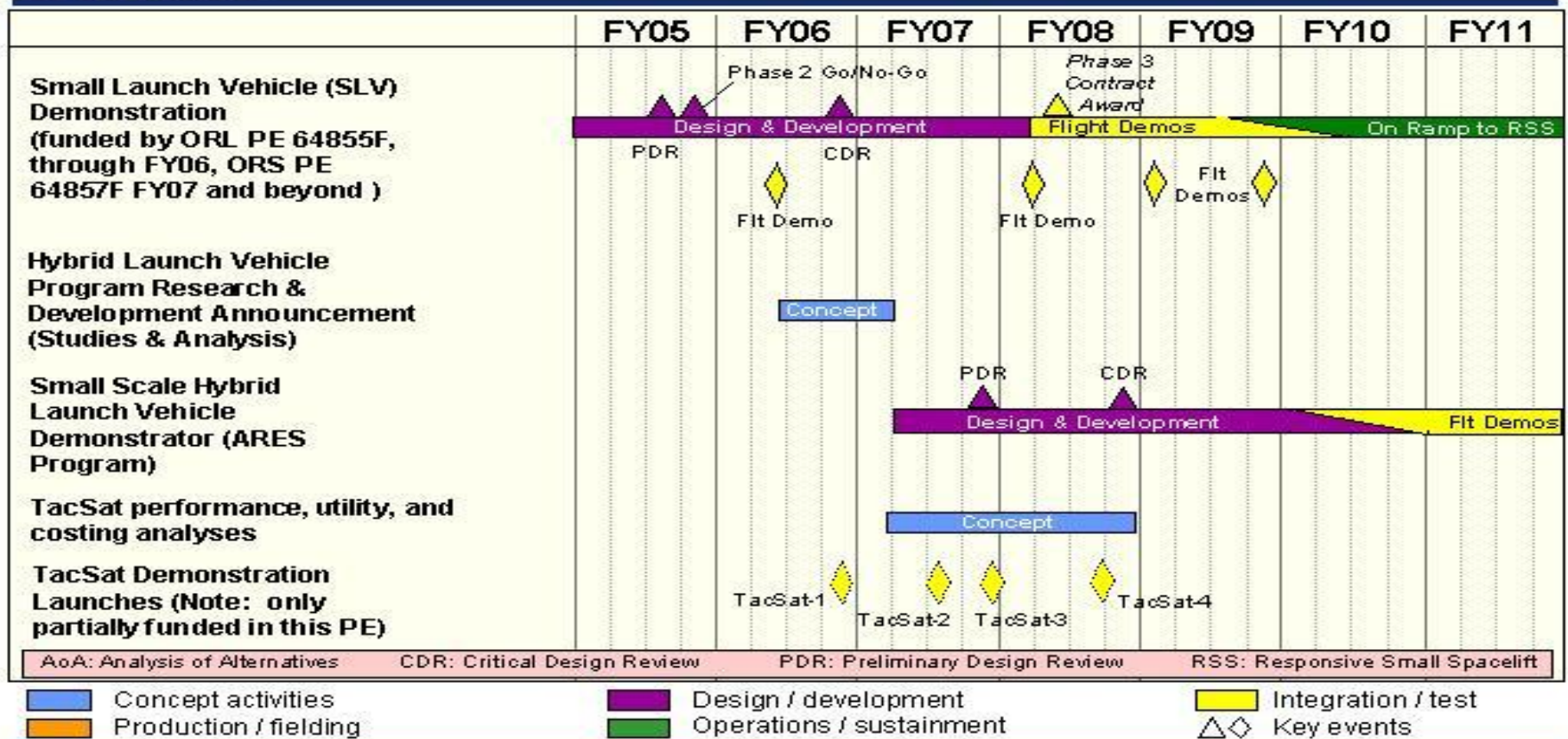
PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift



U.S. AIR FORCE

# ORS Schedule



## FY07 Staffer Brief



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) ARES Design and Development Contract Award

2Q

(U) ARES PDR

4Q



## UNCLASSIFIED

PE NUMBER: 0207423F

PE TITLE: Advanced Communications Systems

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0207423F Advanced Communications Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	2.464	0.981	0.000	0.000	0.000	0.000	0.000	0.000
5084 AJCN	0.000	2.464	0.981	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		0.969	0.988
(U) Current PBR/President's Budget	0.000	2.464	0.981
(U) Total Adjustments	0.000	1.495	
(U) Congressional Program Reductions		-1.005	
Congressional Rescissions			
Congressional Increases		2.500	
Reprogrammings			
SBIR/STTR Transfer			
(U) <b><u>Significant Program Changes:</u></b>			
FY06 Adaptive Joint C4ISR Node (AJCN) was increased \$2.5M by Congress for Security Certification			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE

5084 AJCN

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5084 AJCN	0.000	2.464	0.981	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Field Evaluation		0.969	0.800
(U) Security Accreditation		1.200	0.135
(U) Aircraft Integration		0.295	0.046
(U) Total Cost	0.000	2.464	0.981

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 27423F, BPAC 635084, BA 03	13.709	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.709

Funding in BPAC 635084 (BA 03) completed the concept refinement, subsystem and system development and demonstration phase. The remaining funds moved to BPAC 645084 (BA 04) for residual assessment and evaluation work to be completed.

(U) **D. Acquisition Strategy**

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



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0207423F Advanced Communications  
Systems

PROJECT NUMBER AND TITLE

5084 AJCN

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>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
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Joint Military Utility Assessments	MIPR	Army Tactical Command & Control Sys, Ft Monmouth, NJ				2.464	Feb-06	0.981	Nov-06		3.445	
Subtotal Test & Evaluation			0.000	0.000		2.464		0.981		0.000	3.445	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) Total Cost			0.000	0.000		2.464		0.981		0.000	3.445	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

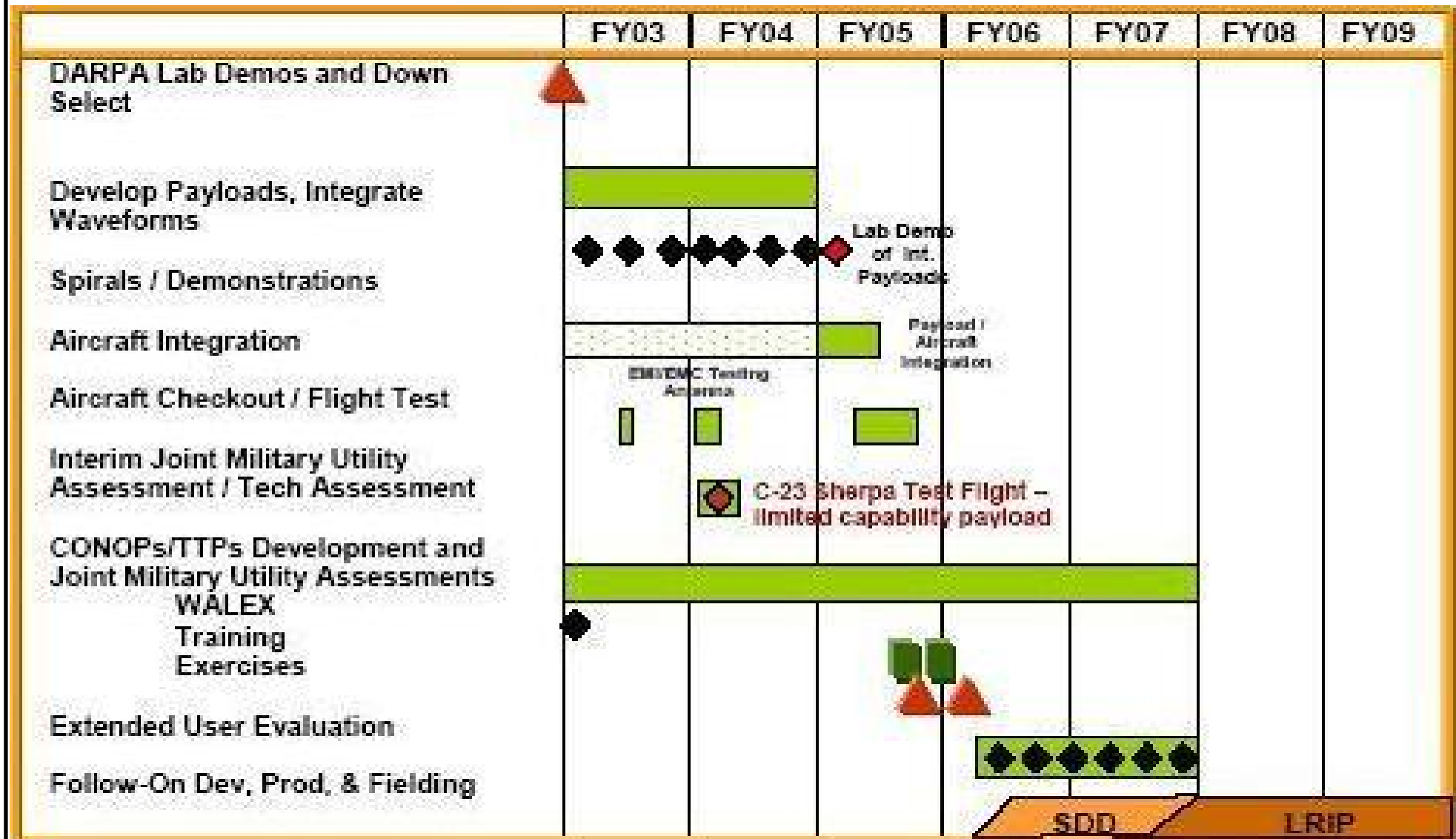
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0207423F Advanced Communications  
Systems

PROJECT NUMBER AND TITLE

5084 AJCN





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0207423F Advanced Communications  
Systems

PROJECT NUMBER AND TITLE

5084 AJCN

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Spirals/Demonstrations

1Q

(U) Aircraft Integration

1-3Q

(U) CONOPS/TTPs Development and Joint Military Utility Assessments

1-4Q

1-4Q

1-4Q

(U) Extended User Evaluation

2-4Q

1-2Q

(U) Follow-on Development, Production, &amp; Fielding

2-4Q

1-4Q



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## UNCLASSIFIED

PE NUMBER: 0305178F

PE TITLE: National Polar-Orbiting Op Env Satellite

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								DATE
								<b>February 2006</b>

BUDGET ACTIVITY				PE NUMBER AND TITLE					
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0305178F National Polar-Orbiting Op Env Satellite</b>					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	306.120	319.053	349.311	220.695	165.935	137.906	89.006	0.000	1,588.026
4056 National Polar-orbiting Operational Env. Sat. Syst.	306.120	319.053	349.311	220.695	165.935	137.906	89.006	0.000	1,588.026

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.

(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 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, 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. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources.

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 combination of satellites in sun synchronous 450 nautical miles (NM) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013 with the launch of the third satellite. The first two satellites (C1-C2) are incrementally funded with RDT&E. The remaining satellites (C3-C6) will be fully funded with Missile Procurement funding. In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). However, due to technical difficulties with the Visible Infrared Imager Radiometer Suite (VIIRS), Conical Microwave Imager Sounder (CMIS), Ozone Mapper/Profiler Suite (OMPS) and to a lesser extent the spacecraft effort, the current schedule will not be executable. The Tri-agency Executive Committee for NPOESS has established an Independent Program Assessment team to review executable program schedule options and associated costs. NPOESS is undergoing a Nunn-McCurdy recertification, scheduled for completion NLT Jun 06. These assessments may reshape the program. NPOESS remains in BA 04 because near-term efforts focus on Advanced Component Development and Prototypes.



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	303.784	323.665	350.516
(U) Current PBR/President's Budget	306.120	319.053	349.311
(U) Total Adjustments	2.336	-4.612	
(U) Congressional Program Reductions	-0.464		
Congressional Rescissions		-4.612	
Congressional Increases			
Reprogrammings	2.800		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op  
Env Satellite

## PROJECT NUMBER AND TITLE

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

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	306.120	319.053	349.311	220.695	165.935	137.906	89.006	0.000	1,588.026
Quantity of RDT&E Articles	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.

(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 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, 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. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources.

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 combination of satellites in sun synchronous 450 nautical miles (NM) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013 with the launch of the third satellite. The first two satellites (C1-C2) are incrementally funded with RDT&E. The remaining satellites (C3-C6) will be fully funded with Missile Procurement funding. In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). However, due to technical difficulties with the Visible Infrared Imager Radiometer Suite (VIIRS), Conical Microwave Imager Sounder (CMIS), Ozone Mapper/Profiler Suite (OMPS) and to a lesser extent the spacecraft effort, the current schedule will not be executable. The Tri-agency Executive Committee for NPOESS has established an Independent Program Assessment team to review executable program schedule options and associated costs. NPOESS is undergoing a Nunn-McCurdy recertification, scheduled for completion NLT Jun 06. These assessments may reshape the program. NPOESS remains in BA 04 because near-term efforts focus on Advanced Component Development and Prototypes.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.	0.882	1.000	1.000
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.	295.793	314.589	348.311
(U) Windsat data analysis, refinement, calibration, modeling and retrieval algorithms	1.854	3.464	

Project 4056

R-1 Shopping List - Item No. 63-4 of 63-8

Exhibit R-2a (PE 0305178F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) SBIR Transfer	7.591		
(U) Total Cost	306.120	319.053	349.311

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Related NOAA PAC funding: Polar Convergence*	300.528	316.581	341.276	343.863	297.225	373.872	405.923	743.266	3,775.113
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	306.120	319.053	349.311	220.695	165.935	137.906	89.006	0.000	1,588.026
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	25.576	32.046	250.898	229.412	187.467	725.399
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	138.278	138.278	0.000	124.375	373.125	774.056
(U) Other operations and sustainment funding***	0.000	0.000	0.000	2.601	2.313	0.000	0.000	340.758	345.671
(U) Total NPOESS Air Force	306.120	319.053	349.311	387.150	338.572	388.804	442.793	901.350	4,355.373

\* 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 \$922.2M (included 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. Due to higher EELV launch service costs, NOAA will work to adjust funds during launch years to match AF funding.

\*\* NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F; includes booster and infrastructure share, 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 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; the rest of the satellites will be fully funded with Missile Procurement funding.

Project 4056

R-1 Shopping List - Item No. 63-5 of 63-8

Exhibit R-2a (PE 0305178F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Northrop Grumman (A&O)	C/CPAF	Primary, Redondo Beach, CA		295.793	Oct-04	314.589	Oct-05	348.311	Oct-06	598.225	1,556.918	
Government Led Studies	Gov. Orgs.	Various		1.854	Oct-04	3.464	Jan-06				5.318	
Subtotal Product Development			0.000	297.647		318.053		348.311		598.225	1,562.236	0.000
Remarks:												
(U) <u>Support</u> Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD		0.882	Oct-04	1.000	Oct-05	1.000	Oct-06	15.317	18.199	
SBIR Transfer				7.591							7.591	
Subtotal Support			0.000	8.473		1.000		1.000		15.317	25.790	0.000
Remarks:												
(U) <u>Test &amp; 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
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
Remarks:												
(U) Total Cost			0.000	306.120		319.053		349.311		613.542	1,588.026	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

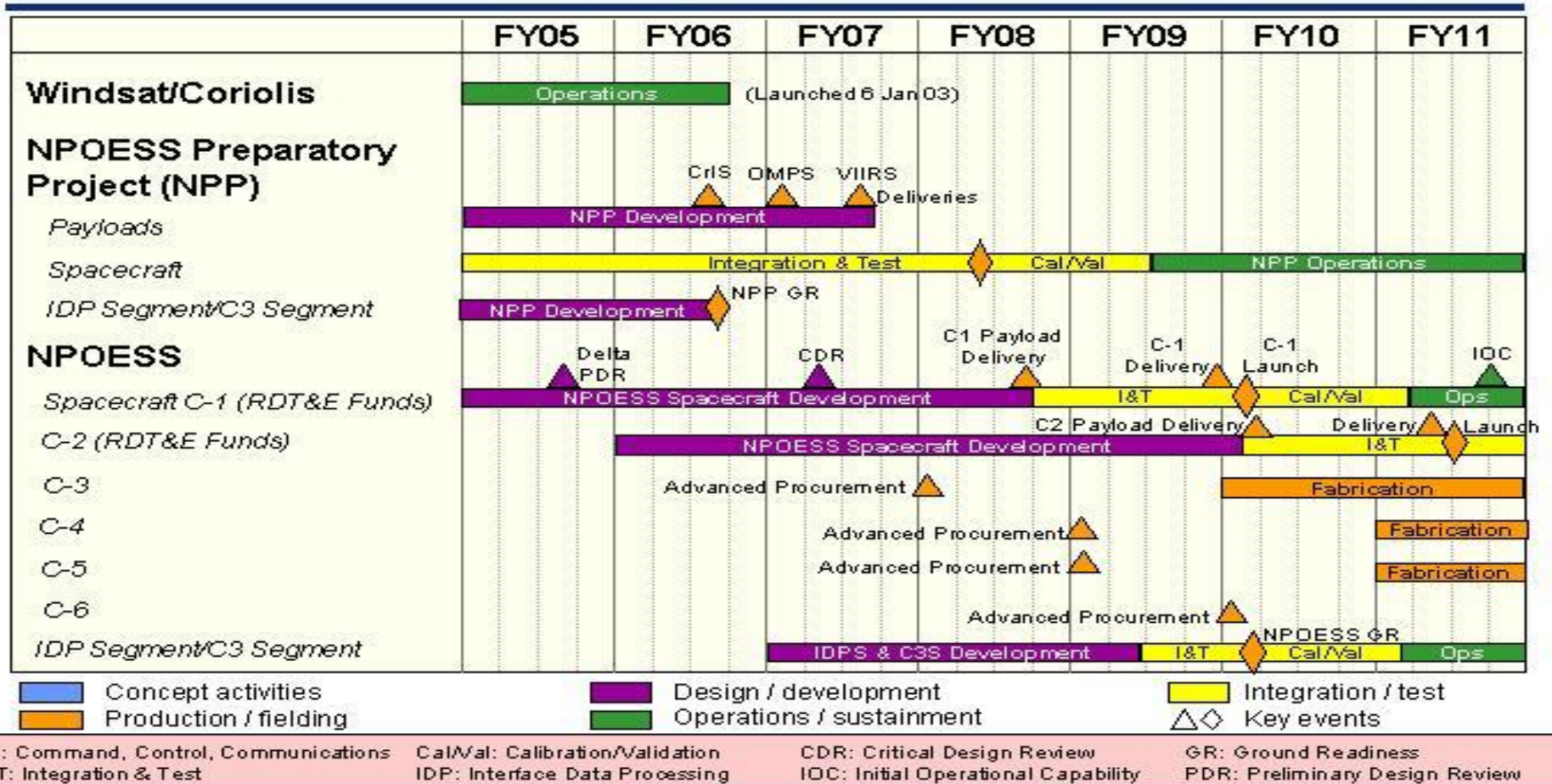
PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op  
Env Satellite

PROJECT NUMBER AND TITLE

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

**NOTE: NPOESS program is currently undergoing Nunn-McCurdy certification (due out NLT May 06) and schedule is subject to change**





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;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 ProfileFY 2005FY 2006FY 2007

(U) NPOESS System Delta Preliminary Design Review

3Q

(U) Independent Program Assessment

1Q

(U) Cross-track Infrared Sounder (CrIS) NPP sensor delivery

3Q

(U) NPP Ground Ready

3Q

(U) Ozone Mapper/Profiler Suite (OMPS) NPP sensor delivery

1Q

(U) Visible Infrared Imager Radiometer Suite (VIIRS) NPP sensor delivery

3Q

(U) NPOESS System Critical Design Review

2Q



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## UNCLASSIFIED

PE NUMBER: 0303158F

PE TITLE: Joint Control and Command

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0303158F Joint Control and Command

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	5.125	5.818	5.778	5.281	5.280	5.281	0.000	0.000
5216 JC2 Technology and System Development	0.000	5.125	5.818	5.778	5.281	5.280	5.281	0.000	0.000

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

In FY06, PE 0303158F, is a new start effort.

Joint Command and Control (JC2) is the next generation of command and control capabilities for the Department of Defense. JC2 will eventually replace the Global Command and Control System (GCCS) Family of Systems (FoS) Program. 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 systems of record within each component. These GCCS programs will eventually transition into a single Joint Command and Control (JC2) Capability effort. JC2 will consist of eight Mission Capability Packages: Situational Awareness, Force Readiness, Force Projection, Intelligence, Force Protection, Force Employment (Air/Space), Force Employment (Land Operations), and Force Employment (Maritime/Littoral Operations).

The Air Force's initial contribution to JC2 is drawn from 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), Time Critical Targeting Functionality (TCT-F), 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). Using the concepts and capabilities of Net-Centric Enterprise Services, JC2 will provide a vast range of command and control capabilities to the warfighter. JC2 will begin an accelerated evolution toward a more net-centric, web-based, open system standards approach to providing C2 capabilities and services that will establish JC2 as the core of the DoD Command and Control architecture.

The current GCCS-AF FoS will transition to JC2 in the future. JC2 will deliver the capabilities as stated in the updated Operational Requirements Document (ORD) and complementing Capabilities Development Document (CDD). JC2 expands the capabilities developed and integrated into the GCCS FoS including the migration of capabilities to a more modern architecture. Risk reduction activities and engineering analysis with selected system and architectural analysis will provide the initial steps of the technical development. The requested RDT&E funding is critical to support Air Force Transformation efforts in the area of strategic and operational command and control.

Funding for FY06 and beyond supports the Air Force contribution to JC2 by establishing the Air Force Program Management Office (PMO) responsible for all AF acquisition activities related to JC2. The AF PMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the JC2 Joint Program Office (JPO).

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



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0303158F Joint Control and Command

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	5.200	5.200
(U) Current PBR/President's Budget	0.000	5.125	5.818
(U) Total Adjustments	0.000	-0.075	
(U) Congressional Program Reductions			
Congressional Rescissions	0.000	-0.075	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

In the FY05 President's Budget (PB), the Office of the Secretary of Defense (OSD) notified Congress of the Joint Command and Control (JC2) program new start and established Defense Information Systems Agency (DISA) Program Element (PE) 0303158K. JC2 will be managed as a joint program led by OSD/NII (Networks and Information Integration) with each Component having associated PEs. PE 0303158F is the Air Force (AF) PE associated with the JC2 program.



Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0303158F Joint Control and Command</b>			PROJECT NUMBER AND TITLE <b>5216 JC2 Technology and System Development</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5216 JC2 Technology and System Development	0.000	5.125	5.818	5.778	5.281	5.280	5.281	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>In FY06, PE 0303158F, is a new start effort.</p> <p>Joint Command and Control (JC2) is the next generation of command and control capabilities for the Department of Defense. JC2 will eventually replace the Global Command and Control System (GCCS) Family of Systems (FoS) Program. 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 systems of record within each component. These GCCS programs will eventually transition into a single Joint Command and Control (JC2) Capability effort. JC2 will consist of eight Mission Capability Packages: Situational Awareness, Force Readiness, Force Projection, Intelligence, Force Protection, Force Employment (Air/Space), Force Employment (Land Operations), and Force Employment (Maritime/Littoral Operations).</p> <p>The Air Force's initial contribution to JC2 is drawn from 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), Time Critical Targeting Functionality (TCT-F), 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). Using the concepts and capabilities of Net-Centric Enterprise Services, JC2 will provide a vast range of command and control capabilities to the warfighter. JC2 will begin an accelerated evolution toward a more net-centric, web-based, open system standards approach to providing C2 capabilities and services that will establish JC2 as the core of the DoD Command and Control architecture.</p> <p>The current GCCS-AF FoS will transition to JC2 in the future. JC2 will deliver the capabilities as stated in the updated Operational Requirements Document (ORD) and complementing Capabilities Development Document (CDD). JC2 expands the capabilities developed and integrated into the GCCS FoS including the migration of capabilities to a more modern architecture. Risk reduction activities and engineering analysis with selected system and architectural analysis will provide the initial steps of the technical development. The requested RDT&amp;E funding is critical to support Air Force Transformation efforts in the area of strategic and operational command and control.</p> <p>Funding for FY06 and beyond supports the Air Force contribution to JC2 by establishing the Air Force Program Management Office (PMO) responsible for all AF acquisition activities related to JC2. The AF PMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the JC2 Joint Program Office (JPO).</p> <p>This effort is Budget Activity 4, and will perform the efforts necessary to evaluate integrated technologies, representative modes or prototype joint command and control capabilities in a high fidelity and realistic operating environment.</p>									



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0303158F Joint Control and Command

## PROJECT NUMBER AND TITLE

5216 JC2 Technology and System Development

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Technical Engineering Services	0.000	2.100	2.400
(U) Program Management Support Activities (Systems Engineering, etc.)	0.000	2.325	2.718
(U) Air Force Component Program Management Organization	0.000	0.700	0.700
(U) Total Cost	0.000	5.125	5.818

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) D. Acquisition Strategy

The JC2 Capability Acquisition Approach and Strategy is currently being developed by the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII)), Joint Forces Command (JFCOM), the Services and the Defense Information Systems Agency (DISA). The Acquisition Strategy will be developed after the JC2 Capability effort achieves Milestone (MS) A (projected for 2nd quarter FY 2006) as a requirement from the Acquisition Decision Memorandum (ADM).



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0303158F Joint Control and Command

## PROJECT NUMBER AND TITLE

5216 JC2 Technology and System Development

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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
Remarks:												
(U) <u>Support</u>												
Technical Engineering Services	FP	TBD	0.000	0.000		2.100	May-06	2.400	Nov-06	Continuing	TBD	
Subtotal Support			0.000	0.000		2.100		2.400		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Management		TBD	0.000			0.700		0.700		Continuing	TBD	
Program Management Support	CPFF	TBD	0.000	0.000		2.325	May-06	2.718		Continuing	TBD	
Subtotal Management			0.000	0.000		3.025		3.418		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		5.125		5.818		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

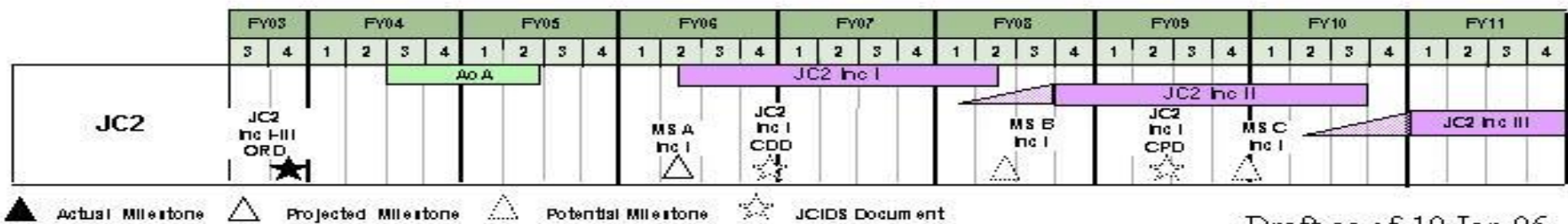
PE NUMBER AND TITLE

0303158F Joint Control and Command

PROJECT NUMBER AND TITLE

5216 JC2 Technology and System Development

# Joint Command and Control\*



Draft as of 10 Jan 06

- \* This schedule represents the overall JC2 schedule. AF funding supports this schedule.
- \* FY05 activities were funded by OSD.

**LEGEND:**

AoA – Analysis of Alternatives

CDD – Capability Development Document

CPD – Capability Production Document

Inc - Increment

JCIDS – Joint Capabilities Integration and Development System

MS - Milestone

ORD – Operational Requirements Document



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0303158F Joint Control and  
Command

PROJECT NUMBER AND TITLE

5216 JC2 Technology and System  
Development(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Increment I Milestone A

2Q

(U) Air Force Support for JC2 Increment I Development

2-4Q

1-4Q



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## UNCLASSIFIED

PE NUMBER: 0603840F

PE TITLE: Global Broadcast Service (GBS)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0603840F Global Broadcast Service (GBS)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.797	19.383	23.599	17.716	2.916	2.719	2.426	Continuing	TBD
4887 Global Broadcast Service (GBS)	21.797	19.383	23.599	17.716	2.916	2.719	2.426	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 Gapfiller Satellites (WGS). 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 Suite (RS) and integration into service networks are funded in other PEs.

The program was rebaselined to incorporate a commercial-of-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 GBS program element continues to fund analysis of alternatives and development of IP version 6 (IPv6) transition plans required to support net-centric operations and warfare, satisfying the OMB Aug 05 and OSD/NII Jun 03 policy mandates to transition from IPv4 to IPv6 by FY08. This effort will facilitate analysis of alternatives for design solutions that address the ORD III requirements. This will result in development of an architecture supporting both IPv4 and IPv6 network protocols, and providing for required equipment at the three operational GBS Transmit Suites. This includes the development of an IPv6 technology refresh design for existing & planned Receive Broadcast Managers that also contributes to design of new RS configurations called for by ORD III. In FY07, the GBS program element funds implementation of IPv6 migration and continued analysis of alternatives for the ORD III requirements.

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



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	25.527	18.283	25.234
(U) Current PBR/President's Budget	21.797	19.383	23.599
(U) Total Adjustments	-3.730	1.100	
(U) Congressional Program Reductions	-0.020	-0.020	
Congressional Rescissions		-0.280	
Congressional Increases		1.400	
Reprogrammings	-3.000		
SBIR/STTR Transfer	-0.710		
(U) <b><u>Significant Program Changes:</u></b>			
Congress increased FY06 GBS funding by \$1.4M for GBS development.			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4887 Global Broadcast Service (GBS)	21.797	19.383	23.599	17.716	2.916	2.719	2.426	Continuing	TBD
Quantity of RDT&E Articles	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 Gapfiller Satellites (WGS). 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 Suite (RS) and integration into service networks are funded in other PEs.

The program was rebaselined to incorporate a commercial-of-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 GBS program element continues to fund analysis of alternatives and development of IP version 6 (IPv6) transition plans required to support net-centric operations and warfare, satisfying the OMB Aug 05 and OSD/NII Jun 03 policy mandates to transition from IPv4 to IPv6 by FY08. This effort will facilitate analysis of alternatives for design solutions that address the ORD III requirements. This will result in development of an architecture supporting both IPv4 and IPv6 network protocols, and providing for required equipment at the three operational GBS Transmit Suites. This includes the development of an IPv6 technology refresh design for existing & planned Receive Broadcast Managers that also contributes to design of new RS configurations called for by ORD III. In FY07, the GBS program element funds implementation of IPv6 migration and continued analysis of alternatives for the 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue System Development and Test	12.779	12.527	13.367
(U) Continue Phase 2 Government System Integration	5.257	2.916	5.828
(U) Continue System Test & Evaluation Support	1.217	1.120	1.267
(U) Continue Program Office and other related support activities	2.544	2.820	3.137
(U) Total Cost	21.797	19.383	23.599



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;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)

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	21.528	7.172	0.000	0.000		55.464
(U) OPAF, PE 0303601F, Receive Suites/TIPs	10.850	14.874	0.529	2.600	1.570	0.000	0.000	0.000	79.852

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 Demonstration (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 using Integrated Product Development (IPD)/Integrated Product Team (IPT) approach. Program will maintain a single integration contractor for the GBS Phase 2 system while incorporating cross program/system IPTs for total performance.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Raytheon System Corp	CPAF		60.673	12.779	Nov-04	4.330	Oct-05				77.782	
IPv6 Migration	CPAF					8.197	Oct-05	13.367	Oct-06	Continuing	TBD	
Phase 2 Government System Integration	Various		16.280	5.257	Nov-04	2.916	Oct-05	5.828	Oct-06	Continuing	TBD	
Subtotal Product Development			76.953	18.036		15.443		19.195		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Support - Various			8.138	2.544	Dec-04	2.820	Nov-05	3.137	Oct-06	Continuing	TBD	
Fielding - Various			1.200								1.200	
Sustainment (Vendor TBD)											0.000	
Subtotal Support			9.338	2.544		2.820		3.137		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Various			4.477	1.217	Dec-04	1.120	Oct-05	1.267	Oct-06	Continuing	TBD	
Subtotal Test & Evaluation			4.477	1.217		1.120		1.267		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
Remarks:												
(U) Total Cost			90.768	21.797		19.383		23.599		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

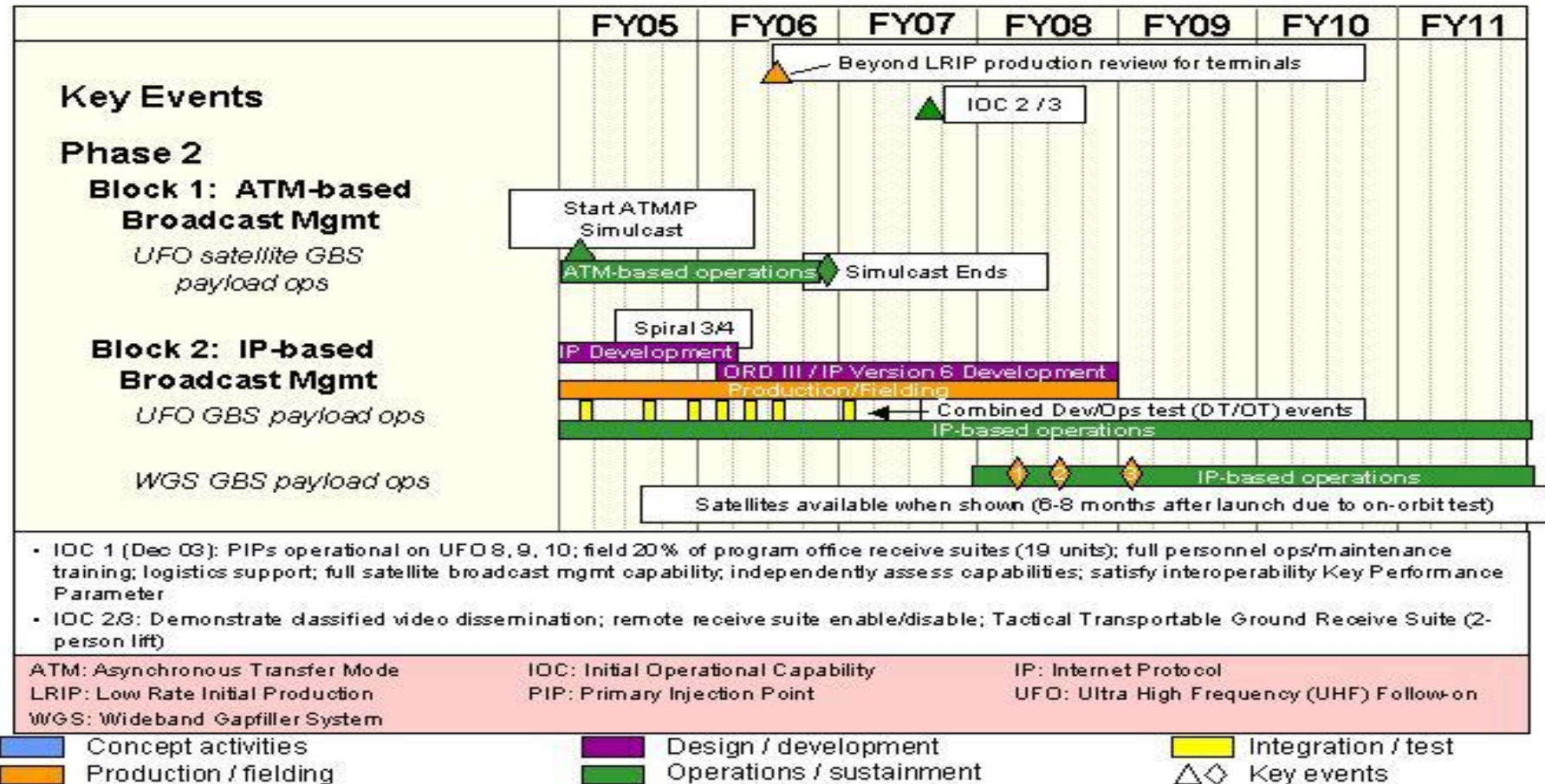
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE

4887 Global Broadcast Service (GBS)





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Begin development of Internet Protocol Version 6 (IPv6)/ORD III Analysis of Alternatives

1Q

(U) Beyond Low Rate Initial Production (LRIP) Review

3Q

(U) Conduct combined Dev/Ops test event

1Q

(U) IOC 2 and 3

3Q



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## UNCLASSIFIED

PE NUMBER: 0604012F

PE TITLE: Joint Helmet Mounted Cueing System (JHMCS)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604012F Joint Helmet Mounted Cueing System (JHMCS)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.245	2.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4789 Joint Helmet Mounted Cueing System (JHMCS)	2.245	2.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Funds transferred from PE 0604012F to PE 0207170F for FY07 and beyond.

(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.

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

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	2.841	2.912	0.000
(U) Current PBR/President's Budget	2.245	2.870	0.000
(U) Total Adjustments	-0.596	-0.042	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.002	-0.042	
Congressional Increases			
Reprogrammings	-0.541		
SBIR/STTR Transfer	-0.053		

(U) **Significant Program Changes:**

A ZBT was accomplished to move funds from FY07 and beyond to PE 0207170F.



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4789 Joint Helmet Mounted Cueing System (JHMCS)	2.245	2.870	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		

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.

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

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue deficiencies resolution, reliability improvements, P3I activities, obsolescence upgrades, analysis/studies, and night vision integration	1.970	2.581	0.000
(U) Continue program management support	0.275	0.289	0.000
(U) Total Cost	2.245	2.870	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development Note: Prior to FY01 JHMCS was funded as part of PE 0604201F.									45.151

(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



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>	PROJECT NUMBER AND TITLE <b>4789 Joint Helmet Mounted Cueing System (JHMCS)</b>
<p>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.</p>		
<p>Project 4789</p>		



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(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	0.710	1.870		2.581		0.000			5.161	
Subtotal Product Development			0.710	1.870		2.581		0.000		0.000	5.161	0.000
Remarks:												
(U) <u>Support</u>												
Cost Reduction Analysis	C, T&M	Various		0.100		0.000		0.000			0.100	
Subtotal Support			0.000	0.100		0.000		0.000		0.000	0.100	0.000
Remarks:												
(U) <u>Test &amp; 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
Remarks:												
(U) <u>Management</u>												
Program Management and Administration	C, T&M	Various	0.086	0.275		0.289		0.000			0.650	
Subtotal Management			0.086	0.275		0.289		0.000		0.000	0.650	0.000
Remarks:												
(U) Total Cost			0.796	2.245		2.870		0.000		0.000	5.911	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

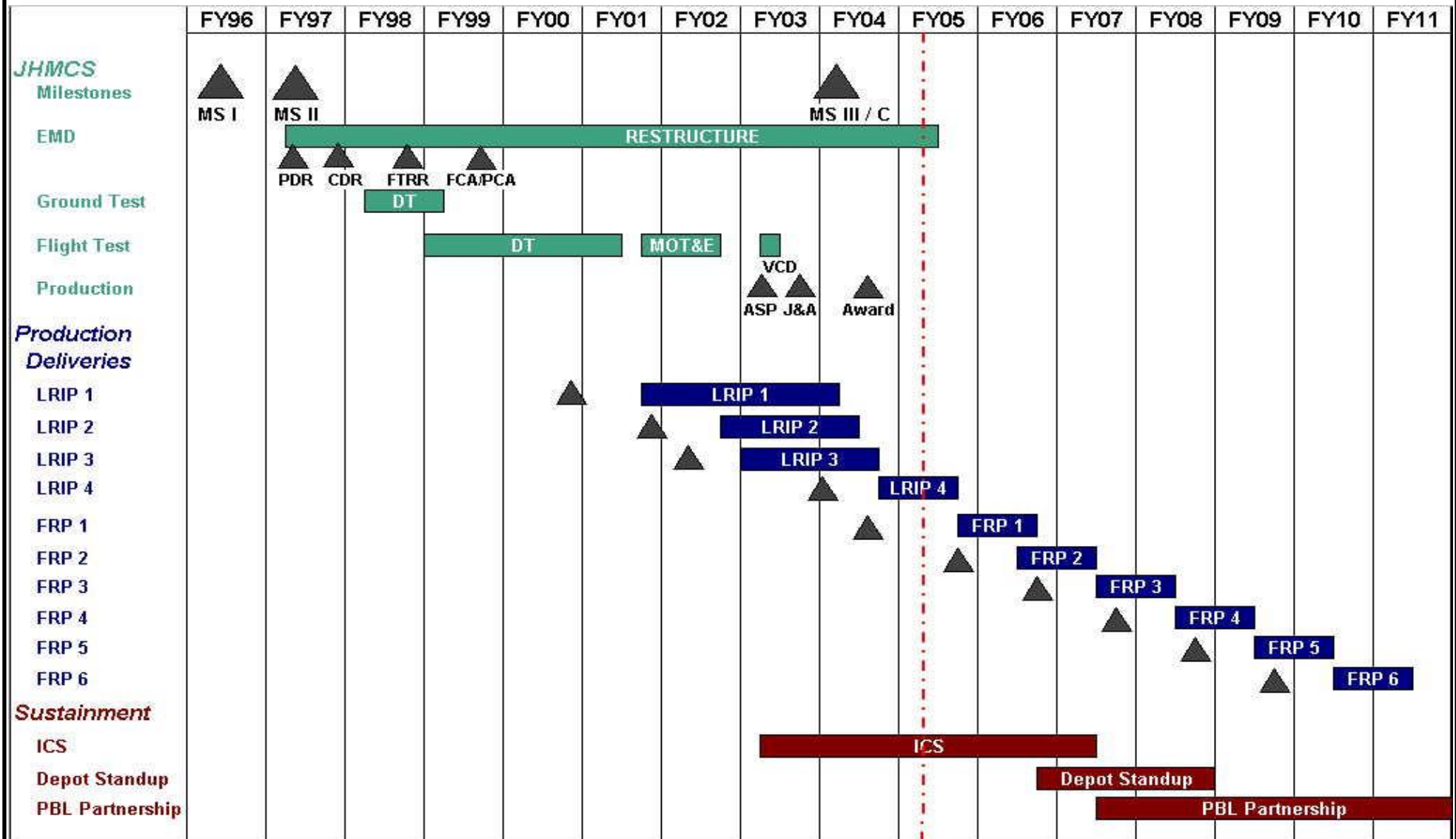
BUDGET ACTIVITY

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)

Project 4789

R-1 Shopping List - Item No. 65-6 of 65-7

Exhibit R-4 (PE 0604012F)



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

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

2-4Q

2-4Q

(U) FRP-2 Contract Award

3Q

(U) Class I ECP's

2-4Q

2-4Q

(U) FRP-3 Contract Award

2Q

(U) Alternate Displays Contract Award

1Q

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



## UNCLASSIFIED

PE NUMBER: 0604222F

PE TITLE: Nuclear Weapons Support

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604222F Nuclear Weapons Support

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.344	13.951	14.895	20.121	20.046	20.186	20.230	Continuing	TBD
4236 Engineering Analysis	3.316	4.094	4.528	7.311	7.417	7.542	7.636	Continuing	TBD
4807 Nuclear Weapons & CP Technologies	5.620	4.846	5.413	5.608	5.466	5.460	5.421	Continuing	TBD
5708 Nuclear Weapons Support	4.408	5.011	4.954	7.202	7.163	7.184	7.173	Continuing	TBD

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

The Air Force Nuclear Weapons & Counterproliferation Agency (AFNWCA) and the Air Force Materiel Command's Nuclear Weapons Center (AFMC/NWC) are tasked with maintaining and providing all Air Force (AF) nuclear weapons, nuclear weapon systems and counterproliferation expertise. These organizations provide technical and programmatic guidance as well as performing independent analyses on all Air Force nuclear weapons; nuclear weapon systems activities including weapons development/sustainment, interoperability, safety/security/reliability, stockpile management/retirement; counterforce and counterproliferation 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 Annual Weapon Assessment, and DoD-DOE nuclear stockpile planning/requirements assessment, .

--- Identify, evaluate, and assess current and projected counterproliferation systems to include participating in the pre-acquisition process as appropriate for those projects being evaluated for possible development and/or supporting current operations related to chemical, biological, radiological, nuclear, and explosives (CBRNE) counterforce strikes.

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 Air Force nuclear deterrence and counterproliferation 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 counterforce and/or counterproliferation mission requirements.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	13.185	15.154	11.923
(U) Current PBR/President's Budget	13.344	13.951	14.895
(U) Total Adjustments	0.159	-1.203	
(U) Congressional Program Reductions		-1.000	
Congressional Rescissions	-0.009	-0.203	
Congressional Increases			
Reprogrammings	0.350		
SBIR/STTR Transfer	-0.182		
(U) <b><u>Significant Program Changes:</u></b>			
FY05: Below threshold reprogramming of \$0.350M to cover shortfall in civilian pay account			
FY06: Reflects congressional directed adjustments			
FY07: Funding increased to support AF and DoD transformation objectives			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4236 Engineering Analysis	3.316	4.094	4.528	7.311	7.417	7.542	7.636	Continuing	TBD
Quantity of RDT&E Articles	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 counterproliferation/counterforce efforts. Provide the engineering and technical management expertise required in critical areas of nuclear weapons safety, security, and reliability; operations; modernization; testing; certification; and counterproliferation/counterforce.

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 Air Force nuclear weapons, nuclear weapon systems, and the supporting infrastructure.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Nuclear Weapons Program Support. Provide leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF stockpile to include the 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.	2.292	2.672	2.979
(U) Counterproliferation Support. Provide pre-acquisition technical, engineering, and management support for candidate weapons to counter future threats such as hard and deeply buried targets (HDBT) or weapons of mass destruction to include conducting counterproliferation operational assessments as well as developing new analytical methodologies needed to conduct these assessments and/or support Unified/Specified Combatant Command operations.	1.024	1.422	1.549
(U) Total Cost	3.316	4.094	4.528

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE		
										February 2006		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604222F Nuclear Weapons Support				4236 Engineering Analysis				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
In-House Studies/Analysis and Engineering Activities*	Civil Service	AFNWCA (Kirtland AFB, NM)	10.327	1.127	Oct-04	1.284	Oct-05	1.300	Oct-06	Continuing	TBD	TBD
Studies, Analysis, & Evaluations	CPAF/T&M	Multiple**	3.700	0.182	Feb-05	0.584	Feb-06	0.761	Jan-07	Continuing	TBD	TBD
Engineering & Technical Services	CPAF	Rhino Corp (Albuquerque, NM)	2.363	1.128	Jan-05	1.357	Jan-06	1.768	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			16.390	2.437		3.225		3.829		Continuing	TBD	TBD
Remarks:	* - Total Prior to FY2005 Cost includes costs previously reported in Project 655708, Nuclear Weapons Support ** - ITT Systems (Albuquerque, NM, & Colorado Springs, CO), Applied Sciences Labs (Albuquerque, NM); SAIC (Arlington, VA)											
(U) Support												
Management & Professional Support Services	T&M	ANSER (Arlington, VA); SAIC (Arlington, VA)	1.260	0.495	Feb-05	0.475	Jan-06	0.475	Jan-07	Continuing	TBD	TBD
Subtotal Support			1.260	0.495		0.475		0.475		Continuing	TBD	TBD
Remarks:												
(U) Test & Evaluation												
Various Test Centers	MIPR	Multiple	1.660	0.250	Mar-05	0.250	Mar-06	0.078	Mar-07	Continuing	TBD	TBD
Subtotal Test & Evaluation			1.660	0.250		0.250		0.078		Continuing	TBD	TBD
Remarks:												
(U) Management												
In-House Programmatic/Financial Management*	Civil Service	AFNWCA (Kirtland AFB, NM)	1.152	0.134	Oct-04	0.144	Oct-05	0.146	Oct-06	Continuing	TBD	TBD
Subtotal Management			1.152	0.134		0.144		0.146		Continuing	TBD	TBD
Remarks:	* - Total Prior to FY2005 Cost includes costs previously reported in Project 655708, Nuclear Weapons Support, this Program											
(U) Total Cost			20.462	3.316		4.094		4.528		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

**Lead Project Officer/Project Officers Group  
Management (Joint DoD/DOE)****Weapons Surveillance, Sustainment,  
Modernization, & Life Extension Activities**

Gravity Bombs (B61/B83) Life Extension Programs

Modernization/Life Extension Programs

Nuclear Surety Enhancements

ICBM Warhead (W62/W78/W87) Life Extension  
Program

Modernization/Life Extension Programs

Nuclear Surety Enhancements

Land-Based Strategic Nuclear Deterrent

Cruise Missile Warheads (W80/W84)

Modernization/Life Extension Programs

W84 Advanced Study

W80 Advanced Study

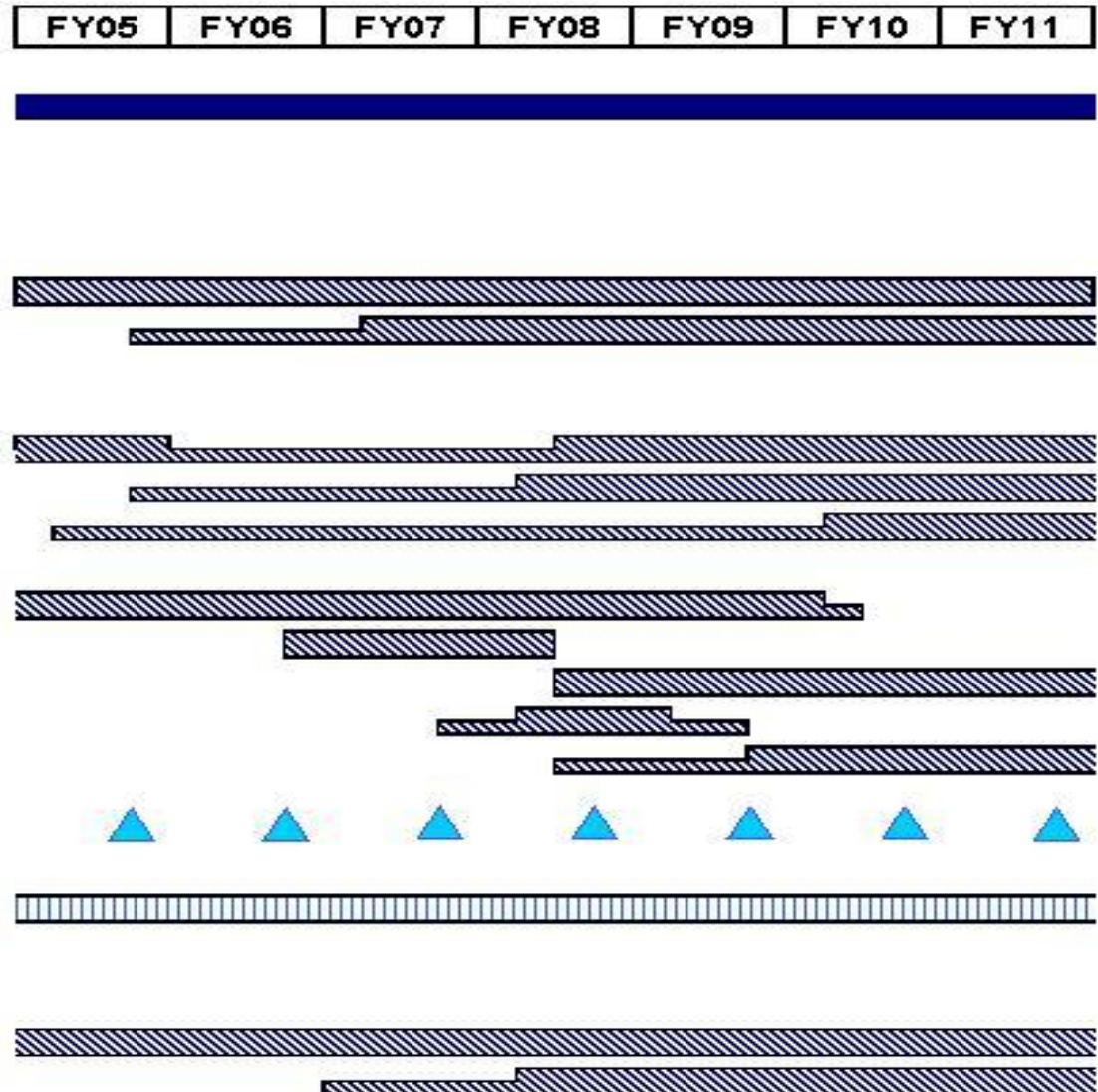
W80 Integration Analysis

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





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) Project Officers Group (POG) Management/Engineering & Technical Analysis	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapon Life Extension Programs (LEP) [B61/B83, W80, and W87]	1-4Q	1-4Q	1-4Q
(U) Annual Weapon Assessment [B61/83, W80/84, and W62/W78/W87]	3Q	3Q	3Q
(U) Minuteman III Safety Enhanced Reentry Vehicle Support	1-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Fuze Component Replacement Program Support	3-4Q	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) Start W80 Advanced Feature Development Analysis			4Q
(U) ICBM Flight Test Study	1-4Q		
(U) ICBM Warhead Force Structure Study	2-4Q	1-4Q	1-4Q
(U) W78/W87 Nuclear Surety Program		1-4Q	1-4Q
(U) B61 Flight Test Program	2-4Q	1-4Q	1-4Q
(U) B83 Special Developmental Flight Tests			1-4Q
(U) Gravity Weapon Software/Hardware Analysis		1-4Q	1-4Q
(U) Counterproliferation Support	1-4Q	1-4Q	1-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons &amp; CP Technologies

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4807 Nuclear Weapons & CP Technologies	5.620	4.846	5.413	5.608	5.466	5.460	5.421	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Perform engineering analyses of counterforce systems and operations against asymmetric threats (e.g., chemical, biological, radiological, and nuclear (CBRN); and hard and deeply buried targets (HDBT)), prepare recommended solutions resulting from these analyses and related efforts for entry into acquisition. Plan for and transition counterforce selected 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 inventoried and new counterforce weapons, including 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 counterforce and counterproliferation mission requirements. Efforts also include developing and/or validating target planning software for existing/new counterforce and/or counterproliferation weapons.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develop pre-acquisition strategies/studies of conventional and other advanced alternatives for counterproliferation/counterforce technologies & capabilities against chemical, biological, radiological, and nuclear (CBRN) targets	1.694	1.776	1.919
(U) Perform studies of Counterproliferation Advanced Concept Research and Development (R&D) to support advanced conventional and nuclear capabilities.	2.712	2.127	2.645
(U) Research, develop and/or improve (to include verification, validation, and assessment (VV&A)) the fidelity and utility of counterproliferation/ counterforce target planning tools	1.037	0.806	0.717
(U) Provide Operational Support to the Joint Chiefs of Staff, Major Commands and Combatant Commanders for evaluating counter strike operations against CBRN facilities (e.g., intelligence analysis and support, weapon effectiveness, collateral damage, etc.)	0.177	0.137	0.132
(U) Total Cost	5.620	4.846	5.413

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									



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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>	PROJECT NUMBER AND TITLE <b>4807 Nuclear Weapons &amp; CP Technologies</b>
<p>(U) <b><u>D. Acquisition Strategy</u></b> Cost Plus Award Fee (CPAF) and/or Time and Materials (T&amp;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.</p>		
Project 4807		

R-1 Shopping List - Item No. 66-8 of 66-16

Exhibit R-2a (PE 0604222F)

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## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Technology Assessments & Demonstrations	MIPR	Multiple*	9.960	2.132	Jan-05	1.480	Jan-06	1.309	Jan-07	Continuing	TBD	TBD
Modeling and Simulation	CPAF	Multiple**	0.881	0.968	Jan-05	0.943	Jan-06	0.950	Jan-07	Continuing	TBD	TBD
Development/Verification												
Studies, Analyses, & Evaluations	CPAT	Multiple**	12.476	1.522	Dec-04	1.828	Dec-05	2.549	Dec-06	Continuing	TBD	TBD
Subtotal Product Development			23.317	4.622		4.251		4.808		Continuing	TBD	TBD
Remarks:												
		* - ASC (Wright-Patterson AFB, OH), AAC (Eglin AFB, FL)										
		** - Rhino Corp (Albuquerque, NM), ITT (Colorado Springs, CO)										
(U) <u>Support</u>												
Management & Professional Support Services	CPAF/T&M	Multiple***	3.769	0.998	Dec-04	0.595	Dec-05	0.605	Dec-06	Continuing	TBD	TBD
Subtotal Support			3.769	0.998		0.595		0.605		Continuing	TBD	TBD
Remarks:												
		*** - ITT Systems (Albuquerque, NM), ANSER (Arlington, VA)										
(U) <u>Test &amp; Evaluation</u>												
TBD	TBD	TBD									0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
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
Remarks:												
(U) Total Cost			27.086	5.620		4.846		5.413		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons &amp; CP Technologies

**Advanced Technologies Activities****Agent Defeat Weapon Technology Demonstrations****Agent Defeat Weapon Concept Studies****Advanced Nuclear Concept Studies****Counter-CBRNE Operations Technology Demonstration****Counterproliferation Planning Tools Development****Agent Defeat Weapon Prediction Tools****Counter-CBRNE Operations Tools****Nuclear Weapons Effects/Vulnerability Tools****Warfighter Operational Reachback Support (as Required)**

FY05	FY06	FY07	FY08	FY09	FY10	FY11
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= Release of next version of software tool



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)	0604222F Nuclear Weapons Support	4807 Nuclear Weapons & CP Technologies		
(U) <u>Schedule Profile</u>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Effects Modeling Tools				
(U) ---Complete Initial Releasable Version		3Q		
(U) ---Begin/Complete Initial Validation			2Q	4Q
(U) Chemical Biological (CB) Agent Neutralization Calculator				
(U) ---Complete Latest Release Version		3Q		
(U) ---Issue Updates			3Q	4Q
(U) Nuclear Weapons Effects/Vulnerability Prediction Tools - Begin Development		4Q		
(U) Enhanced Cruise Missile (ECM)				
(U) ---Begin/Complete Phase 6.1 Study		1Q	1Q	
(U) ---Nuclear Weapons ICD/JCD Requirements Documents Development			2-4Q	
(U) ---Begin Phase 6.2 Study (Tentative)				2Q
(U) Anti-Biological/Chemical Weapon				
(U) ---Begin/Complete Phase 1 Study			1-3Q	
(U) ---Begin Phase 2 Study (Tentative)				4Q
(U) Agent Defeat Weapon (ADW)				
(U) ---Begin/Complete Requirements and Acquisition Documentation		2Q		2Q
(U) ---Begin/Complete Shredder Concept Assessment		2Q	4Q	
(U) ---Begin/Complete Bulk Neutralization Proof-of-Concept Demonstration		4Q		3Q
(U) ---Complete Delivery System Autonomous Operation Demonstration		4Q		
(U) ---Begin Baseline Legacy Weapon Test Database			1Q	
(U) Land Based Strategic Deterrent				
(U) ---Begin/Complete Analysis of Alternatives		2-4Q		
(U) ---ICBM Future Warhead Concepts Study		3Q		
(U) Future Gravity Warhead Concept Study			1Q	
(U) Nuclear Weapons Effects/Special Nuclear Study and Analyses			1Q	
(U) Counter-CBRNE Prompt Global Strike Analysis of Alternatives Study			3Q	



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5708 Nuclear Weapons Support	4.408	5.011	4.954	7.202	7.163	7.184	7.173	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Air Force Materiel Command's 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. Perform 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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 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.	2.294	4.182	4.327
(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.	1.073	0.432	0.545
(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 studies as directed.	1.041	0.397	0.082
(U) Total Cost	4.408	5.011	4.954

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

Project 5708

R-1 Shopping List - Item No. 66-12 of 66-16

Exhibit R-2a (PE 0604222F)



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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>	PROJECT NUMBER AND TITLE <b>5708 Nuclear Weapons Support</b>
<p>(U) <b><u>D. Acquisition Strategy</u></b> RDT&amp;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.</p>		

Project 5708

R-1 Shopping List - Item No. 66-13 of 66-16

Exhibit R-2a (PE 0604222F)

UNCLASSIFIED



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE		
										February 2006		
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
In-house Studies/Analysis & Other Government Activities	Civil Service	AAC/NW (Kirtland AFB, NM)	16.972	2.178	Oct-04	2.698	Oct-05	2.783	Oct-06	Continuing	TBD	TBD
Studies, Analyses, & Evaluations	CPAF	Sverdrup (Albuquerque, NM)	0.841	0.398	Mar-05	0.420	Mar-06	0.416		Continuing	TBD	TBD
Engineering & Technical Services	CPAF	Sverdrup (Albuquerque, NM)	2.115	1.089	Mar-05	1.107	Mar-06	0.955	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			19.928	3.665		4.225		4.154		Continuing	TBD	TBD
Remarks:												
(U) Support												
Management & Professional Support Services	CPAF	MacAulay Brown (Albuquerque, NM)	1.435	0.355	Jan-05	0.306	Jan-06	0.320	Oct-06	Continuing	TBD	TBD
Subtotal Support			1.435	0.355		0.306		0.320		Continuing	TBD	TBD
Remarks:												
(U) Management												
In-House Programmatic/Financial Management	Civil Service	AAC/NW (Kirtland AFB, NM)	2.991	0.388	Oct-04	0.480	Oct-05	0.480	Oct-06	Continuing	TBD	TBD
Subtotal Management			2.991	0.388		0.480		0.480		Continuing	TBD	TBD
Remarks:												
(U) TAMS												
(U) Total Cost			24.354	4.408		5.011		4.954		Continuing	TBD	TBD
Remarks:												



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

**Nuclear Weapons System Project Officers  
Group Activities (Joint DoD/DOE)****Nuclear Weapons System Certification**

Studies &amp; Analyses

Testing Support

**Tech Order Development & Management****Data Base Development & Management****Facility & Weapon System Design/Evaluation**

Criteria Development

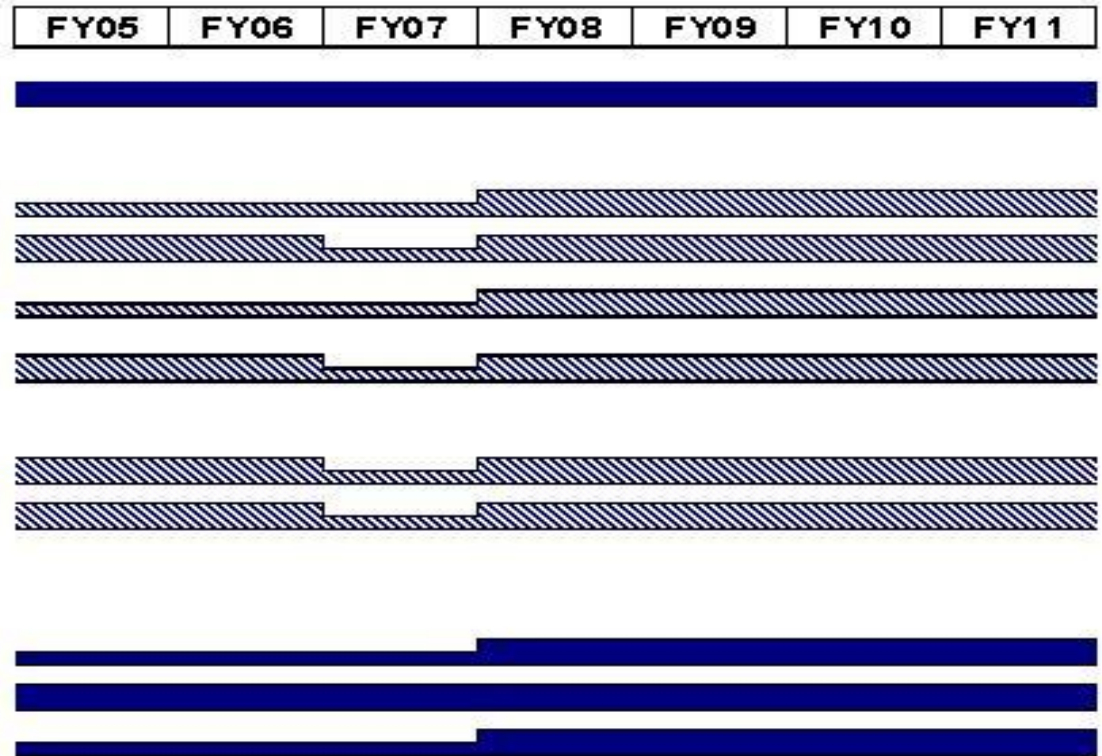
Implementation Guidance

**Nuclear Weapons Program Acquisition  
Support (Joint DoD/DOE)**

Pre-Acquisition Concept Studies

Weapon Sustainment Activities

Weapon Retirement Activities





## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
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>Schedule Profile</u>	FY 2005	FY 2006	FY 2007	
(U) Weapon System Project Officers Group (POG) Activities	1-4Q	1-4Q	1-4Q	
(U) Nuclear Weapons Certification Analyses				
(U) ---Nuclear Certification Management Meetings	2-4Q	2-4Q	2-4Q	
(U) ---Independent Surety Analysis	1-4Q	1-4Q	1-4Q	
(U) ---Compatibility Analysis	1-4Q	1-4Q	1-4Q	
(U) ---Surveillance Tests	1-4Q	1-4Q	1-4Q	
(U) ---Aircraft Monitor & Control (AMAC) Tests	4Q	1Q	2Q	
(U) ---Land Based Strategic Nuclear Deterrence Analysis		1-4Q	1-4Q	
(U) ---Intercontinental Ballistic Missile (ICBM) Security Mod Program		1-4Q	1-4Q	
(U) ---ICBM Crypto Upgrade Program		1-4Q	1-4Q	
(U) Data Base Development & Management	1-4Q	1-4Q	1-4Q	
(U) Tech Order (TO) Development & Management	1-4Q	1-4Q	1-4Q	
(U) ---Joint Strike Fighter (JSF) TO Development	1-4Q	1-4Q	1-4Q	
(U) Studies, Analyses, & Assessments				
(U) ---Safety Enhanced Reentry Vehicle (SERV) Safety Study	1-2Q			
(U) ---Strike Aircraft Operational Safety Review		1Q		
(U) ---Primary Nuclear Airlift Force (PNAF) Safety Study		1Q		
(U) ---ICBM Operational Safety Review		3Q		
(U) ---Long Term Storage Operational Safety Review			2Q	
(U) ---Technical Nuclear Safety Analysis (TNSA)	4Q	1Q		
(U) ---Weapons Maintenance Program Safety	1-4Q	1-4Q	1-4Q	
(U) ---Facilities Utilization/Design Studies	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	
(U) ---Nuclear Weapon Sustainment Activities (Phase 6/6.6)	1-4Q	1-4Q	1-4Q	
(U) ---Nuclear Weapon Retirement Activities (Phase 7)	2-4Q	2-4Q	2-4Q	
(U) Information Technology Activities	1-4Q	1-4Q	1-4Q	



## UNCLASSIFIED

PE NUMBER: 0604226F  
PE TITLE: B-1B

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604226F B-1B					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	79.201	95.910	130.546	95.789	57.750	88.365	6.812	Continuing	TBD
4596 Conventional Mission Upgrades	79.201	95.910	130.546	95.789	57.750	88.365	6.812	Continuing	TBD
The FY03 National Defense Authorization Act (NDAA) language directed 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									
(U) <b><u>A. Mission Description and Budget Item Justification</u></b>									
<p>This program provides RDT&amp;E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Funding in the FYDP includes integration of advanced conventional weapons, including (but not limited to) variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). FYDP funding also includes upgrades to the Electronic Countermeasures (ECM) suite. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS) and related mission planning systems; and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. Funding is provided for development efforts to improve the display of threat situational awareness (S/A) information (to include datalink) to the aircrew and to record mission information. ALQ-161 defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs) are also included. Reliability and DMS deficiencies and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), and radar are addressed in this program also. Funding is provided for engineering efforts, and engineering and planning studies and initiatives for potential future weapon system enhancements (including, but not limited to, weapons, targeting, sensors, and avionics) and for weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) improvements. All B-1 development programs support planned requirements for Unique Identification (UID) in their production phases. Also included are the B-1 platform unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management enhancements.</p> <p>The B-1 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.</p>									
R-1 Shopping List - Item No. 67-1 of 67-9									
Exhibit R-2 (PE 0604226F)									



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	83.719	132.496	120.485
(U) Current PBR/President's Budget	79.201	95.910	130.546
(U) Total Adjustments	-4.518	-36.586	
(U) Congressional Program Reductions		-35.200	
Congressional Rescissions	-0.064	-1.386	
Congressional Increases			
Reprogrammings	-2.432		
SBIR/STTR Transfer	-2.022		

(U) **Significant Program Changes:**

FY06: (-\$36.6M) - Congressional adjustments for Radar RMIP (-\$21M), Defensive System Upgrade Program reprogramming (-\$18.2M), CM reductions (-\$1.4M);

Congressional Adds for BRU-56 and Digital Communication (+\$4.0M).

FY07: +\$10.06M internal B-1 funds re-aligned from procurement to RDT&E for data link development.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4596 Conventional Mission Upgrades	79.201	95.910	130.546	95.789	57.750	88.365	6.812	Continuing	TBD
Quantity of RDT&E Articles	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). Funding in the FYDP includes integration of advanced conventional weapons, including (but not limited to) variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). FYDP funding also includes upgrades to the Electronic Countermeasures (ECM) suite. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS) and related mission planning systems; and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. Funding is provided for development efforts to improve the display of threat situational awareness (S/A) information (to include datalink) to the aircrew and to record mission information. ALQ-161 defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs) are also included. Reliability and DMS deficiencies and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), and radar are addressed in this program also. Funding is provided for engineering efforts, and engineering and planning studies and initiatives for potential future weapon system enhancements (including, but not limited to, weapons, targeting, sensors, and avionics) and for weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) improvements. All B-1 development programs support planned requirements for Unique Identification (UID) in their production phases. Also included are the B-1 platform unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management enhancements.

The B-1 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	61.214	81.427	123.949
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	10.688	7.641	1.628
(U) Continuing Mission Support	4.044	5.144	4.939
(U) Modeling & Simulation / Studies & Analyses	3.255	1.698	0.030
(U) Total Cost	79.201	95.910	130.546

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11,	8.633	37.174	53.255	75.550	102.993	163.576	92.624	777.525	1,311.330



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604226F B-1B			PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades			
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
Mods										
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	1.463	3.476	6.792	13.589	3.525	5.875	6.222	61.866	102.808
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	4.893	2.423	2.438	2.613	2.616	2.681	2.713	0.000	20.377
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	11.474	13.287	10.320	0.000	0.000	0.000	0.000	10.000	45.081
(U)	Appn 10, PE 0207423F, Adv Com Sys BP11	0.000	0.000	0.000	19.754	20.603	25.908	20.611	84.325	171.201
(U)	Appn 36, PE 0207446F, Bomber TDL Core	63.945	76.877	63.406	36.380	0.000	0.000	0.000	0.000	240.608
Related RDT&E:										
(U) Program Element 0205164F, Global Positioning System (GPS)										
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)										
(U) Program Element 0604727F/N, Joint Stand-Off Weapon (JSOW)										
(U) Program Element 0604600F, Wind Corrected Munitions Dispenser (WCMD)										
(U) Program Element 0208006F, Air Force Mission Support System (AFMSS)										
(U) Program Element 0604270F, Electronic Warfare (EW) Development										
(U) <b><u>D. Acquisition Strategy</u></b>										
(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); assignment of Total System Installed Performance Responsibility (TSIPR) to the integrating contractor; use of cost plus award fee (CPAF) and 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.										



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT NUMBER AND TITLE

05 System Development and Demonstration (SDD)

0604226F B-1B

4596 Conventional Mission Upgrades

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
(U) Mission Planning System											0.000	
(U) Lockheed-Sanders	C/CPAF		0.545								0.545	
(U) Northrup Grumman	C/CPAF		60.178								60.178	
(U) Training Systems											0.000	
(U) Lockheed-Martin	C/CPAF		13.248								13.248	
(U) INLX	C/CPAF		29.175	0.480	Jan-06						29.655	
(U) Rockwell Collins	TBD					1.322	May-06	0.528	Mar-07	1.031	2.881	
(U) Weapons											0.000	
(U) TBC- JDAM/GPS Pre-SDD	SS/CPFF		78.626								78.626	
(U) TBC - INS/GSS	SS/CPIF					8.375	Feb-06	9.681	Nov-06	83.045	101.101	
(U) TBC - RADAR R&M Improvements	TBD					21.189	Jan-06	65.245	Oct-06	239.241	325.675	
(U) AIL - ALQ-161 R&M/DMS	SS/CPFF		26.464	10.040	Feb-05	9.239	Mar-06	8.714	Oct-06	84.290	138.747	
(U) TBC - TSAS/AVTR Improvements	SS/CPFF		34.133								34.133	
(U) TBD - VSD Upgrade	TBD					19.205	Mar-06	12.098	Oct-06	59.257	90.560	
(U) TBC - CITS/R&M/DMS	SS/CPIF			9.800	Feb-06	10.491	Feb-06	14.436	Jan-07	1.624	36.351	
(U) TBC - FIDL Pre-SDD	SS/CPFF		1.038	1.625	Feb-05						2.663	
(U) TBC - FIDL SDD	SS/CPIF			16.642	Apr-05	8.106	Feb-06	13.248	Nov-06	9.951	47.947	
(U) TBC - FIDL (Congressional Add)	SS/CPFF			1.800	Apr-05						1.800	
(U) Raytheon - Universal Armament Interface (UAI)	SS/CPFF			2.333	Mar-05						2.333	
(U) TBC - Computer	SS/CPAF		173.340								173.340	
(U) TBC - WCMD	SS/CPAF		41.325								41.325	
(U) Lockheed-Martin - WCMD	SS/CPAF		1.801								1.801	
(U) TBC - JSOW/ JASSM	SS/CPAF		36.429								36.429	
(U) Lockheed- Martin - JASSM	SS/T&M		9.499								9.499	
(U) Raytheon - JSOW	SS/T&M		2.510								2.510	
(U) EO/IR Targeting Pod	TBD									149.447	149.447	
(U) EO/IR Targeting Pod (Congressional Add)	SS/CPFF			18.494	Jul-05						18.494	
(U) BRU-56 (Congressional Add)	TBD					1.000	May-06			31.734	32.734	
(U) Digital Communications (Congressional Add)	TBD					2.500	Jun-06			9.411	11.911	
(U) TBD - Future CMUP Related SDD	TBD									Continuing	TBD	
Subtotal Product Development			508.311	61.214		81.427		123.950		Continuing	TBD	0.000
Remarks:												
(U) Support												
(U) A&AS	Various		38.390	4.044	Jun-05	5.144	Apr-06	4.939	Apr-07	18.392	70.909	
(U) Studies & Analyses / Modeling & Sim	Various		29.202	3.255	Dec-05	1.698	Jun-06	0.029	Jan-07	3.337	37.521	
Subtotal Support			67.592	7.299		6.842		4.968		21.729	108.430	0.000
Remarks:												

Project 4596

R-1 Shopping List - Item No. 67-5 of 67-9

Exhibit R-3 (PE 0604226F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT NUMBER AND TITLE

05 System Development and Demonstration (SDD)

0604226F B-1B

4596 Conventional Mission Upgrades

(U) Test & Evaluation

(U) Weapons

(U) AFFTC

P.O.

134.256

10.688

Jul-05

7.641

Jul-06

1.628

Jan-07

16.357

0.000

170.570

Subtotal Test &amp; Evaluation

134.256

10.688

7.641

1.628

16.357

170.570

0.000

Remarks:

(U) Management

Subtotal Management

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

Remarks:

(U) Total Cost

710.159

79.201

95.910

130.546

Continuing

TBD

0.000



### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

BUDGET ACTIVITY

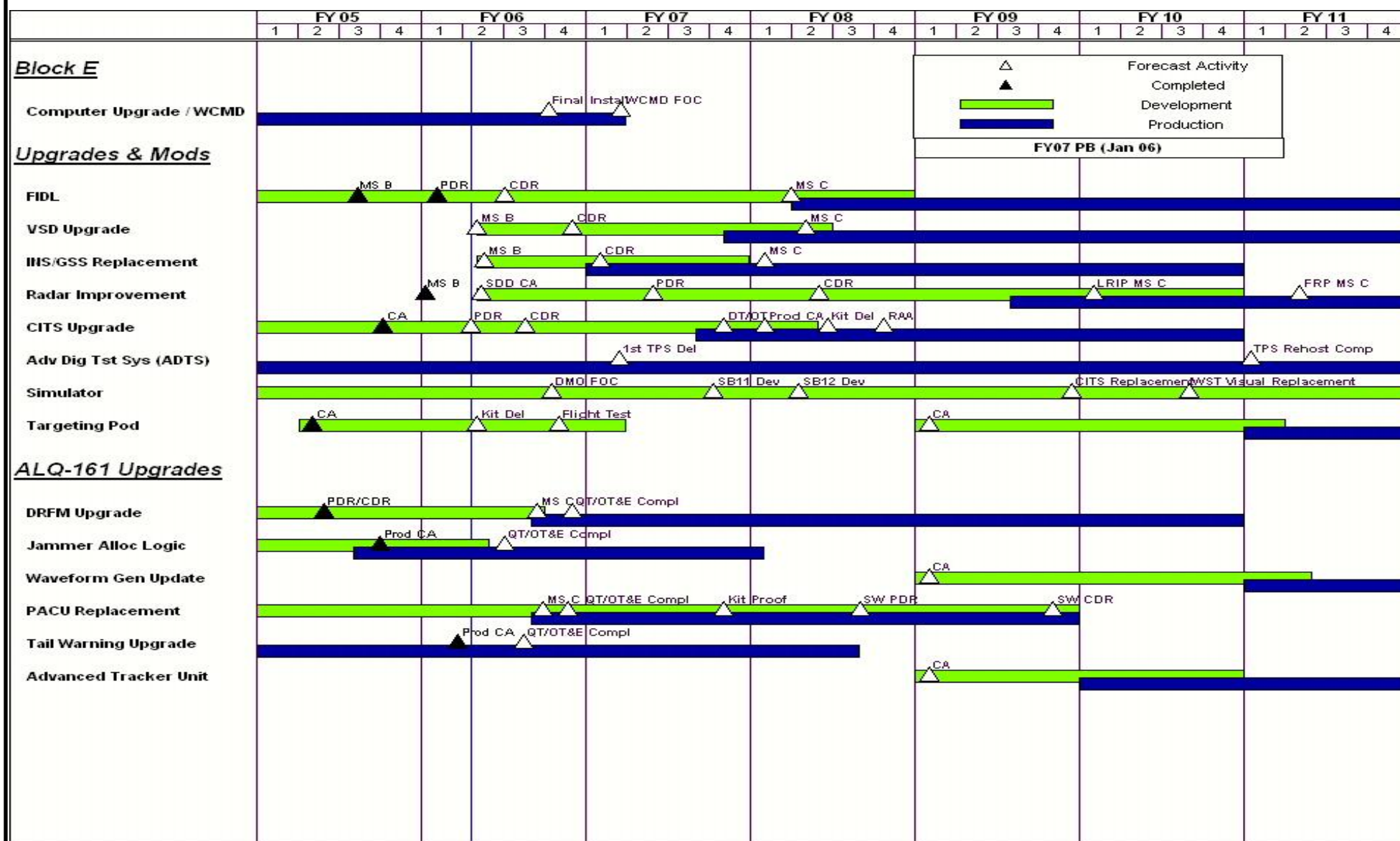
## 05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
---------------------

0604226F B-1B

PROJECT NUMBER AND TITLE	
--------------------------	--

### 4596 Conventional Mission Upgrades



Project 4596

R-1 Shopping List - Item No. 67-7 of 67-9

Exhibit R-4 (PE 0604226F)



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)	0604226F B-1B	4596 Conventional Mission Upgrades		
(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Computer Upgrade / Wind Corrected Munitions Dispenser -- Final Install		4Q		
(U) Computer Upgrade / Wind Corrected Munitions Dispenser -- WCMD FOC			1Q	
(U) Trainer/Simulator System -- DMO FOC		3Q		
(U) Trainer/Simulator System -- SB-11 Development			3Q	
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- PDR	2Q			
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- CDR	2Q			
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- MS C		3Q		
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- QT/OT&E Complete		4Q		
(U) ALQ-161A Jammer Allocation Logic Subsystem (JALS) -- Production Contract Award	3Q			
(U) ALQ-161A Jammer Allocation Logic Subsystem (JALS) -- QT/OT&E Complete		2Q		
(U) ALQ-161A Tail Warning Function (TWF) -- Production Contract Award		1Q		
(U) ALQ-161A Tail Warning Function (TWF) -- QT/OT&E Complete		3Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- QT/OT&E Complete		4Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- Kit Proof		1Q	4Q	
(U) Fully Integrated Data Link (FIDL) -- FIDL Milestone B	3Q			
(U) Fully Integrated Data Link (FIDL) -- FIDL SDD Contract Award	3Q			
(U) Fully Integrated Data Link (FIDL) -- PDR		1Q		
(U) Fully Integrated Data Link (FIDL) -- CDR		3Q		
(U) Fully Integrated Data Link (FIDL) -- DT&E Flight Test Start			3Q	
(U) Central Integrated Test System (CITS) -- SDD Contract Award	3Q			
(U) Central Integrated Test System (CITS) -- PDR		1Q		
(U) Central Integrated Test System (CITS) -- CDR		3Q		
(U) Central Integrated Test System (CITS) -- DT/OT Flight Test			4Q	
(U) Vertical Situation Displays (VSD) Upgrade -- MS B		1Q		
(U) Vertical Situation Displays (VSD) Upgrade -- CDR		4Q		
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- MS B		2Q		
(U) Inertial Nav Sys/Gyro Stab Sys (INS/GSS) -- CDR			1Q	
(U) RADAR Improvement Upgrade -- Milestone B		1Q		
(U) RADAR Improvement Upgrade -- SDD Contract Award		2Q		
(U) RADAR Improvement Upgrade -- PDR			2Q	
(U) Targeting Pod - Congressional Add -- Contract Award	2Q			
(U) Targeting Pod - Congressional Add -- Kit Delivery		1Q		
Project 4596				
R-1 Shopping List - Item No. 67-8 of 67-9				
Exhibit R-4a (PE 0604226F)				

Project 4596

R-1 Shopping List - Item No. 67-8 of 67-9

Exhibit R-4a (PE 0604226F)



## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

4596 Conventional Mission Upgrades

(U) Targeting Pod - Congressional Add -- Flight Test

4Q



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## UNCLASSIFIED

PE NUMBER: 0604233F

PE TITLE: Specialized Undergraduate Pilot Training

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																						
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>																																										
	Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
	Total Program Element (PE) Cost	2.785	8.472	3.703	12.504	7.430	3.957	3.583	Continuing	TBD																																				
4102	Joint Primary Aircraft Training System (JPATS)	1.579	7.040	2.201	2.244	2.282	2.334	2.374	Continuing	TBD																																				
4376	T-38 Avionics Upgrade Program (AUP)	1.206	1.432	1.502	10.260	5.148	1.623	1.209	Continuing	TBD																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 only, Project 4102, JPATS, includes funding for an upgrade 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 FY2002 and FY 2004 - 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.</p> <p>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.</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">3.330</td> <td style="text-align: right;">8.593</td> <td style="text-align: right;">2.181</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">2.785</td> <td style="text-align: right;">8.472</td> <td style="text-align: right;">3.703</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-0.545</td> <td style="text-align: right;">-0.121</td> <td style="text-align: right;">1.522</td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td style="text-align: right;">-0.002</td> <td></td> <td></td> </tr> <tr> <td>    Congressional Rescissions</td> <td></td> <td style="text-align: right;">-0.121</td> <td></td> </tr> <tr> <td>    Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Reprogrammings</td> <td style="text-align: right;">-0.450</td> <td></td> <td></td> </tr> <tr> <td>    SBIR/STTR Transfer</td> <td style="text-align: right;">-0.093</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p> <p>Reductions in FY2005 for Congressional General Reductions, Small Business Innovation Research, and Below Threshold Reprogrammings to support higher Air Force</p>												<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	3.330	8.593	2.181	(U) Current PBR/President's Budget	2.785	8.472	3.703	(U) Total Adjustments	-0.545	-0.121	1.522	(U) Congressional Program Reductions	-0.002			Congressional Rescissions		-0.121		Congressional Increases				Reprogrammings	-0.450			SBIR/STTR Transfer	-0.093		
	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>																																											
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R-1 Shopping List - Item No. 68-2 of 68-13

Exhibit R-2 (PE 0604233F)



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**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2006**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604233F Specialized Undergraduate Pilot Training**

priorities. Reduction in FY2006 for Congressional Rescissions. FY2007 and out increased due to inflation rate changes. FY 2007 and out funding for Project 4376, T-38 Avionics Upgrade Program, restored.

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## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4102 Joint Primary Aircraft Training System (JPATS)	1.579	7.040	2.201	2.244	2.282	2.334	2.374	Continuing	TBD
Quantity of RDT&E Articles	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 includes 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 would 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JPATS studies & development efforts.	1.579	1.735	2.201
(U) SECT software/hardware upgrade	0.000	5.305	0.000
(U) Total Cost	1.579	7.040	2.201

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	1.579	7.040	2.201	2.244	2.282	2.334	2.374	Continuing	TBD
(U) Other APPN									
(U) Aircraft Procurement, Air Force,									



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

BA-3									
(U) JPATS	300.870	328.876	305.129	240.167	2.045	1.947	1.812	6.400	2,493.541
(U) JPATS, BA-6	7.509	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.757
(U) JPATS Mod Funding	3.792	6.061	6.164	16.873	21.128	17.387	11.839	Continuing	TBD
(U) Military Construction, Air Force									
(U) PE 0804741F, JPATS	0.000	3.013	0.000	0.000	0.000	0.000	0.000	0.000	19.253
(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	11.300
(U) Aircraft Procurement, Navy, BA-3	16.941	19.381	146.068	309.459	331.212	353.744	356.177	538.826	2,295.012
(U) JPATS									
(U) APN 5 Mod Funding	1.238	0.710	1.656	1.317	1.505	1.535	1.566	15.900	25.900
(U) APN 6 Spares	0.000	0.686	4.857	6.629	7.672	5.577	2.174	29.573	68.609
(U) Military Construction, Navy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.400

(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 planned as an Engineering Change Proposal (ECP) to the competitively awarded Firm Fixed Price Contractor Logistics Support (CLS) contract, originally awarded in FY2000 for one year plus nine one-year options.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Raytheon Aircraft Company (RAC) */****	C/FPI	RAC, Wichita KS	217.589	1.579	Aug-05	1.735	May-06	2.201	May-07	Continuing	TBD	TBD
SECT Upgrade	C/FFP	AAI Services Corp, Hunt Valley MD	0.000	0.000		5.305	Feb-06	0.000		0.000	5.305	TBD
Subtotal Product Development			217.589	1.579		7.040		2.201		Continuing	TBD	TBD
Remarks:			* RAC contract Total Program includes contract value, 'to ceiling,' Engineering Change Order (ECO), and Production Incentive RAC EAC includes subcontracted GBTS effort, which is not individually reported ****EACs based on GBTS Only: Lots 1, 6, 7 and 8.									
(U) <u>Support</u> Various	Various		0.000	0.000		0.000		0.000		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			217.589	1.579		7.040		2.201		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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	'04				'05				'06				'07			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Aircraft RM&A Verification																
2	ISS Development																
3	Cockpit Upgrade Development																
4	ASV Development																
5	UWARS Development																
6	TAS Development																



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) JPATS Complete FOT&amp;E

1Q

(U) SECT Request for Information

3Q

(U) SECT Request for Proposal

4Q

(U) SECT Contract Award

2Q

(U) SECT Software and Hardware Design/Development

2-4Q

1Q

(U) SECT Software and Hardware Design/Development Complete

2Q

(U) SECT System Integration Complete

3Q

(U) SECT System Acceptance

4Q

(U) JPATS Follow-on Contract Award

1Q

(U) JPATS - Certification of New Emergency Locator Transponder

1Q

(U) JPATS GBTS Traffic Alert System Development Complete

2Q



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Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>			PROJECT NUMBER AND TITLE <b>4376 T-38 Avionics Upgrade Program (AUP)</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4376 T-38 Avionics Upgrade Program (AUP)	1.206	1.432	1.502	10.260	5.148	1.623	1.209	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 2005 - FY2011 funding is to develop &amp; test aircraft &amp; 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 (Selective Availability Anti-Spoofing Module (SAASM), precision and GPS approaches), and/or enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations such as 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. FY2008 - FY2009 includes development funding for improved T-38 brakes.</p> <p>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.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Develop and test Block 5 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.						1.206	0.000	0.000	
(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.						0.000	1.432	0.000	
(U) Future software Block Upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.						0.000	0.000	1.502	
(U) Total Cost						1.206	1.432	1.502	
Project 4376		R-1 Shopping List - Item No. 68-9 of 68-13					Exhibit R-2a (PE 0604233F)		



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	1.206	1.432	1.502	10.260	5.148	1.623	1.209	Continuing	TBD
(U) Other APPN									
(U) PE 0804741F, T-38 Avionics Upgrade, BP 1100	51.868	41.466	40.508	0.770	0.000	0.000	0.000	0.000	522.578
(U) PE 0804741F, T-38 Improved Brakes, BP 1100	0.000	0.000	0.000	0.000	9.791	9.590	5.710	52.383	77.474

(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 will be performed on the new contract.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> The Boeing Corporation	C/CPAF	The Boeing Corporation St. Louis MO		1.206	Apr-05	1.432		1.502		Continuing	TBD	TBD
TASG T-38SS	Various	TASG T-38SS WPAFB OH		0.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	1.206		1.432		1.502		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
Remarks:												
(U) <u>Test &amp; Evaluation</u>	PO										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>											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	1.206		1.432		1.502		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

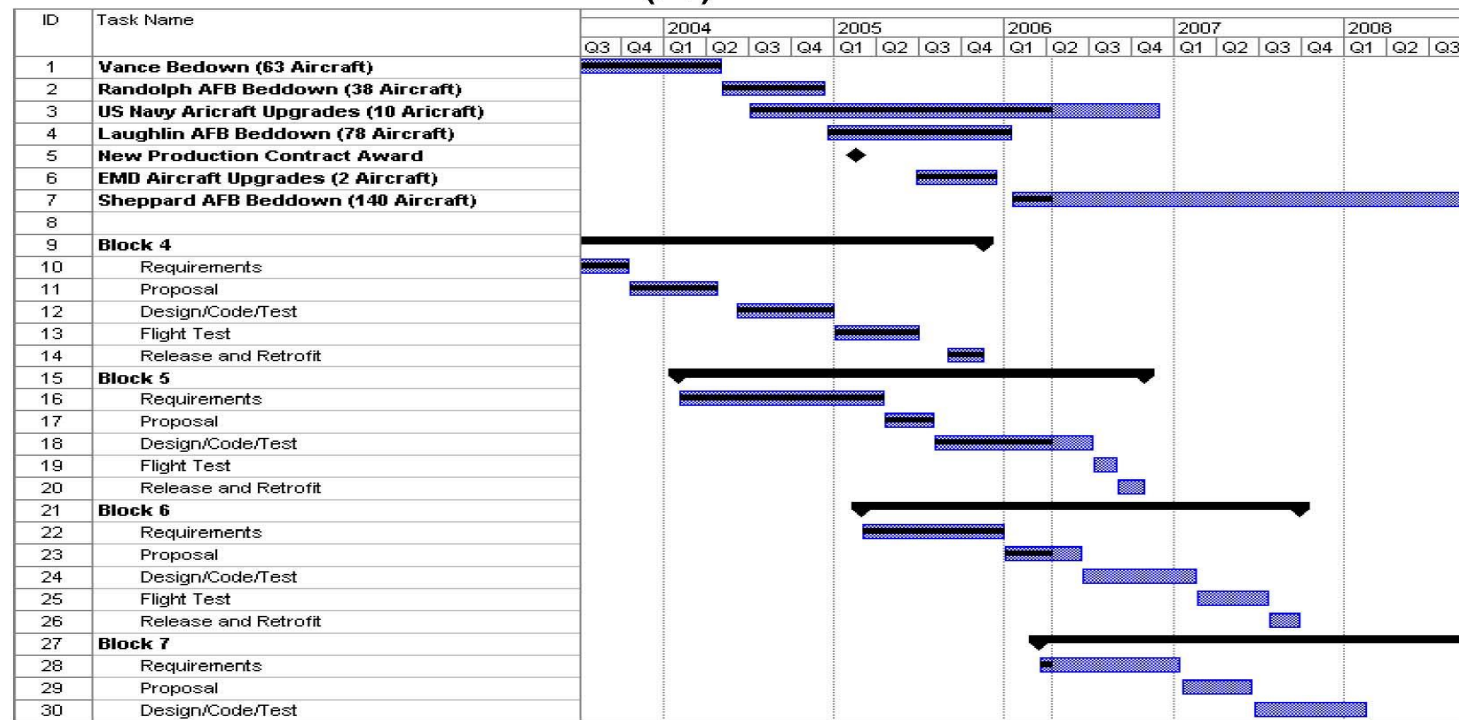
PE NUMBER AND TITLE

0604233F Specialized Undergraduate  
Pilot Training

PROJECT NUMBER AND TITLE

4376 T-38 Avionics Upgrade Program  
(AUP)

## Exhibit R-4, RDT&E Schedule Profile (FY)





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Field Software Block 4

4Q

(U) Required Assets Available (RAA), Laughlin AFB

2Q

(U) Initiate Software Block 5 on AUP

2Q

(U) Initiate Software Block 6

2Q

(U) Field Software Block 5

4Q

(U) Field Software Block 6

4Q

(U) Post Deployment Support 4 (PDS 4)

2Q

(U) PDS 5

2Q

(U) PDS 6

2Q



## UNCLASSIFIED

PE NUMBER: 0604239F  
PE TITLE: F-22 EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604239F F-22 EMD</b>																																								
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	211.815	75.117	0.000	0.000	0.000	0.000	0.000	0.000	24,086.648																																				
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<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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.</p> <p>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.</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-left: 40px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">208.143</td> <td style="text-align: right;">76.203</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">211.815</td> <td style="text-align: right;">75.117</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">3.672</td> <td style="text-align: right;">-1.086</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> </tr> <tr> <td>    Congressional Rescissions</td> <td style="text-align: right;">-0.160</td> <td style="text-align: right;">-1.086</td> <td></td> </tr> <tr> <td>    Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Reprogrammings</td> <td style="text-align: right;">9.619</td> <td></td> <td></td> </tr> <tr> <td>    SBIR/STTR Transfer</td> <td style="text-align: right;">-5.786</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b> None</p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	208.143	76.203	0.000	(U) Current PBR/President's Budget	211.815	75.117	0.000	(U) Total Adjustments	3.672	-1.086		(U) Congressional Program Reductions	-0.001			Congressional Rescissions	-0.160	-1.086		Congressional Increases				Reprogrammings	9.619			SBIR/STTR Transfer	-5.786		
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## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4069 Advanced Tactical Fighter FSD	211.815	75.117	0.000	0.000	0.000	0.000	0.000	0.000	24,086.648
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Air Vehicle	92.154	48.009	
- 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	40.122	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	20.380	2.200	
- Completed support and test of flight test engines (25 total). (NSP)			
(U) Other Government Cost	59.159	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	211.815	75.117	0.000



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PRTV II (6)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,580.580
(U) F/A-22 Squadrons RDT&E (PE 0207138F)	318.369	373.124	584.290	620.560	326.994	203.724	202.257	Continuing	TBD
(U) F/A-22 Squadrons (3010) Procurement (PE 0207138F)	95.187	78.489	262.906	300.218	285.885	170.679	398.246	Continuing	TBD
(U) F/A-22 Squadrons (3080) Procurement (PE 0207138F)	0.443	1.471	2.741	1.735	0.000	0.721	1.479	Continuing	TBD
(U) Military Construction (PE 0604239F)	0.000	0.000	0.000	0.000	0.000			0.000	65.000
(U) Military Construction (PE 0207219F)	0.000	0.000	0.000	0.000	0.000			0.000	96.018
(U) Military Construction (PE 0207138F)	28.370	47.120	62.900	98.391	0.000	0.000	0.000	0.000	267.951
(U) Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	4024.599	3763.848	2032.881	3197.146	2894.025	1694.514	0.000	0.000	34,099.816
(U) Munitions Procurement (PE 0207219F)	16.788	10.836	16.575	12.496	12.801	16.153	12.909	0.000	120.424
(U) F/A-22 Adv Comm Sys Procurement (PE 27445F)			0.000	0.000	0.000	34.521	16.690	Continuing	TBD
(U) F/A-22 Tactical Data Link RDT&E (PE 27445F)	35.526	95.557	88.099	52.175	38.626	34.714	0.000		344.697

(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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT NUMBER AND TITLE

05 System Development and Demonstration (SDD)

0604239F F-22 EMD

4069 Advanced Tactical Fighter FSD

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Lockheed (Air Veh)	C/CPAF	Lockheed Martin, Marietta, GA	16,311.177	115.305	Aug-91	68.698	Aug-91			0.000	0.000	14,727.198
Pratt & Whitney	C/CPFF	Pratt & Whitney, Hartford, CT	2,488.917	12.880	Aug-91					0.000	2,501.797	2,388.171
GFE	Various		65.899	0.254						0.000	66.153	
Subtotal Product Development			2,570.816	128.439		68.698		0.000		0.000	2,567.950	17,115.369
Remarks:												
(U) <u>Support</u> Mission Support	Various		165.200	8.797		0.000				0.000	173.997	
Subtotal Support			165.200	8.797		0.000		0.000		0.000	173.997	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> AEDC	PO	Arnold AFB, TN	158.000							0.000	158.000	
AFFTC	PO	Edwards AFB, CA	729.637	50.523	Nov-04					0.000	780.160	
All Other Tests	Various		101.075	24.056		6.419		0.000		0.000	131.550	
Not Applicable										0.000	0.000	
Subtotal Test & Evaluation			988.712	74.579		6.419		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
Remarks:												
(U) Total Cost			3,724.728	211.815		75.117		0.000		0.000	3,811.657	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&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

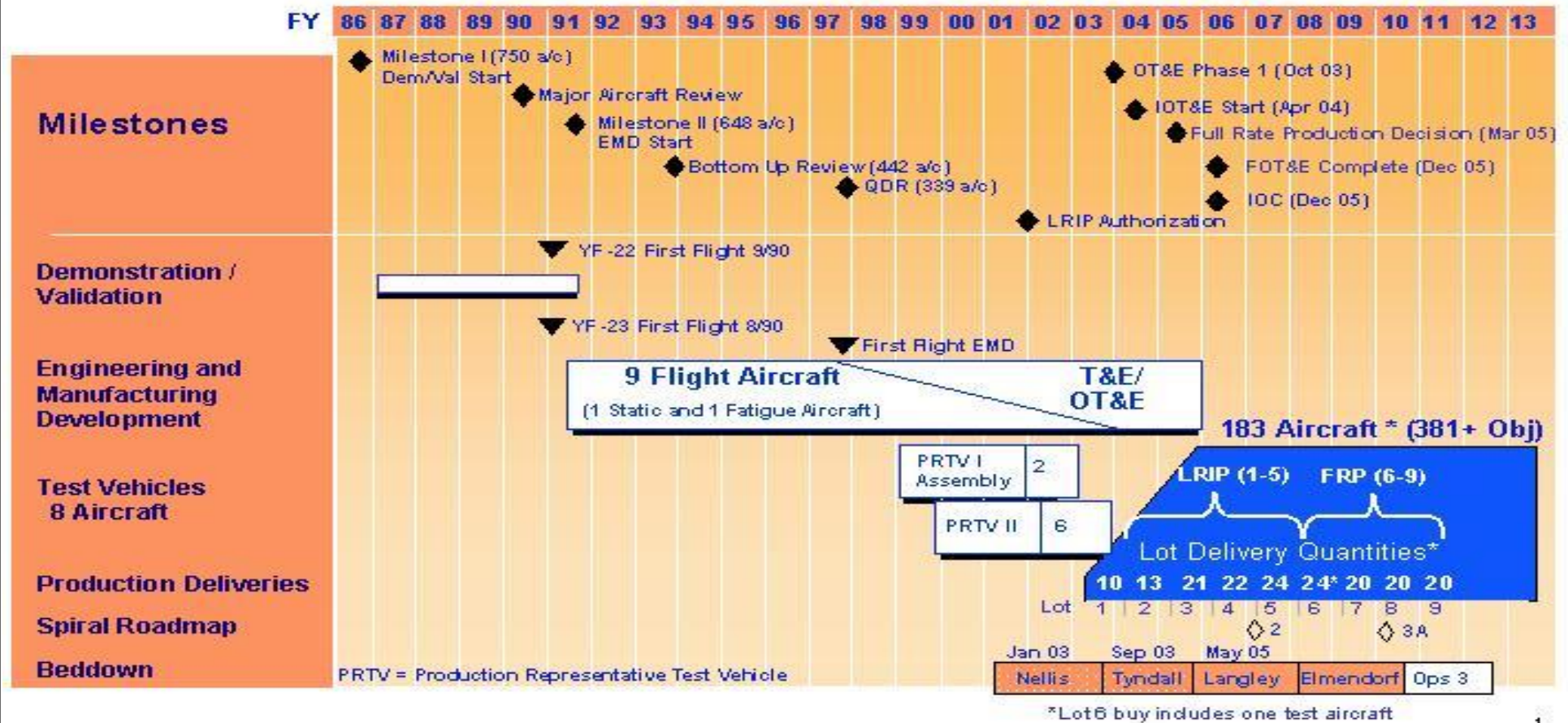
0604239F F-22 EMD

PROJECT NUMBER AND TITLE

4069 Advanced Tactical Fighter FSD

# Program Overview

## (FY07 PB )





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) IOT&amp;E Complete

2Q

(U) FDE Start

2Q

(U) FDE Complete

1Q

(U) FOT&amp;E Start

4Q

(U) FOT&amp;E Complete

1Q



## UNCLASSIFIED

PE NUMBER: 0604240F

PE TITLE: B-2 Advanced Technology Bomber

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604240F B-2 Advanced Technology Bomber

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	263.550	294.898	224.177	193.143	139.002	97.394	87.638	Continuing	TBD
3843 B-2 Advanced Technology Bomber	263.550	294.898	224.177	193.143	139.002	97.394	87.638	Continuing	TBD

In FY07: The B-2 Mode S/5 Identification Friend or Foe (IFF) and the Proximity Sensor Logic Unit (PSLU) are new start programs.

(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, Radar Modernization Program (RMP), Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) SATCOM and Extremely High Frequency (EHF) SATCOM and Computers programs, and Mode S/Mode 5 Identification Friend or Foe (IFF). RMP changes the operating frequency of the radar to enable the B-2 to legally operate 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 force package 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 will provide a dramatic increase in the data flow into and out of the B-2, 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 any new capability on the aircraft. Mode S provides enhanced IFF surveillance functions with Air Traffic Management to allow operations in controlled air space; Mode 5 provides enhanced combat identification functions for military Air Traffic Management.

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. Specifically, final testing and integration of the GBU-28 C/B program, an improved 5,000 lb "bunker buster" munition providing 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.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses a 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) improves unsupportable switches in 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



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

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, hot trailing edge, tailpipes, windshield tape, and LO diagnostic tool development. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the 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, ensures the Mission Planning System configuration keeps pace with aircraft 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	270.472	285.205	213.089
(U) Current PBR/President's Budget	263.550	294.898	224.177
(U) Total Adjustments	-6.922	9.693	
(U) Congressional Program Reductions		-0.044	
Congressional Rescissions	-0.224	-4.263	
Congressional Increases		14.000	
Reprogrammings	-1.503		
SBIR/STTR Transfer	-5.195		

(U) **Significant Program Changes:**

FY05 changes are due primarily to FY05 SBIR transfer. FY06 changes are due primarily to Congressional add: (+\$14.0M EHF SATCOM Processor Upgrade) and CM reductions (-\$4.263M).



Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604240F B-2 Advanced Technology Bomber</b>			PROJECT NUMBER AND TITLE <b>3843 B-2 Advanced Technology Bomber</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3843 B-2 Advanced Technology Bomber	263.550	294.898	224.177	193.143	139.002	97.394	87.638	Continuing	TBD
Quantity of RDT&E Articles	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.

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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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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><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.	16.912	13.899	12.281
(U)	Continue development of EHF SATCOM and Computers, GBU-28 C/B, Aft Deck, Low Observable improvements, airframe structures and other avionics improvements.	29.980	56.618	79.183
(U)	Continue development of RMP including completing Component Advanced Development (CAD) and continuing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units.	216.658	224.381	120.122
(U)	Begin development of Mode S/Mode 5 IFF and PSLU			12.591
(U)	Total Cost	263.550	294.898	224.177

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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
(U) A/C Proc, AF, Post Prod Support/BA07	6.661	7.207	7.693	0.000	0.000			0.000	TBD
(U) A/C Proc, AF, Modifications/BA05/B-2A	93.896	58.347	191.282	323.605	114.539	84.245	122.930	Continuing	TBD
(U) A/C Prod, AF, ICS	30.002	21.817	11.709	8.860	9.702			Continuing	TBD
(U) A/C Proc, AF, Cmn Spt	0.000	0.000	0.000	0.000	0.000			0.000	TBD

Project 3843

R-1 Shopping List - Item No. 70-4 of 70-8

Exhibit R-2a (PE 0604240F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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)**

Eq/BA07/Items&lt;\$2M

(U) A/C Proc, AF, A/C Initial Spares/BA06/B-2A	2.222	6.544	2.653	4.152	1.051	0.000	TBD
(U) Proc (Other), AF/BA 02,03, 04/B-2A	8.168	7.708	8.096	8.383	8.628	Continuing	TBD
(U) Military Construction/BA01	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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Air Vehicle	Multiple	Various		245.752	Oct-04	279.693	Oct-05	210.945	Oct-06	Continuing	TBD	
Aircrew Training	CPIF	Various		0.000	N/A	0.421	Feb-06	0.075	Apr-06	Continuing	TBD	
Mission Planning	Multiple	Various		2.664	Mar-05	1.935	Jan-06	1.075	Jan-07	Continuing	TBD	
Engines	Multiple	Various		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
Subtotal Product Development			0.000	248.416		282.049		212.095		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Other Govt Costs	N/A	Various		8.882		9.834		7.700		Continuing	TBD	
Subtotal Support			0.000	8.882		9.834		7.700		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Govt Test	N/A	AFFTC		6.252		3.015		4.382		Continuing	TBD	
Subtotal Test & Evaluation			0.000	6.252		3.015		4.382		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Cancelled Year Invoices	N/A	Various		0.000		0.000		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	263.550		294.898		224.177		Continuing	TBD	0.000
Award dates listed are the first incremental funding opportunity associated with cost categories												



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology  
Bomber

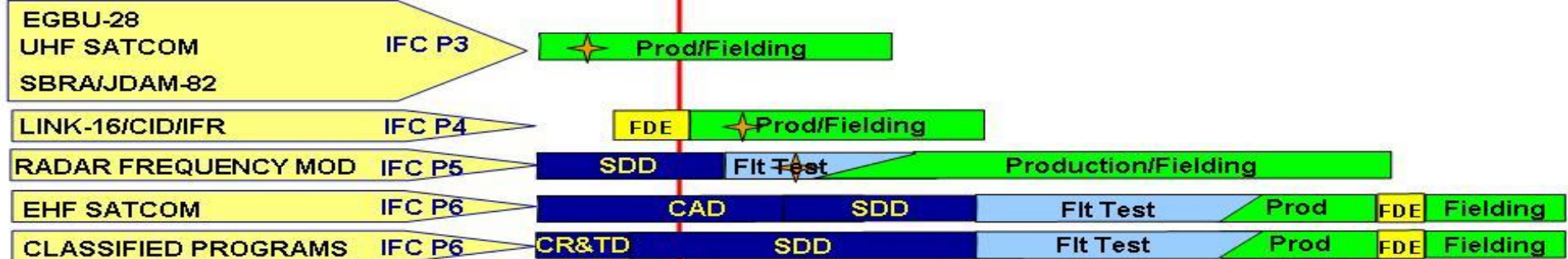
PROJECT NUMBER AND TITLE

3843 B-2 Advanced Technology  
Bomber

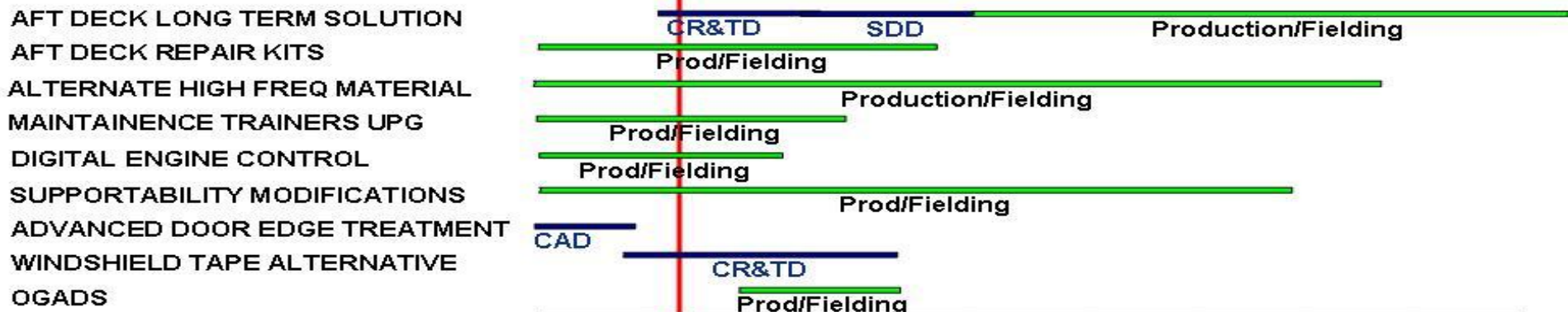
U.S. AIR FORCE

# B-2 Detailed Schedule

## AIRCRAFT MODS



## AIRCRAFT MAINTAINABILITY



★ Initial Operational Capability

FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
------	------	------	------	------	------	------	------	------

As of: 10 Jan 06



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) EHF CAD Extension (FY05 Congressional Plus-up)

3Q

(U) EHF SDD Contract Award

2Q

(U) Link-16/CID/IFR Flight Test Completes

1Q

(U) GBU-28 C/B Contract Award

2Q

(U) GBU-28 C/B Flight Test Begins/Completes (FY05 Congressional Plus-up)

1Q

(U) RMP Flight Test Begins

2Q

(U) WTA CR&amp;TD Contract Award

4Q

(U) Aft Deck CR&amp;TD Contract Award

2Q



## UNCLASSIFIED

PE NUMBER: 0604261F

PE TITLE: Personnel Recovery Systems

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604261F Personnel Recovery Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	254.310	285.136	223.970	270.217	391.940	Continuing	TBD
5213 CSAR-X	0.000	0.000	254.310	285.136	223.970	270.217	391.940	Continuing	TBD

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

The Combat Search and Rescue Replacement Aircraft (CSAR-X) will provide USAF Combat Rescue forces with a medium-lift vertical take-off and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide CSAR and Joint Personnel Recovery (PR) missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling capability 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.

The CSAR-X program was previously known as the Personnel Recovery Vehicle (PRV). The name was changed to more accurately describe its intended mission.

A new development PE 604261F has been created for the CSAR-X program. FY07-11 RDT&E funding for this program has been transferred to PE 604261F. Production funding for CSAR-X will remain in PE 207224F and be reported in P-Docs starting in FY08.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	254.310
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Funding increased to close the development funding gap between CSAR-X Block 0/10. Block 10 development start moved from FY11 to FY09.

FY07-11 RDT&E funding was transferred from PE 207224F.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5213 CSAR-X	0.000	0.000	254.310	285.136	223.970	270.217	391.940	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Combat Search and Rescue Replacement Aircraft (CSAR-X) will provide USAF Combat Rescue forces with a medium-lift vertical take-off and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide CSAR and Joint Personnel Recovery (PR) missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling capability 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.

The CSAR-X program was previously known as the Personnel Recovery Vehicle (PRV). The name was changed to more accurately describe its intended mission.

A new development PE 604261F has been created for the CSAR-X program. FY07-11 RDT&E funding for this program has been transferred to PE 604261F.

Production funding for CSAR-X will remain in PE 207224F and be reported in P-Docs starting in FY08.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) SPO support in development of test and evaluation master plan, acquisition strategy, preparation of Milestone B (MS B) documentation, development of request for proposals, support of source selection activities, contract award, and execution of SDD contract.			4.150
(U) Studies and Analysis			2.000
(U) Government Test			6.520
(U) Test and evaluation planning			
(U) Development of test vehicles			241.640
(U) Total Cost	0.000	0.000	254.310

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) 3010 BP10 AP, PE 27224				23.638	300.799	402.185	740.752	Continuing	TBD
(U) 3600 BP28 RDT&E, PE 27224F	6.460	70.801							



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604261F Personnel Recovery Systems</b>	PROJECT NUMBER AND TITLE <b>5213 CSAR-X</b>
<p>(U) <b><u>D. Acquisition Strategy</u></b></p> <p>Request for proposals (RFP) was released in FY06. Competitive source selection, Milestone B (MS B), and contract award to be completed in FY06. Test articles will be delivered starting in FY08. Milestone C is planned for FY09.</p> <p>The CSAR-X acquisition strategy will pursue an incremental development strategy. CSAR-X will develop and field two increments, a Block 0 and a Block 10 platform. The initial RDT&amp;E funding is required for the development of three Block 0 Test Vehicles and the design, integration, testing and certification of CSAR-X mission components required by the Capability Development Document (CDD). The Block 0 CSAR-X will begin production deliveries in FY11, and have an Initial Operational Capability (IOC) in FY12. Block 10 development will develop two Test Vehicles to the Block 10 configuration allowing design, integration, and test of the Block 10 capabilities. Block 10 CSAR-Xs will have an IOC of FY18.</p>		
Project 5213	R-1 Shopping List - Item No. 71-3 of 71-6	Exhibit R-2a (PE 0604261F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery  
Systems

PROJECT NUMBER AND TITLE

5213 CSAR-X

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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	TBD							2.000		Continuing	TBD	
Development of Test Vehicles	TBD							241.640		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		243.640		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support	TBD		0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation	TBD		0.000	0.000		0.000		6.520		Continuing	TBD	0.000
Remarks:								6.520		Continuing	TBD	0.000
(U) <u>Management</u>												
Subtotal Management	TBD		0.000	0.000		0.000		4.150		Continuing	TBD	0.000
Remarks:								4.150		Continuing	TBD	0.000
(U) Total Cost			0.000	0.000		0.000		254.310		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

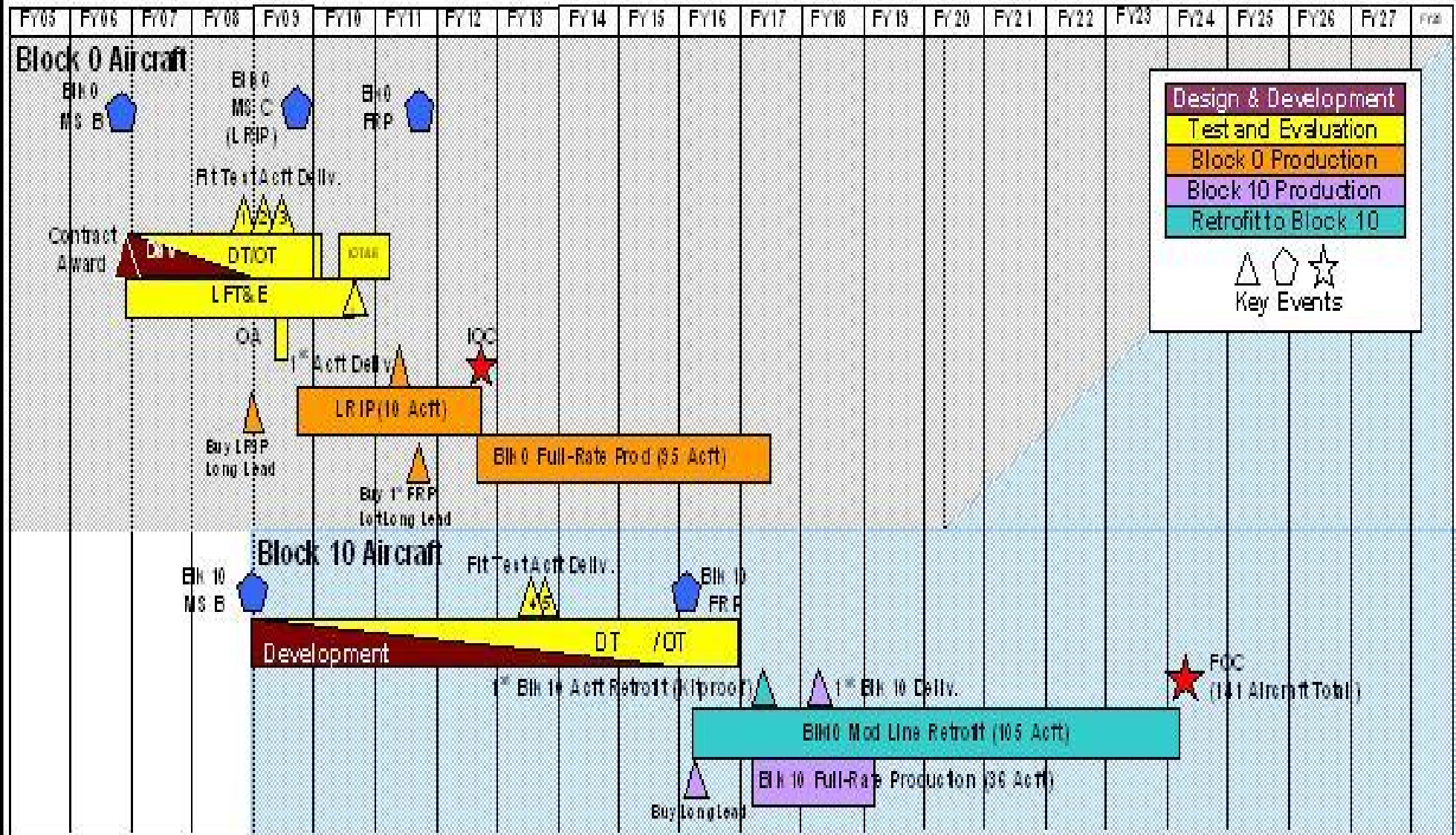
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

PROJECT NUMBER AND TITLE

5213 CSAR-X



Project 5213

R-1 Shopping List - Item No. 71-5 of 71-6

Exhibit R-4 (PE 0604261F)



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery  
Systems

PROJECT NUMBER AND TITLE

5213 CSAR-X

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Develop Acquisition Strategy

2Q

(U) RFP Release

1Q

(U) Conduct CSAR-X Source Selection

1-4Q

(U) Milestone B

4Q

(U) Contract Award

4Q



## UNCLASSIFIED

PE NUMBER: 0604270F  
PE TITLE: EW Development

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development						
Cost (\$ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost		100.865	91.169	87.784	34.838	11.446	0.568	0.825	Continuing	TBD
3891	Advanced IR Counter Measures (AIRCМ)	0.663	0.010	0.010	0.000	3.405	0.000	0.000	0.000	85.913
3945	TEWS Upgrade	11.824	8.393	3.847	1.822	2.610	0.568	0.825	Continuing	TBD
4832	Precision Location and Identification (PLAID)	27.652	15.204	5.973	0.000	0.000	0.000	0.000	0.000	92.463
8462	Miniature Air Launched Decoy	60.726	67.562	77.954	33.016	5.431	0.000	0.000	Continuing	TBD
BPAC 653891 (AIRCМ) includes Advanced Strategic and Tactical Infrared Expendables (ASTE). Note: Details for B-52 SOJ (AEA) are being reported in PE 0604429F.										
(U) <b><u>A. Mission Description and Budget Item Justification</u></b>										
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 Counterair, 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 Measures (ESM), Electronic Protection (EP), and Electronic Attack (EA). ESM programs support the collection, analysis and dissemination of information related to the detection, geolocation, 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><u>B. Program Change Summary (\$ in Millions)</u></b>										
						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>		
(U)	Previous President's Budget					113.089	82.587	62.982		
(U)	Current PBR/President's Budget					100.865	91.169	87.784		
(U)	Total Adjustments					-12.224	8.582			
(U)	Congressional Program Reductions									
	Congressional Rescissions					-0.087	-1.318			
	Congressional Increases						9.900			
	Reprogrammings					-9.375				
	SBIR/STTR Transfer					-2.762				
(U) <b><u>Significant Program Changes:</u></b>										
- FY2005, realigned \$2.3M from Project 653891,Advanced IR Counter Measures (AIRCМ) to Project 658462 for continued										

R-1 Shopping List - Item No. 72-1 of 72-21

Exhibit R-2 (PE 0604270F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

- development of the Miniature Air Launched Decoy (MALD) Program
- FY2005, Project 654832 received Congressional Plus-Up of \$2.3M for Rapid Replacement of Mission Critical Logistics (RRMCLEC), \$5.4M for AN/ALQ-172 Airborne Electronic Attack (AEA) Upgrade and \$4.0M for PLAID. Funds for RRMCLEC and AN/ALQ-172 AEA Upgrade allocated to Project 654832 for administrative support.
  - FY2006, Project 654832 received Congressional Plus-Up of \$1.4M for RRMCLEC and \$8.5M for PLAID
  - FY2007, Project 658462, added \$24.2M for continued development of MALD



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3891 Advanced IR Counter Measures (AIRCМ)	0.663	0.010	0.010	0.000	3.405	0.000	0.000	0.000	85.913
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Advanced Infrared Countermeasures (AIRCМ) contains the Advanced Strategic and Tactical IR Expendables (ASTE) project. ASTE procurement was transitioned to OO-ALC under PE 28030F War Rerserve Ammunition (WRM) for procurement/sustainment in FY04/05.

(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. ASTE will provide advanced IR expendable countermeasures and/or IRCM 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.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue ASTE Flare/AIRCМ Development, Testing, and Transition	0.663		
(U) AIRCМ Modeling & Simulation and flight test analysis		0.010	0.010
(U) Total Cost	0.663	0.010	0.010

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

	<u>FY 2005 Actual</u>	<u>FY 2006 Estimate</u>	<u>FY 2007 Estimate</u>	<u>FY 2008 Estimate</u>	<u>FY 2009 Estimate</u>	<u>FY 2010 Estimate</u>	<u>FY 2011 Estimate</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
(U) Procurement of Ammunition, AF, PE 28030F, WSC Flares	11.552	36.419	42.350	97.143	148.400	125.217	133.722	Continuing	TBD

(U) **D. Acquisition Strategy**

The planned acquisition strategy for ASTE and related AIRCМ efforts is competitive cost-plus.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(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
Remarks:		ASTE completed development and transitioned to OO-ALC Logistic in FY05										
(U) <u>Support</u>												
AATC/DTZ IRCM modeling & simulation and flight test analysis	Various	Air National Guard Air Force Reserve Test Center, Tucson AZ		0.200		0.010		0.010			0.220	
CESS/TW IRCM technical support for EW roadmap	Various	Combat Electronic Systems Squadron, WPAFB OH		0.063							0.063	
Subtotal Support			0.000	0.263		0.010		0.010		0.000	0.283	0.000
Remarks:		AATC/DTZ includes Georgia Tech Research Institute (GTRI) technical support										
(U) <u>Test &amp; Evaluation</u>												
AFRL/SNJW Electro-Optical Countermeasures	Various	Air Force Research Lab, WPAFB OH		0.177							0.177	
Naval Surface Warfare Center	Various	Naval Surface Warfare Ctr., Crane IN		0.223							0.223	
Subtotal Test & Evaluation			0.000	0.400		0.000		0.000		0.000	0.400	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
Remarks:												
(U) Total Cost			0.000	0.663		0.010		0.010		0.000	0.683	0.000

Project 3891

R-1 Shopping List - Item No. 72-4 of 72-21

Exhibit R-3 (PE 0604270F)



### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

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)**

## RDT&E Schedule Profile Milestones

[illegible]



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) IRCM modeling/simulation and flight test analysis

4Q

(U) IRDM technical support for EW roadmap

4Q

(U) USN/Crane ASTE flare testing in NATO test

4Q

(U) AFRL directed energy IRCM system development

4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3945 TEWS Upgrade	11.824	8.393	3.847	1.822	2.610	0.568	0.825	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

This program develops 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 that meets F-15 requirements and will include a Reel-In/Reel-Out (RORI) prototype launcher capability.

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

(1) The FOTD improves electronic countermeasure performance against Tier 1 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.

(2) This program develops and integrates an Air Force Fiber Optic Towed Decoy (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, effectiveness testing, and conducting 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.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) F-15 ( F-15 TEWS & Two Tube FOTD & Flight Test)	3.277	6.529	3.547
(U) FOTD Integration and RORI Development	4.799	0.951	
(U) EW Studies	2.000		
(U) Mission and Test Support	1.748	0.913	0.300
(U) Total Cost	11.824	8.393	3.847

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement, AF PE 027442F, War Consumable (RF decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Aircraft Procurement, AF PE 027442F, Initial Spares	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Aircraft Procurement, AF PE 027442F, Mods (F-15)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



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Exhibit R-2a, RDT&E Project Justification		DATE
		<b>February 2006</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0604270F EW Development</b>	<b>3945 TEWS Upgrade</b>

(U) **D. Acquisition Strategy**

The acquisition strategy for IDECM RDT&E was competitive, cost-plus incentive fee, cost-plus award fee and cost-plus fixed fee.

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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604270F EW Development

## PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH	47.306	1.250		0.150	Dec-05	0.125	Jan-07	0.000	48.831	
Development Raytheon	CPIF	Raytheon, Goleta, CA	17.722	0.000				0.125	Jan-07	0.000	17.847	
F-15 IDECM Integration- Boeing/LMT/Northrop	CPFF	Boeing Company, St Louis, MO	59.293	0.800						0.000	60.093	
USAF IDECM: Development BAE (Navy BOA)	CPFF	BAE, Nashua, NH	3.023	0.356	Nov-04	0.000				0.000	3.379	
Raytheon Development (FO-50 Two Tube)	CPFF	Raytheon, Goleta, CA	5.875	1.250	Mar-05	1.500	Jan-06			0.000	8.625	
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Misc	4.077	1.989	Apr-05					0.000	6.066	
RORI Launcher Prototype/Development	CPFF	Raytheon, CA & BAE, NH	0.600	0.000		4.879		3.297		0.000	8.776	
EW Studies	Various	Misc	0.000	2.000	Feb-05						2.000	
Subtotal Product Development			137.896	7.645		6.529		3.547		0.000	155.617	0.000
Remarks:												
(U) <u>Support</u>												
ASC/AA - IDECM	Various	Misc	6.211	1.183	Dec-04	0.913	Jan-06	0.300	Nov-06	0.000	8.607	
Subtotal Support			6.211	1.183		0.913		0.300		0.000	8.607	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC	Various	Misc	1.600	0.000						0.000	1.600	
F-15 Flight Test			0.000	0.081		0.701	Mar-06				0.782	
Flight Test Support (Effectiveness Testing)	Various	Misc	0.156	0.000						0.000	0.156	
Eglin Flight Test Support	Various	Misc	3.389	1.000						0.000	4.389	
Naval Research Lab (NRL)	Various	Misc	1.078	0.315		0.250	Mar-06			0.000	1.643	
Live Fire Test	Various	Misc	1.232	1.600						0.000	2.832	
Subtotal Test & Evaluation			7.455	2.996		0.951		0.000		0.000	11.402	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) Total Cost			151.562	11.824		8.393		3.847		0.000	175.626	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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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

## RDT&amp;E Schedule Profile Milestones

ID	Task Name	2004					2005				2006				2007		
		Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
1	DACP FY04 Efforts			★													
2	Live Fire FY04 Efforts			★													
3	FOTD RORI Stability Flt Test Phase 1					★											
4	Reel-In/Reel-Out (RORI) Prototype Launcher Kti					★											
5	DACP FY05 Efforts						★										
6	F-15 Alt Launcher Location Study						★										
7	FOTD RORI Stability Flt Test Phase 2						★										
8	RORI TIM #1 (PDR)							★									
9	FOTD Envelope Expansion Flt Test							★									
10	RORI TIM #2 (CDR)								★								
11	RORI Launcher Prototype Demo Flt Test									★							
12	FOTD Envelope Expansion Final Flt Test										★						
13	Electronic FOTD Fast Deploy Flt Test											★					
14	FOTD Effectiveness Flt Test												★				
15	Program Close out & HW Disposition													★			
16	Program Closed Out																★



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

PROJECT NUMBER AND TITLE

**3945 TEWS Upgrade**(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Defense Acquisition Challenge Program FY05 Efforts

1-4Q

(U) F-15 Alternate Launcher Location Study

2-4Q

(U) FOTD RORI Stability Flight Test Phase II

2Q

(U) RORI TIM 1 (PDR)

2Q

(U) FOTD Envelope Expansion Flight Test

3Q

(U) RORI TIM 2 (CDR)

4Q

(U) RORI Launcher Prototype Demo Flight Test

2Q

(U) FOTD Envelope Expansion Final Flight Test

3-4Q

(U) Electronic FOTD Fast Deploy Flight Test

3-4Q

(U) FOTD Effectiveness Flight Test

4Q

(U) Program Closeout &amp; HW Disposition

1Q

(U) Program Closeout

3Q



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	27.652	15.204	5.973	0.000	0.000	0.000	0.000	0.000	92.463
Quantity of RDT&E Articles	7	10	0	0	0	0	0		

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

The ALR-69A radar warning receiver (RWR) will improve aircrew situational awareness by providing accurate ground emitter location and unambiguous identification. Improved threat information from a modernized RWR will assist the aircrews in determining precise threat range/directions and, when integrated with existing mission planning systems, will provide aircrews with real time threat avoidance route information. The ALR-69A RWR will, where feasible, utilize existing aircraft RWR antennas and wiring however some platform modifications will be necessary to optimize geolocation performance and minimize electromagnetic interference. 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.

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 FY05 and FY06, Congress added \$2.3M and \$1.4M AF RDT&E funds respectively to the EW Development PE 064270F for "Rapid Replacement of Mission Critical Logistics Electronics Components" (RRMCLEC). In FY05, Congress added \$5.4M to the EW Development PE for "AN/ALQ-172 Airborne Electronic Attack (AEA) Upgrade." RRMCLC and ALQ-172 AEA Upgrade work is being performed at Warner Robins Air Logistics Center (ALC) and that ALC will also track those funds. RRMCLC will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems. ALQ-172 AEA Upgrade will resolve hardware and software deficiencies, increase system reliability and maintainability, reduce system weight and power consumption, and provide growth capability to extend the receiver service life.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Program Office and Engineering Support	3.305	1.080	1.100
(U) CORE SDD/Options/Award Fees	11.304	9.280	2.758
(U) SOF C-130 CORE Platform Integration - SOF C130 CORE/AT3 ACTD	3.544	2.024	1.115
(U) DT&E/OT&E - SOF C130 CORE/AT3 ACTD	2.058	1.420	1.000
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	2.223	1.400	
(U) ALQ-172 Airborne Electronic Attack (AEA) Upgrade	5.218		
(U) Total Cost	27.652	15.204	5.973



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) DARPA Funding (AT3 ACTD)									1.300
(U) OSD Funding (AT3 ACTD)	5.000	4.000							14.000
(U) PE27442F Common ECM Equipment	0.000	10.930	11.645	10.236	10.543	0.000	0.000	43.354	TBD
(U) PE41115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement to commence in FY06	0.000	15.812	38.935	53.081	41.136	20.716	9.030	181.780	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 2006			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)					0604270F EW Development					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 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Product Development													
Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		5.000	Feb-05	3.000	Nov-05	0.758		0.000	8.758	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		6.304	May-05	6.280	Nov-05	2.000		0.000	14.584	8.384	
Subtotal Product Development Remarks:			0.000	11.304		9.280		2.758		0.000	23.342	36.976	
(U) Support													
AT3 Program Office Support Program Office	PR	Various Contractors		1.255	Oct-04	0.580	Nov-05			0.000	1.835	1.255	
Engineering	Various			0.550	Oct-04			0.600			1.150	1.610	
Subtotal Support Remarks:			0.000	1.500	Nov-04	0.500	Nov-05	0.500		0.000	2.500	2.500	
				3.305		1.080		1.100		0.000	5.485	5.365	
(U) Test & Evaluation													
AFOTEC Det 1 46 OGS C-130	PO			1.800	Nov-05	1.420	Nov-05	1.000		0.000	4.220	4.455	
AT3 ACTD T&E (Western Test Range)	PO			0.258	Oct-04						0.258	0.739	
Subtotal Test & Evaluation Remarks:			0.000	2.058		1.420		1.000		0.000	4.478	5.194	
(U)													
Platform Integration - C-130, F-16 AT3 ACTD	Various	Various		3.544	Feb-05	2.024	Nov-05	1.115		0.000	6.683	7.027	
Platform Integration Options 3/4	Various	Various						0.000			0.000	0.395	
Subtotal Remarks:			0.000	3.544		2.024		1.115		0.000	6.683	7.422	
(U)													
Rapid Replacement of Mission Critical Logistics Electronic Components	IDIQ Time and Matls	Scientific Research Corp - Atlanta GA		2.223	Apr-05	1.400					3.623	3.900	
ALQ-172 AEA Upgrade	Sole Source, BOA	ITT, Clifton, NJ		5.218	Jul-05						5.218		
Subtotal Remarks:			0.000	7.441		1.400		0.000		0.000	8.841	3.900	
(U) Total Cost			0.000	27.652		15.204		5.973		0.000	48.829	58.857	
Project 4832													
R-1 Shopping List - Item No. 72-14 of 72-21													
Exhibit R-3 (PE 0604270F)													

Project 4832

R-1 Shopping List - Item No. 72-14 of 72-21

Exhibit R-3 (PE 0604270F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

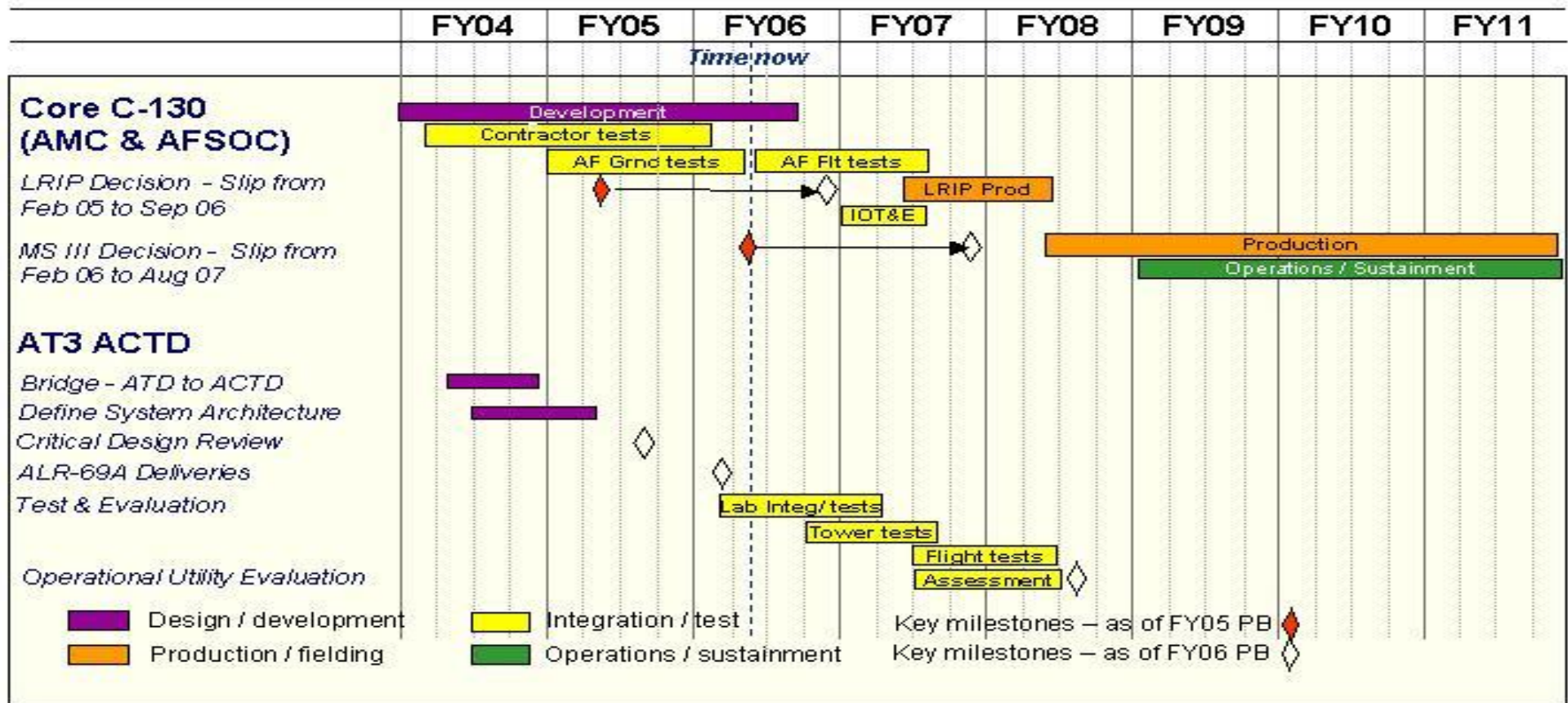
PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

# ALR-69A Radar Warning Receiver Core & AT3 Schedule



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Exhibit R-4a, RDT&E Schedule Detail			DATE February 2006	
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) <u>Schedule Profile</u>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Developmental Testing and Evaluation			2Q	
(U) Initial Operational Test and Evaluation				1Q
(U) LRIP Decision			3Q	
(U) MSIII Decision				3Q
<div>Project 4832</div> <div>R-1 Shopping List - Item No. 72-16 of 72-21</div> <div>Exhibit R-4a (PE 0604270F)</div>				

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## Exhibit R-2a, RDT&amp;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

**8462 Miniature Air Launched Decoy**

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
8462 Miniature Air Launched Decoy	60.726	67.562	77.954	33.016	5.431	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2006, Airborne Electronic Attack transferred from Project 658462 (formerly called Airborne Electronic Attack) to PE 0604429F, Airborne Electronic Attack, Project 655192, Network and System-of-Systems Development and Project 655193 B-52 Stand-Off Jammer. Project 658462 continues to develop the Miniature Air Launched Decoy (MALD).

**(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 Task Force, Global Response Task Force, Space and C4ISR Task Force, and the Air and Space Expeditionary Force Concepts of Operation. 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 System Development and Demonstration (SDD) of the Decoy configuration. This will include design, development, test, aircraft integration, and seamless verification of the decoy vehicle. A spiral to MALD-J development will begin in FY 06.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MALD and MALD-J SDD Contract	32.152	53.106	58.366
(U) MALD Program Office Support (Government)	2.088	3.020	3.375
(U) MALD / MALD-J B-52 Aircraft Integration	3.775	3.460	2.346
(U) MALD / MALD-J Mission and Test Support	2.071	7.791	13.187
(U) MALD / MALD-J F-16 Aircraft Integration	0.120	0.185	0.680
(U) AEA Synchronization Office Support	0.850		
(U) AEA System of systems engineering / architecture development / refine requirements	3.775		
(U) B-52 SOJ Program Office Support	1.395		
(U) B-52 SOJ Pre-SDD Preparation	2.500		
(U) Low Band Phased Array Tech Development	12.000		
(U) Total Cost	60.726	67.562	77.954



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN (PE 27442F MALD procurement)	0.000	0.000	0.000	137.639	98.957	87.238	86.948	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. Spiral to MALD-J is planned for FY06.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center	40.074								40.074	40.074
MALD / MALD-J SDD	CPAF	Raytheon Missile Systems, Tucson AZ	28.945	32.152		53.106		58.366		24.535	197.104	196.632
MALD/MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO	2.665	3.775		3.460		2.346		0.562	12.808	12.808
MALD/MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO	0.269	0.120		0.185		0.680		0.281	1.535	1.535
AEA System of Systems Engineering	MIPR	Various		3.775						Continuing	TBD	TBD
B-52 SOJ Pre-SDD Preparation	TBD	TBD		2.500							2.500	
Low Band Phased Array Tech Development		Various		12.000							12.000	
Subtotal Product Development			71.953	54.322		56.751		61.392		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Contractor Support to AAC/AAMSW/SASG/RC	Various	Various	3.967	1.321		2.395		2.462		2.970	13.115	13.115
AEA Synchronization Office Support	MIPR	Various		0.850							0.850	
B-52 SOJ Program Office Support	Various	Various		1.145							1.145	
Subtotal Support			3.967	3.316		2.395		2.462		2.970	15.110	13.115
Remarks:												
(U) <u>Test &amp; Evaluation</u> MALD Government Test Planning	Various	Various	7.959	2.071		7.791		13.187		9.433	40.441	40.441
B-52 SOJ Mission and Test Support	Various	Various		0.250							0.250	
Subtotal Test & Evaluation			7.959	2.321		7.791		13.187		9.433	40.691	40.441
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	5.837	0.767		0.625		0.913		0.666	8.808	8.808
Subtotal Management			5.837	0.767		0.625		0.913		0.666	8.808	8.808
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 communications expenses.										
(U) Total Cost			89.716	60.726		67.562		77.954		Continuing	TBD	TBD

Project 8462

R-1 Shopping List - Item No. 72-19 of 72-21

Exhibit R-3 (PE 0604270F)



Fiscal Year	2003		2004				2005				2006				2007				2008				2009							
Quarter	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Milestones	CA	IBR	SRR		PDR				CDR				FRR		Milestone C			SDD			FDR/PPRR									
MALD Development																														
MALD/J Development																														
Aircraft Integration											Env/Cap				Pit Drops				Jettison											
OFS Development											Build 0				Bld 1				Bld 2				Bld 2.X3 4				Refine Test/Fit Cert			
MALD Demo/Verification																														
MALD/J Demo/Verification																														
MALD Gnd Test/Verification																														
MALD Flt Test/Verification																														
MALD/J Flt Test/Verification																														
MALD IOT&E																														



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

(U) MALD Preliminary Design Review

2Q

(U) MALD Critical Design Review

2Q

(U) MALD-J Spiral Start

2Q

(U) MALD Flight Readiness Review

1Q



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## UNCLASSIFIED

PE NUMBER: 0604280F

PE TITLE: JOINT TACTICAL RADIO SYSTEMS (JTRS)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	36.109	81.036	0.000	284.673	272.230	200.797	99.782	Continuing	TBD
5068 Joint Tactical Radio System (JTRS)	36.109	81.036	0.000	284.673	272.230	200.797	99.782	Continuing	TBD

In FY2007, Project No. 5068, Joint Tactical Radio Systems (JTRS) efforts were transferred from PE 0604280F to PE 0604280A, Joint Tactical Radio Systems (JTRS) in order to support the revised JTRS program development acquisition strategy. "Refer to PE 060280A for all updates on acquisition strategy, contracts and schedules. Only FY 2005 and FY 2006 actuals have been updated within this display."

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

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

In Nov 03, the AF and Navy Service Acquisition Executives decided to foster commonality by merging the AF-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. The JTRS Defense Acquisition Board endorsed the program merger in Dec 03. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team manages the development of a common core radio design that will be the basis for satisfying the Airborne, Maritime and Fixed Station domain requirements. To remain consistent with the original intent of both programs, the AF and Navy will equitably cost share the development of the common core radio design, but AF will fund any unique Airborne requirements and Navy will fund any unique Maritime/Fixed Station requirements. This effort is currently led by an AF Program Manager and Navy Deputy Program Manager with the lead and key managerial positions rotating at predetermined times during the acquisition. This PE represents the AF contribution to the combined AMF JTRS development and to the implementation of AF JTRS requirements. In addition to the AMF JTRS development, FY04-07 funds are used for the planning and implementation of AF JTRS, such as requirements and integration analyses, engineering support, and the JTRS Wideband Network Waveform (WNW) / Airborne Network requirements.

Additional AF requirements for tactical communications (i.e., handhelds, manpacks, vehicular, etc.) will be met by collaborating with other JTRS Clusters. Funding to support program planning and engineering support to evaluate AF requirements for these Clusters is included in this PE.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	49.856	124.225	103.363
(U) Current PBR/President's Budget	36.109	81.036	0.000
(U) Total Adjustments	-13.747	-43.189	
(U) Congressional Program Reductions	-10.000	-42.016	
Congressional Rescissions	-0.808	-1.173	
Congressional Increases			
Reprogrammings	-1.852		
SBIR/STTR Transfer	-1.087		

(U) **Significant Program Changes:**

FY04 funding provides for Pre-System Development and Demonstration (Pre-SDD) effort that includes initial system engineering/design efforts through Preliminary Design Review (PDR) to deal with interface/integration constraints associated with 75+ Airborne Platform types planning to integrate AMF JTRS. This Pre-SDD effort was originally scheduled to start in FY03, but was delayed due to combining of Airborne and Maritime/Fixed Station Cluster development efforts into Airborne, Maritime/Fixed Station (AMF) JTRS. FY04 funds were adjusted to account for delay in Pre-SDD contract awards. FY05 funding was to continue the development effort and implement AF JTRS requirements. FY06 funding continues the system development phase of the program; transitioning from the Pre-SDD to the SDD phase which includes Critical Design Review and pre-engineering development model build-up of multiple system form factors and ancillary equipment.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5068 Joint Tactical Radio System (JTRS)	36.109	81.036	0.000	284.673	272.230	200.797	99.782	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY2007, Project No. 5068, Joint Tactical Radio Systems (JTRS) efforts were transferred from PE 0604280F to PE 0604280A, Joint Tactical Radio Systems (JTRS) in order to support the revised JTRS program development acquisition strategy. "Refer to PE 060280A for all updates on acquisition strategy, contracts and schedules. Only FY 2005 and FY 2006 actuals have been updated within this display."

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

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

In Nov 03, the AF and Navy Service Acquisition Executives decided to foster commonality by merging the AF-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. The JTRS Defense Acquisition Board endorsed the program merger in Dec 03. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team manages the development of a common core radio design that will be the basis for satisfying the Airborne, Maritime and Fixed Station domain requirements. To remain consistent with the original intent of both programs, the AF and Navy will equitably cost share the development of the common core radio design, but AF will fund any unique Airborne requirements and Navy will fund any unique Maritime/Fixed Station requirements. This effort is currently led by an AF Program Manager and Navy Deputy Program Manager with the lead and key managerial positions rotating at predetermined times during the acquisition. This PE represents the AF contribution to the combined AMF JTRS development and to the implementation of AF JTRS requirements. In addition to the AMF JTRS development, FY04-07 funds are used for the planning and implementation of AF JTRS, such as requirements and integration analyses, engineering support, and the JTRS Wideband Network Waveform (WNW) / Airborne Network requirements.

Additional AF requirements for tactical communications (i.e., handhelds, manpacks, vehicular, etc.) will be met by collaborating with other JTRS Clusters. Funding to support program planning and engineering support to evaluate AF requirements for these Clusters is included in this PE.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>									
						<u>FY 2005</u>	<u>FY 2006</u>		<u>FY 2007</u>	
(U)	AMF JTRS Initial Design through PDR (initial development, integration planning, and risk reduction)					22.088	20.058			
(U)	AF JTRS Requirements Planning and Implementation					1.669	5.396			
(U)	Business Operations, Logistics Planning, Software Management and Support					6.110	10.014			
(U)	AMF (Airborne) JTRS System Engineering, Integration and Test					6.241	26.799			
(U)	AMF JTRS Design -- post PDR Design and SDD Contract						18.769			
(U)	Total Cost					36.109	81.036		0.000	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	PE 0207423F Advanced Communications Systems - Aircraft Procurement, AF		17.594	0.000	50.543	165.863	169.167	288.216	Continuing	TBD
(U)	PE 0207423F Advanced Communications Systems - Other Procurement, AF		11.404	39.514	112.760	161.941	168.992	246.338	Continuing	TBD
(U)	PE 0207423F Advanced Communications Systems - Operations and Maintenance, AF			3.108	10.980	11.119	11.476	11.477	Continuing	TBD
(U)	<b><u>D. Acquisition Strategy</u></b>									
	All major contracts within this Program Element will be awarded after full and open competition.									



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
JTRS WNW/Airborne Network Implementation Requirements	C/FFP	MIT Lincoln Lab, Bedford, MA		0.450	Nov-04	0.500	Jan-06			Continuing	TBD	TBD
AMF JTRS System Engineering	C/FFP	Various		5.190	Oct-04	22.785	Oct-05			Continuing	TBD	TBD
Antenna Development	MIPR	AFRL		0.100	Sep-05	0.000				Continuing	TBD	TBD
AF JTRS Planning and Implementation	C/FFP	Various		0.233	Jan-05	0.716	Jan-06			Continuing	TBD	TBD
AMF JTRS Pre-SDD Contracts	C/CPFF	Lockheed Martin, Manassas, VA		22.087	Nov-05	20.057	Jan-06			Continuing	TBD	TBD
AMF JTRS SDD Contract	C/CPAF	TBD		0.000		18.769				Continuing	TBD	TBD
Subtotal Product Development			0.000	28.060		62.827		0.000		Continuing	TBD	TBD
Remarks:	AMF JTRS System Engineering includes MITRE, ESC/IN, Risk Reduction/Technology efforts; AF JTRS Implementation includes Lincoln Lab, C130 AMP Antenna Analysis, JPALS Study											
(U) <u>Support</u>												
ESC Acquisition Support	C/FFP	Various		1.766	Dec-04	3.691	Jan-06			Continuing	TBD	TBD
ESC Specialized Cost Services Support	C/FFP	Tecolote Research, Hanscom AFB, MA		0.494	Jan-05	0.997	Dec-05			Continuing	TBD	TBD
AFC2ISRC Requirements & Integration Analyses Support	C/FFP	Northrop Grumman, Langley AFB, VA		0.801	Feb-05	0.900	Feb-06			Continuing	TBD	TBD
INFOSEC Design Support	MIPR	NSA, FT Meade, MD		0.690	Dec-05	1.243	Feb-06			Continuing	TBD	TBD
Subtotal Support			0.000	3.751		6.831		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test Automation and Test Support	MIPR	JITC		0.000		2.000	Jan-06			Continuing	TBD	TBD
Test Agency Support	MIPR	Various		0.262	Jan-05	3.387	Jan-06			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.262		5.387		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
AMF (Airborne) JTRS Program Office	C/Varies	ESC/NI4, Hanscom AFB,		3.933		5.824				Continuing	TBD	TBD

Project 5068

R-1 Shopping List - Item No. 73-6 of 73-9

Exhibit R-3 (PE 0604280F)



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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)

AF JTRS Implementation Program Office	C/Varies	MA ESC/NI4, Hanscom AFB, MA	0.103	0.167		Continuing	TBD	TBD
Subtotal Management			0.000	4.036	5.991	0.000	Continuing	TBD
Remarks:								
(U) Total Cost			0.000	36.109	81.036	0.000	Continuing	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

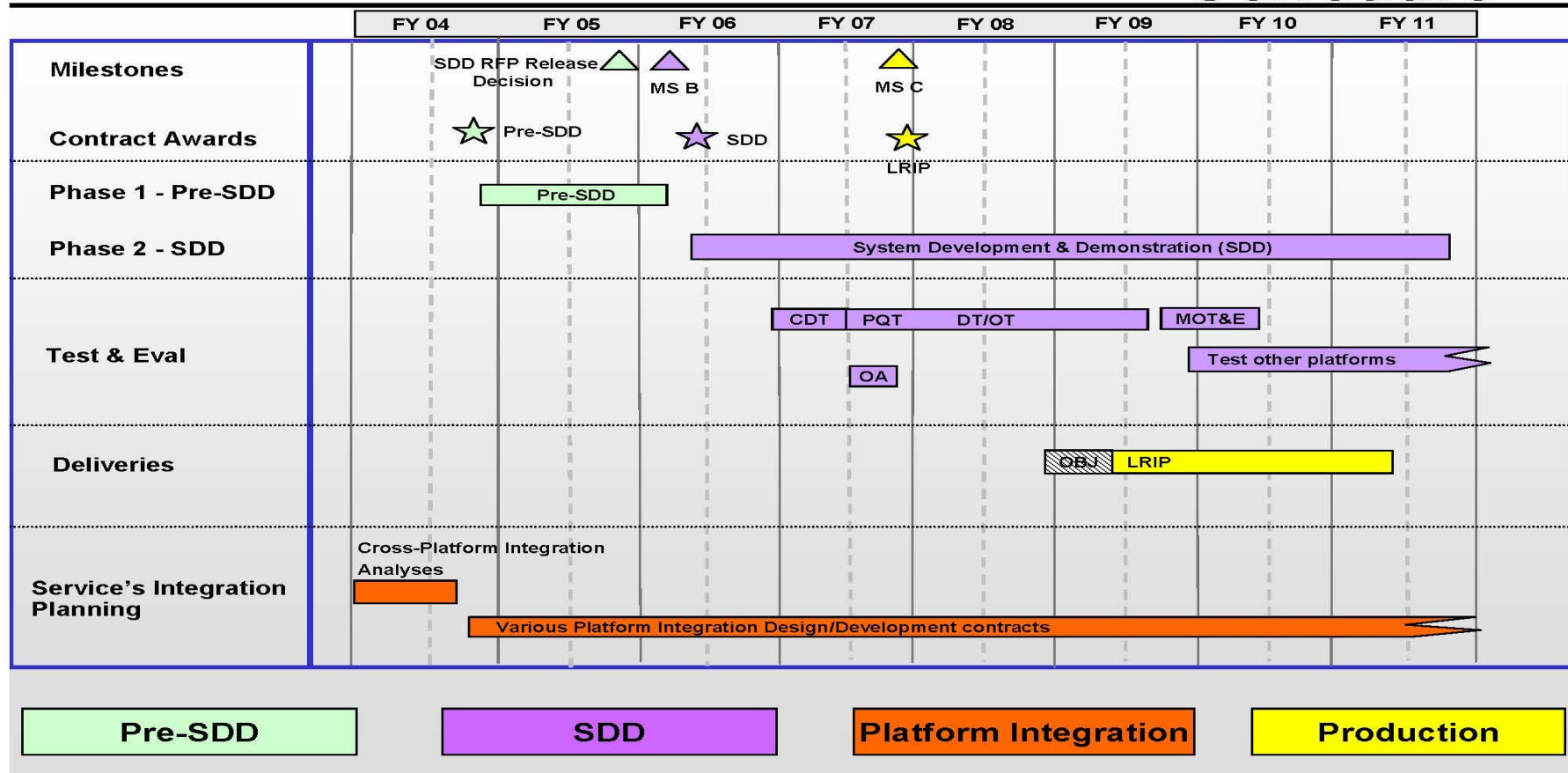
PE NUMBER AND TITLE

0604280F JOINT TACTICAL RADIO  
SYSTEMS (JTRS)

PROJECT NUMBER AND TITLE

5068 Joint Tactical Radio System  
(JTRS)

# AMF JTRS Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) AMF JTRS Cluster (Pre-SDD) Contract Award

2Q

(U) Milestone B

1Q

(U) AMF JTRS Cluster (SDD) Contract Award

2Q

(U) Milestone C

4Q



## UNCLASSIFIED

PE NUMBER: 0604287F

PE TITLE: Physical Security Equipment

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604287F Physical Security Equipment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.381	10.994	0.093	0.034	0.051	0.051	0.052	Continuing	TBD
5120 Physical Security Equipment - SD/ED	9.381	10.994	0.093	0.034	0.051	0.051	0.052	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	9.659	11.153	0.093
(U) Current PBR/President's Budget	9.381	10.994	0.093
(U) Total Adjustments	-0.278	-0.159	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.278	-0.159	
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5120 Physical Security Equipment - SD/ED	9.381	10.994	0.093	0.034	0.051	0.051	0.052	Continuing	TBD
Quantity of RDT&E Articles	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)**FY 2005FY 2006FY 2007(U) **FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT**

2.746

- Conduct Milestone C Full Rate Production decision for the BAIS.
- Begin Full Rate Production of BAIS.
- Conduct Production Verification Tests of BAIS.
- Continue to manage, develop, evaluate, and test Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmap, update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

(U) **ROBOTIC SECURITY SYSTEMS INTEGRATION**

4.435

- Conduct Production Qualification Tests of MDARS-E Test 1b.
- Complete Early User Assessments of MDARS-E.
- Conduct Factory System Production Qualification Tests of MDARS-E.
- Conduct Environmental and EMI Tests of MDARS-E.

(U) **ROBOTIC SECURITY SYSTEMS INTEGRATION**

10.994

- Conduct operational test of MDARS-E.



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## Exhibit R-2a, RDT&amp;E Project Justification

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February 2006

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)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>				
	- Provide Engineering Support for fielding the MDARS-E.								
(U)	ROBOTIC SECURITY SYSTEMS INTEGRATION								0.093
	- Begin Full Rate Production of MDARS-E.								
(U)	ROBOTIC SECURITY SYSTEMS INTEGRATION								
	- Conduct payload integration of the MDARS-E.								
	- Network MDARS-E with other Unmanned platforms.								
	- Network MDARS-E with response systems.								
(U)	WATERSIDE SECURITY SYSTEM		1.300						
	-Continue preplanned product improvement (P3I) efforts for COTS sonar technologies in support of Subsurface Threat Detection								
	-Continue test and evaluation of swimmer detection equipment								
	-Continue to monitor and investigate availability of non-lethal technologies in the Swimmer Delay, Denial, and Response area.								
	-Conduct in-water tests of Sea Fence and composite material LW barrier developed by the Naval Facilities Engineering Systems Center.								
(U)	EXPLOSIVE DETECTION EQUIPMENT		0.900						
	- Redesign and develop the Laser IMS prototype into a final production model.								
	- Continue to manage, develop, evaluate, and test explosive detection products								
(U)	Total Cost		9.381	10.994					0.093
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
		<u>FY 2005</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>Cost to</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
(U)	Not Applicable								<u>Total Cost</u>
(U)	<b><u>D. Acquisition Strategy</u></b>								
	Not Applicable								



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> PM-FPS (US Army)	MIPR			9.091	Nov-04	10.573	Jan-06			Continuing	TBD 0.000 0.000 0.000	TBD TBD
Subtotal Product Development			0.000	9.091		10.573		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Management</u>												
Program Office Support				0.290		0.421		0.093		Continuing	TBD	TBD
Subtotal Management			0.000	0.290		0.421		0.093		Continuing	TBD	TBD
Remarks:												
(U) <u>PM-PSE (US Army)</u>												
(U) Total Cost			0.000	9.381		10.994		0.093		Continuing	TBD	TBD
Remarks:												



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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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: February 2006												
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)												PE NUMBER AND TITLE PE0604287F 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				
Begin Full Rate									▲																											
Complete Early User Appraisal of MDARS-E												▲																								
Conduct Operational test of MDARS														▲																						
Conduct Sea Fence In-Water tests									▲																											
Redesign and Develop Laser IMS for production												▲																								
Provide Engineering Support for fielding MDARS															▲																					
Increase MDARS-E speed and response																	▲																			

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## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) BAIS Milestone C Decision

2Q

(U) BAIS Production Verification Tests

3Q

(U) Complete Early User Appraisal of MDARS -E

4Q

(U) Conduct Sea Fence In-Water tests

1Q

(U) Redesign and Develop Laser IMS for production

4Q

(U) Conduct operational test of MDARS-E

1Q

(U) Provide engineering support for fielding the MDARS-E

3Q

(U) Begin Full Rate Production of MDARS-E

1Q



## UNCLASSIFIED

PE NUMBER: 0604329F  
PE TITLE: Small Diameter Bomb

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604329F Small Diameter Bomb					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	73.573	63.521	104.080	143.723	123.533	128.009	76.895	322.743	1,281.662
5006 Small Diameter Bomb	73.573	38.381	13.362	0.000	0.000	0.000	0.000	0.000	370.901
5191 Small Diameter Bomb Increment II	0.000	25.140	90.718	143.723	123.533	128.009	76.895	322.743	910.761

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

Small Diameter Bomb (SDB) is an Air Force ACAT 1D program providing increased kills per sortie on current and future aircraft platforms. SDB 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-117, F-16, B-52, and the Predator B. SDB is currently in the IOT&E Phase of a combined System Development Demonstration (SDD) and Low Rate Initial Production (LRIP) with FRP planned for the fourth quarter of 2006. SDB will continue multiple incremental development activities to attack moving targets, further reduce collateral damage, investigate alternate aircraft integration platforms, incorporate Anti-Jam Improvements and pursue network CENTRIC interoperability (Increment 2,3). SDB is a key component of the Air Force's Global Strike Task Force CONOPS.

The government is buying the SDB 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.

R-1 Shopping List - Item No. 75-1 of 75-12

Exhibit R-2 (PE 0604329F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	75.815	85.988	85.209
(U) Current PBR/President's Budget	73.573	63.521	104.080
(U) Total Adjustments	-2.242	-22.467	
(U) Congressional Program Reductions		-21.550	
Congressional Rescissions	-0.058	-0.917	
Congressional Increases			
Reprogrammings	-0.524		
SBIR/STTR Transfer	-1.660		

(U) **Significant Program Changes:**

SDB II RDT&E funding had a congressional decrease of \$21.55M in FY06. To fully fund Development, the AF realigned \$15.8M of SDB I Procurement funds to SDB II RDT&E in FY07.



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5006 Small Diameter Bomb	73.573	38.381	13.362	0.000	0.000	0.000	0.000	0.000	370.901
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Small Diameter Bomb (SDB) is an Air Force ACAT 1D program providing increased kills per sortie on current and future aircraft platforms. SDB 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-117, F-16, B-52, and the Predator B. SDB is currently in the IOT&E Phase of a combined System Development Demonstration (SDD) and Low Rate Initial Production (LRIP) with FRP planned for the fourth quarter of 2006.

The government is buying the SDB 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue aircraft integration.	8.724	1.095	1.078
(U) Continue program office support.	0.811	0.720	0.236
(U) Continue mission support.	0.456	0.512	0.359
(U) Continue System Development and Demonstration (SDD) phase for fixed target variant.	56.017	36.054	11.689
(U) Continue SDD testing and continue test support.	7.565	0.000	0.000
(U) Total Cost	73.573	38.381	13.362

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Missile Procurement, AF, 0207327F, App 3020	29.122	53.336	99.062	96.386	148.230	164.543	137.449	481.092	1,209.220

(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



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604329F Small Diameter Bomb**

PROJECT NUMBER AND TITLE

**5006 Small Diameter Bomb**

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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
CAD Contract 1	FFP	Lockheed Martin, Orlando FL	53.616	0.000	N/A					0.000	53.616	53.616
CAD Contract 2	FFP	Boeing, St Louis MO	53.616	0.000	N/A					0.000	53.616	53.616
SDD Baseline Contract	CPAF	Boeing, St Louis MO	109.804	56.016	Oct-03	36.054	Oct-03	11.034	Oct-03	0.000	212.908	212.908
Subtotal Product Development			217.036	56.016		36.054		11.034		0.000	320.140	320.140
Remarks:												
(U) <u>Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	6.507	8.519	N/A	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	1.460	0.205	N/A	0.503	N/A	0.194	N/A	0.000	2.362	2.362
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	6.049	0.624	Jun-01	0.720	Jun-01	0.236	Jun-01	0.000	7.629	7.629
Other	Misc	Various	5.299	0.456	N/A	0.212	N/A	0.059	N/A	0.000	6.026	6.026
Subtotal Support			19.315	9.804		2.027		2.028		0.000	33.174	33.174
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO (In-House)	Eglin AFB, FL	7.757	7.565	N/A	0.000	N/A	0.000	N/A	0.000	15.322	15.322
Subtotal Test & Evaluation			7.757	7.565		0.000		0.000		0.000	15.322	15.322
Remarks:												
(U) <u>Management</u>												
COLSA	C/CPAF	Eglin AFB, FL	1.477	0.188	Jun-01	0.300	Aug-05	0.300	Aug-05	0.000	2.265	2.265
Subtotal Management			1.477	0.188		0.300		0.300		0.000	2.265	2.265
Remarks:												
(U) Total Cost			245.585	73.573		38.381		13.362		0.000	370.901	370.901



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

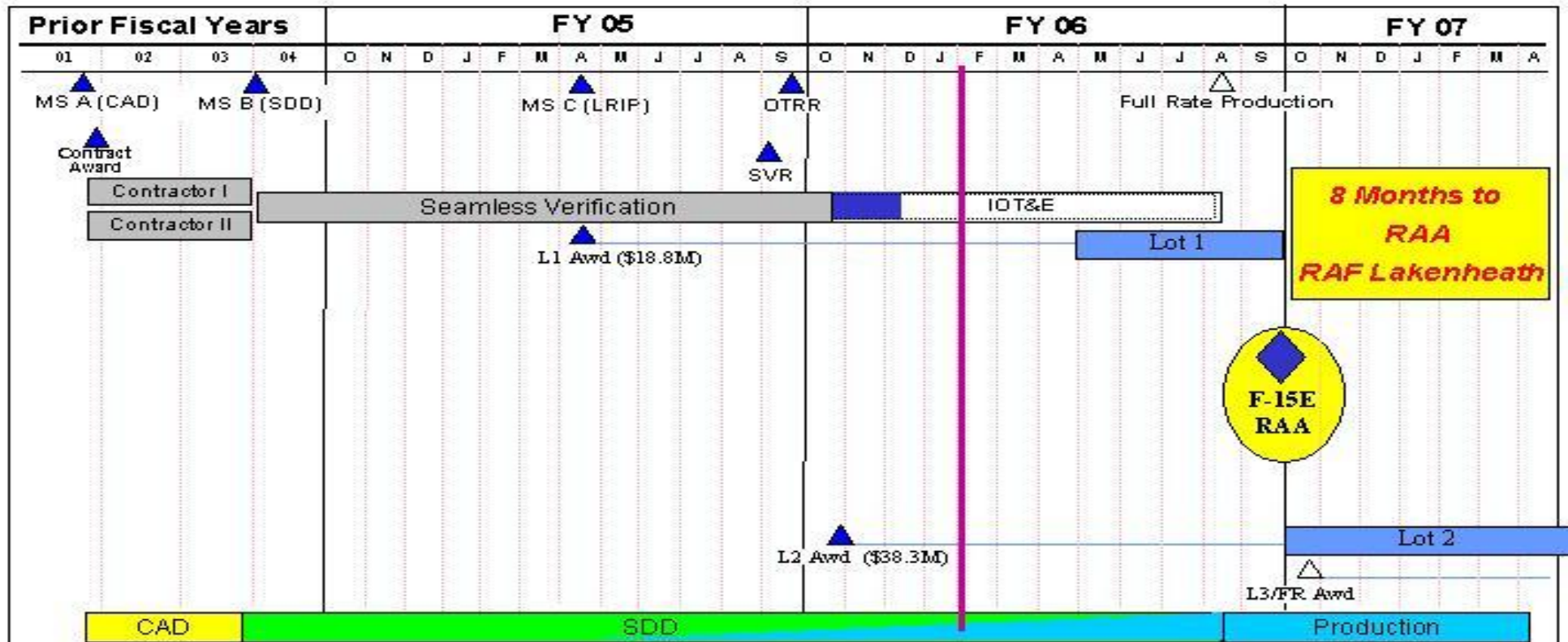
PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5006 Small Diameter Bomb

# SDB I Schedule



	FY05	FY06	FY07	FY08	FY09	FY10	FY11	To Complete	Total
C-Sys	27	128	300	335	377	454	379	0	2,000
SDB	199	567	1343	1395	3212	3558	2667	11059	24,000



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

(U) Milestone C

3Q

(U) Low Rate Initial Production (LRIP) Contract Award

3Q

(U) Lot 2 Award

1Q

(U) F-15E RAA

4Q

(U) Lot 3 FRP Award

1Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5191 Small Diameter Bomb Increment II	0.000	25.140	90.718	143.723	123.533	128.009	76.895	322.743	910.761
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Small Diameter Bomb 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 Joint Strike Fighter (JSF) for the US Navy (RAA TBD). Objective aircraft include: F-22A, B-1, B-2, F-117, F-16, B-52, and the Predator B. SDB II begins Technology Development/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 pursue 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate Increment II Risk Reduction Phase	0.000	20.299	84.836
(U) Initiate Aircraft Integration		1.260	1.921
(U) Continue Program Office Support		3.581	3.961
(U) Total Cost	0.000	25.140	90.718

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E,N	9.513	9.999	10.018						29.911

(U) **D. Acquisition Strategy**

All major contracts within this Program Element will be awarded through full and open competition. Up to two contractors will be selected for the 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.

The Government is buying the SDB II based on contractor-developed, Government-approved System Performance Specification (SPS) which will become contractually binding at downselect. The contractor will be accountable for system performance as defined in the SPS 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



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>	PROJECT NUMBER AND TITLE <b>5191 Small Diameter Bomb Increment II</b>
<p>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&amp;E Program according to the scope of the RR/SDD contract.</p> <p>Note: SDB II program Acquisition Strategy and funding adjusted to incorporate GAO recommendation. (B295402, 18 Feb 05)</p>		
Project 5191	R-1 Shopping List - Item No. 75-9 of 75-12	Exhibit R-2a (PE 0604329F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Risk Reduction Contract 1	CPFF	TBD		0.000	N/A	10.149	Apr-06	42.418	Apr-06	128.222	180.789	180.789
Risk Reduction Contract 2	CPFF	TBD		0.000	N/A	10.149	Apr-06	42.418	Apr-06	128.222	180.789	180.789
SDD	CPIF	TBD		0.000	N/A					466.876	466.876	466.876
Subtotal Product Development			0.000	0.000		20.298		84.836		723.320	828.454	828.454
Remarks:												
(U) <u>Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH		0.000	N/A	1.260	N/A	1.921	N/A	11.913	15.094	15.094
Other A/C SPO's	PO (In-House)	Wright Patterson AFB, OH		0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
BRU-61/A	PO (In-House)	St. Louis, MO		0.000	N/A	0.500	Apr-06	0.096	Apr-06	0.000	0.596	0.596
TEAS (Sverdrup Inc.)	C/CPAF	Eglin AFB, FL		0.000	N/A	1.549	Feb-06	1.581	Feb-06	8.418	11.548	11.548
Other	Misc.	Various		0.000	N/A	1.223	N/A	1.968	N/A	13.228	16.419	16.419
Subtotal Support			0.000	0.000		4.532		5.566		33.559	43.657	43.657
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO (In-House)	Eglin AFB, FL		0.000	N/A	0.000	N/A	0.000	N/A	36.341	36.341	36.341
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		36.341	36.341	36.341
Remarks:												
(U) <u>Management</u>												
TAMS	C/CPAF	Eglin AFB, FL		0.000	N/A	0.310	Aug-05	0.316	Aug-05	1.683	2.309	2.309
Subtotal Management			0.000	0.000		0.310		0.316		1.683	2.309	2.309
Remarks:												
(U) Total Cost			0.000	0.000		25.140		90.718		794.903	910.761	910.761



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

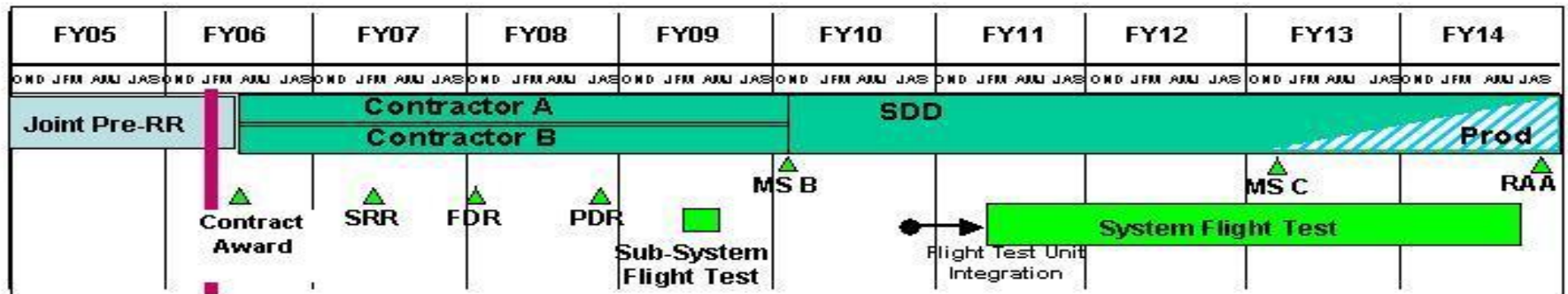
PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5191 Small Diameter Bomb Increment II

## SDB II Notional Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Contract Award (Risk Reduction)

3Q

(U) System Requirements Review (SRR)

2Q



## UNCLASSIFIED

PE NUMBER: 0604421F  
PE TITLE: Counterspace Systems

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems						
Cost (\$ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost		25.351	29.074	47.292	49.104	106.061	109.470	100.842	Continuing	TBD
A001	Counter Satellite Communications System	5.971	6.225	16.010	17.848	29.880	31.620	21.692	Continuing	TBD
A002	Counter Surveillance Reconnaissance System	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	49.694
A003	Rapid Identification Detection and Reporting System (RAIDRS)	15.789	17.949	24.146	23.989	68.701	70.221	71.368	Continuing	TBD
A005	Offensive Counterspace (OCS) C2	3.382	4.900	7.136	7.267	7.480	7.629	7.782	Continuing	TBD
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 phases of the acquisition process: concept development, risk reduction, design, demonstration, and production. 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.</p> <p>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.</p>										

R-1 Shopping List - Item No. 76-1 of 76-18

Exhibit R-2 (PE 0604421F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	26.053	24.651	30.503
(U) Current PBR/President's Budget	25.351	29.074	47.292
(U) Total Adjustments	-0.702	4.423	
(U) Congressional Program Reductions		-0.477	
Congressional Rescissions	-0.020		
Congressional Increases		4.900	
Reprogrammings			
SBIR/STTR Transfer	-0.682		

(U) **Significant Program Changes:**

FY 2006: \$4.900, Congressional add for Space Control Test Capability

FY 2007: \$7.136 increase for new start of OCS C2 capability. Increase of \$9.370 for Counter Communications System Block 10 Upgrades.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A001 Counter Satellite Communications System	5.971	6.225	16.010	17.848	29.880	31.620	21.692	Continuing	TBD
Quantity of RDT&E Articles	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.

## Budget Activity Justification:

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Block 10 Capability Upgrades	4.750	2.325	8.810
(U) Study/refine, develop, integrate, test and field the next Block (Block 20) advanced counter communications capability		1.700	3.100
(U) Program Office and other Technical Support	1.221	2.200	4.100
(U) Total Cost	5.971	6.225	16.010

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) OPAF (PE 0604421F) Counterspace Systems			17.036	16.421	0.963	0.000	10.151	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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A001 Counter Satellite  
Communications System

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Initial System Development & Future Capability Studies	MAPIC CPAF	Northrup Grumman, Redondo Beach, CA	20.918								20.918	
Capability Upgrades	CPAF	Harris Corp, Melbourne, FL		4.750	Nov-04	2.325	Feb-06	8.810	Nov-06	Continuing	TBD	TBD
Block 20 Capability Development & Future Capability Studies	TBD	TBD				1.700	Feb-06	3.100	Nov-06	Continuing	TBD	TBD
Subtotal Product Development Remarks:			20.918	4.750		4.025		11.910		Continuing	TBD	TBD
(U) <u>Support</u> System Program Office Support & Architecture Engineering	Various	SMC, El Segundo, CA	2.740	1.221	Oct-04	2.200	Oct-05	4.100	Oct-06	Continuing	TBD	TBD
Subtotal Support Remarks:			2.740	1.221		2.200		4.100		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u> DT/OT	MIPR	AFOTEC, Albuquerque, NM	0.100								0.100	
Subtotal Test & Evaluation Remarks:			0.100	0.000		0.000		0.000		0.000	0.100	0.000
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	TBD TBD
(U) Total Cost			23.758	5.971		6.225		16.010		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

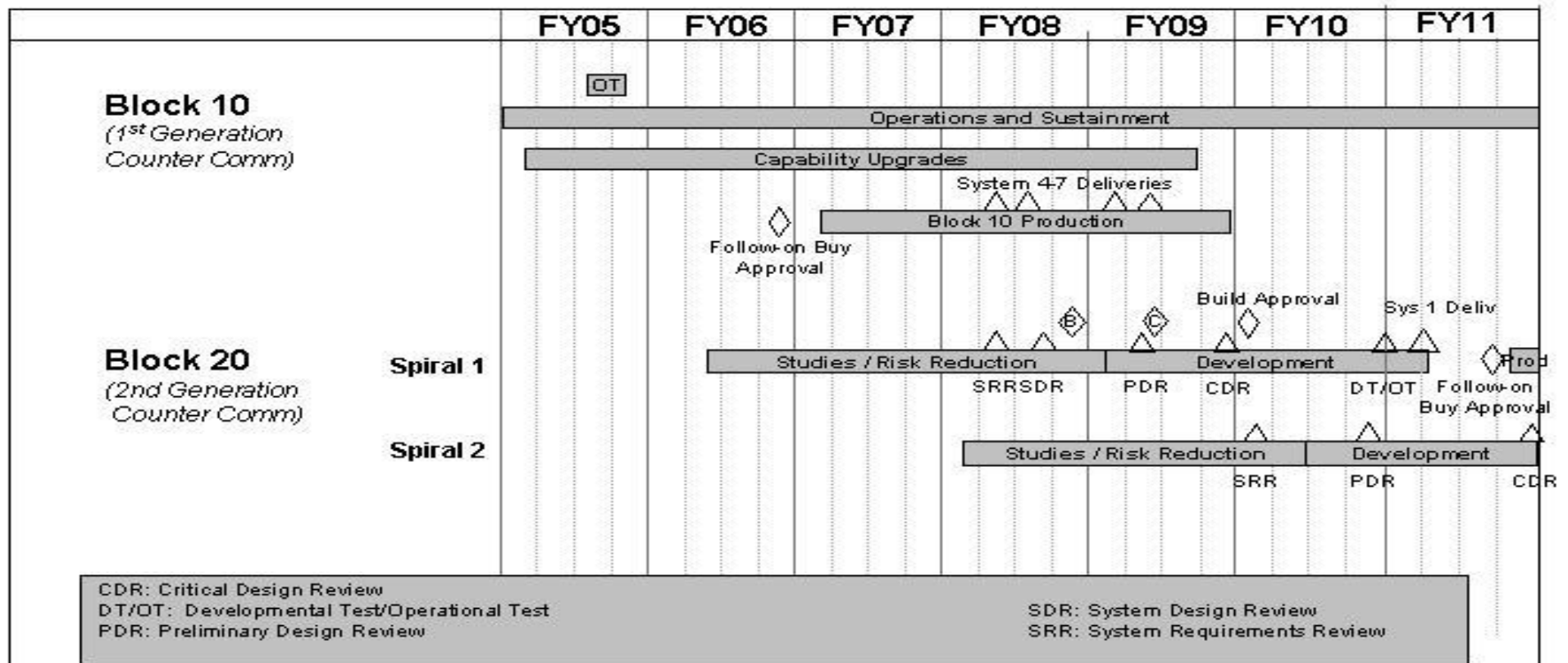
PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A001 Counter Satellite  
Communications System

# CCS Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A001 Counter Satellite  
Communications System(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Capability Upgrades

1-4Q

1-4Q

1-4Q

(U) Block 20 Studies

2-4Q

1-4Q

(U) Block 10 Follow-on Buy Approval

4Q

(U) Block 10 Production

1-4Q



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A002 Counter Surveillance  
Reconnaissance System

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A002 Counter Surveillance Reconnaissance System	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	49.694
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY 2005: Congress did not authorize or appropriate funds to continue CSRS development

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

This effort supported concept exploration and follow-on system development of a mobile/transportable counter space based surveillance reconnaissance capability and associated command and control derived from technologies examined in PE 0603438F, Space Control Technology. It included system hardware design and development, software design and integration, and testing and procurement to provide a capability to counter space based imagery systems in response to USSTRATCOM requirements.

CSRS funding/program ended after FY 2004 activity. Congress did not fund the FY 2005 program request for CSRS; however, due to rounding, \$209K remained in this project number. These funds were subsequently reallocated to higher priority Air Force needs.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Funds reallocated to higher priority Air Force needs	0.209		
(U) Total Cost	0.209	0.000	0.000

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) **D. Acquisition Strategy**

N/A



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A002 Counter Surveillance  
Reconnaissance System

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> System Development	MAPIC, CPAF	Northrup Grumman, Redondo Beach, CA	45.673								45.673	
Technology and Risk Reduction	Various	AFRL, Albuquerque, NM	18.780								18.780	
Funds Reallocated to Higher Air Force Priorities				0.209	Mar-05						0.209	
Subtotal Product Development			64.453	0.209		0.000		0.000		0.000	64.662	0.000
Remarks:												
(U) <u>Support</u> Program Office Support for CSRS	Various	SMC, El Segundo, CA	2.115								2.115	
Program Office Support for CSRS	Various	AFRL, Albuquerque, NM	1.566								1.566	
Subtotal Support			3.681	0.000		0.000		0.000		0.000	3.681	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> DT	MIPR	AFRL, Albuquerque, NM	1.800								1.800	
Subtotal Test & Evaluation			1.800	0.000		0.000		0.000		0.000	1.800	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) Total Cost			69.934	0.209		0.000		0.000		0.000	70.143	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A002 Counter Surveillance  
Reconnaissance System

# Counter Surveillance & Reconnaissance System (CSRS) Schedule

	FY05	FY06	FY07	FY08	FY09	FY10	FY11
CSRS Development	▲ Funds reallocated to higher priority AF programs						



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A002 Counter Surveillance  
Reconnaissance System(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Funds reallocated to higher AF priorities

1Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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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)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A003 Rapid Identification Detection and Reporting System (RAIDRS)	15.789	17.949	24.146	23.989	68.701	70.221	71.368	Continuing	TBD
Quantity of RDT&E Articles	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 warning, threat identification and characterization, and 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.

## Budget Activity Justification

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 1.	11.529	14.452	15.519
(U) Continue concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 2.	2.000	0.000	4.973
(U) Program Office and Other Technical Support	2.260	3.497	3.654
(U) Total Cost	15.789	17.949	24.146

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

	<u>FY 2005 Actual</u>	<u>FY 2006 Estimate</u>	<u>FY 2007 Estimate</u>	<u>FY 2008 Estimate</u>	<u>FY 2009 Estimate</u>	<u>FY 2010 Estimate</u>	<u>FY 2011 Estimate</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) OPAF (PE 0604421F), Counterspace Systems			14.398	17.463	25.768	26.505	27.010	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 using a Spiral Acquisition strategy.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Architecture Development & Systems Engineering	Various	Various	9.920	3.696	Oct-04	1.462	Nov-05	1.398	Nov-06	Continuing	TBD	TBD
RAIDRS Spiral 1 System Development	CPAF	Integral Systems Inc, Lanham, MD		7.833	Mar-05	12.990	Jan-06	14.121	Jan-07	Continuing	TBD	TBD
RAIDRS Spiral 2 Concept Development	CPAF	Various		2.000	Jan-05					0.000	2.000	TBD
RAIDRS Spiral 2 Concept Development	MAPIC CPAF	Northrop Grumman Mission Systems, Redondo Beach, CA	2.787								2.787	
RAIDRS Spiral 2 Requirements Development/Risk Reduction	TBD	TBD						4.973	Jan-07	Continuing	TBD	
Subtotal Product Development			12.707	13.529		14.452		20.492		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office Support for RAIDRS	Various	SMC, El Segundo	1.407	2.260	Oct-04	3.497	Oct-05	3.654	Oct-06	Continuing	TBD	TBD
Subtotal Support			1.407	2.260		3.497		3.654		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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) Total Cost			14.114	15.789		17.949		24.146		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

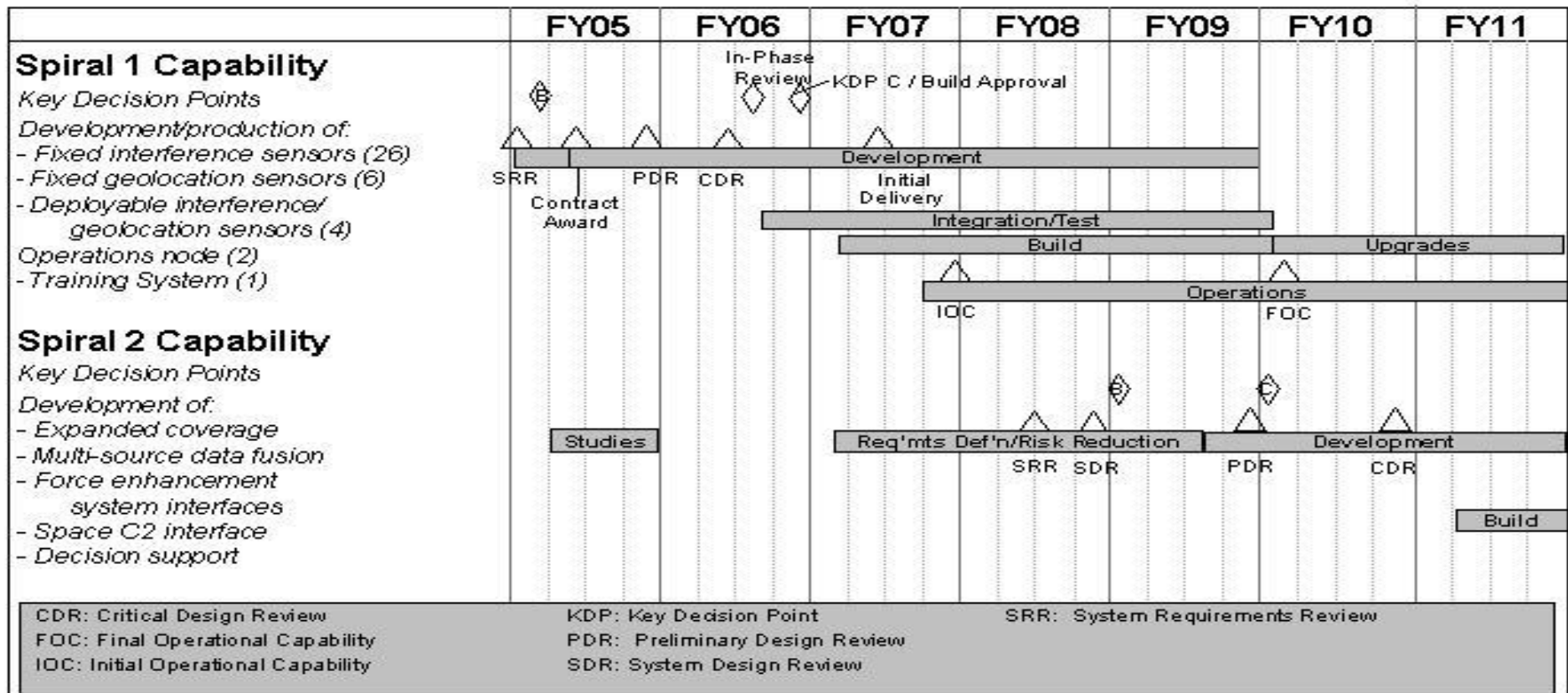
PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A003 Rapid Identification Detection and Reporting System (RAIDRS)

# RAIDRS Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) System Requirements Review

1Q

(U) RAIDRS Spiral 1 Key Decision Point (KDP B)

1Q

(U) System Development and Demonstration Contract Award

2Q

(U) RAIDRS Spiral 1 Preliminary Design Review

4Q

(U) RAIDRS Spiral 2 Initial Studies Complete

4Q

(U) RAIDRS Spiral 1 Critical Design Review

2Q

(U) RAIDRS Spiral 1 In-Phase Review

3Q

(U) RAIDRS Spiral 1 Key Decsion Point (KDP C &amp; Build Approval)

4Q

(U) RAIDRS Spiral 1 Initial Delivery

2Q

(U) RAIDRS Spiral 1 IOC

4Q



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## Exhibit R-2a, RDT&amp;E Project Justification

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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

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A005 Offensive Counterspace (OCS) C2	3.382	4.900	7.136	7.267	7.480	7.629	7.782	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY05: Congressional add: \$3.5M

FY06: Congressional add: \$4.9M

(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 the Space C2 Weapon System / Combatant Commanders' Integrated Command and Control System (CCIC2S).

## Budget Activity Justification

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.	3.382	4.900	
(U) Begin development of Counterspace mission planning and command and control capability			6.386
(U) Program Office and Other Technical Support			0.750
(U) Total Cost	3.382	4.900	7.136

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) **D. Acquisition Strategy**

FY 2006 efforts will be performed using the Army's existing Space Control Test Capability contracts.

FY 2007 contracts will be awarded using competitive procedures to the maximum extent possible to acquire next generation capabilities through incremental acquisitions.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems				PROJECT NUMBER AND TITLE A005 Offensive Counterspace (OCS) C2					
(U)	<u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U)	<u>Product Development</u> C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology, Huntsville, AL	0.000	3.382	Mar-05	4.900	Mar-06				8.282	3.382
	Develop Counterspace Planning and C2 System	TBD	TBD						6.386	Nov-06	Continuing	TBD	
	Subtotal Product Development			0.000	3.382		4.900		6.386		Continuing	TBD	3.382
	Remarks:												
(U)	<u>Support</u> Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
	Remarks:												
(U)	<u>Test &amp; Evaluation</u> Subtotal Test & Evaluation			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	Continuing	TBD	
	Subtotal Management			0.000	0.000		0.000		0.750		Continuing	TBD	0.000
	Remarks:												
(U)	Total Cost			0.000	3.382		4.900		7.136		Continuing	TBD	3.382



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

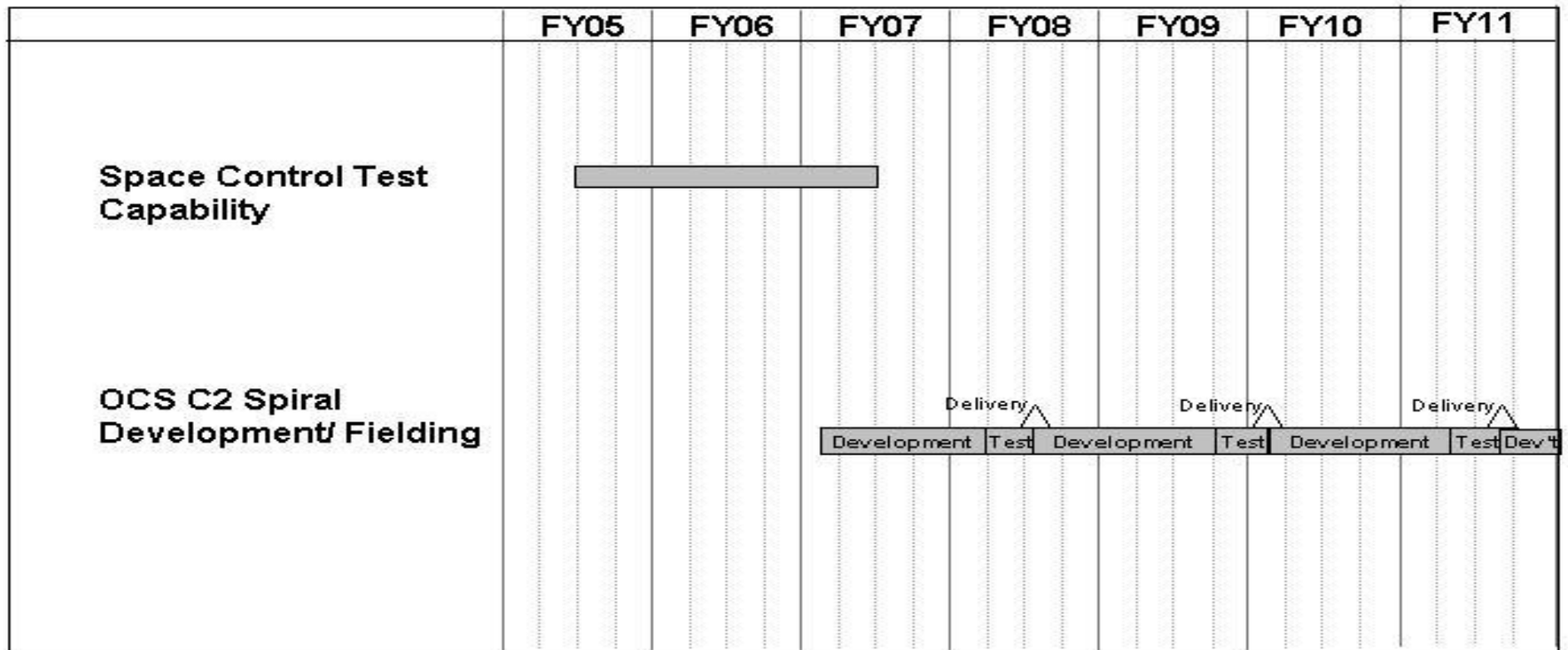
PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A005 Offensive Counterspace (OCS)  
C2

# OCS C2 Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A005 Offensive Counterspace (OCS)  
C2(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Modeling, "virtual test," analysis

2-4Q

1-4Q

1-2Q

(U) Develop/test/field OCS C2 Spiral

1-4Q



## UNCLASSIFIED

PE NUMBER: 0604425F

PE TITLE: Space Situation Awareness Systems

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	121.157	216.972	285.475	407.838	294.509	Continuing	TBD
A006 Space Based Space Surveillance	0.000	0.000	110.558	194.119	202.342	293.515	206.305	Continuing	TBD
A008 Space Situation Awareness Initiatives	0.000	0.000	10.599	8.943	7.407	7.793	7.866	Continuing	TBD
A009 Space Fence	0.000	0.000	0.000	13.910	75.726	106.530	80.338	Continuing	TBD

In FY 2007 this is a new PE. 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 improves information integration across it; companion program element 0305940F, Space Situation Awareness Operations, fields, upgrades, operates, and sustains sensors 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 into a single informational picture enabling rapid, responsive space operations.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	121.157
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY 2007: Funding transferred from PE 0305910F



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>																																																							
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>			PROJECT NUMBER AND TITLE <b>A006 Space Based Space Surveillance</b>																																																								
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																																						
A006 Space Based Space Surveillance	0.000	0.000	110.558	194.119	202.342	293.515	206.305	Continuing	TBD																																																						
Quantity of RDT&E Articles	0	0	0	0	0	0	0																																																								
<p>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 2005 - FY 2011 schedule for it is included here for clarity, but refer to the RDT&amp;E Budget Item Justification for that PE for further information on funding and activities prior to FY 2007.</p> <p><b>(U) A. Mission Description and Budget Item Justification</b></p> <p>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 develops a constellation of optical sensing satellites to find, fix, 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 capabilities to space augments existing ground sensors with advanced 24-hour, all-weather object search capabilities that allow detection of smaller targets with greater timeliness, improve orbit characterization accuracy by an order of magnitude, and vastly improve capacity for tracking multiple objects simultaneously. In conjunction with information from other SSA network sensors, the resulting data will enable near-continuous detection and tracking of space objects.</p> <p>This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new spacecraft system.</p> <p><b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Block 10 design, development, and risk reduction</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">83.075</td> </tr> <tr> <td>(U) Block 10 launch vehicle integration</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">6.860</td> </tr> <tr> <td>(U) Block 20 design, development, and risk reduction</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">9.096</td> </tr> <tr> <td>(U) Program operations</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">11.527</td> </tr> <tr> <td>(U) Total Cost</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">110.558</td> </tr> </tbody> </table> <p><b>(U) C. Other Program Funding Summary (\$ in Millions)</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u> <u>Actual</u></th> <th style="text-align: right;"><u>FY 2006</u> <u>Estimate</u></th> <th style="text-align: right;"><u>FY 2007</u> <u>Estimate</u></th> <th style="text-align: right;"><u>FY 2008</u> <u>Estimate</u></th> <th style="text-align: right;"><u>FY 2009</u> <u>Estimate</u></th> <th style="text-align: right;"><u>FY 2010</u> <u>Estimate</u></th> <th style="text-align: right;"><u>FY 2011</u> <u>Estimate</u></th> <th style="text-align: right;"><u>Cost to</u> <u>Complete</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) RDT&amp;E, Air Force (PE 0305190F, Spacetrack)</td> <td style="text-align: right;">76.424</td> <td style="text-align: right;">91.913</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">236.940</td> </tr> <tr> <td>(U) Missile Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">31.406</td> <td style="text-align: center;">Continuing</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p><b>(U) D. Acquisition Strategy</b></p> <p>This system is being acquired via a two-phased approach. Block 10 will develop and field a single pathfinder satellite to replace the capability of the aging</p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Block 10 design, development, and risk reduction	0.000	0.000	83.075	(U) Block 10 launch vehicle integration	0.000	0.000	6.860	(U) Block 20 design, development, and risk reduction	0.000	0.000	9.096	(U) Program operations	0.000	0.000	11.527	(U) Total Cost	0.000	0.000	110.558		<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	(U) RDT&E, Air Force (PE 0305190F, Spacetrack)	76.424	91.913	0.000	0.000	0.000	0.000	0.000	0.000	236.940	(U) Missile Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	0.000	31.406	Continuing	TBD
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Project A006		R-1 Shopping List - Item No. 77-2 of 77-11					Exhibit R-2a (PE 0604425F)																																																								



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>	PROJECT NUMBER AND TITLE <b>A006 Space Based Space Surveillance</b>
<p>Space-Based Visible sensor on the orbiting Midcourse Space Experiment research &amp; development spacecraft. Block 20 will deploy a robust constellation of four satellites incorporating more advanced technologies for worldwide space surveillance. Lessons learned from the former effort 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 contract for Block 20 will be awarded following a full and open competition.</p>		
Project A006	R-1 Shopping List - Item No. 77-3 of 77-11	Exhibit R-2a (PE 0604425F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Block 10 design and development	C/CPAF	Northrop Grumman, Redondo Beach, CA	0.000	0.000		0.000		83.075	Nov-06	Continuing	TBD	
Technical risk reduction	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		0.000		0.500	Jan-07	Continuing	TBD	
Launch vehicle integration	MIPR	Space and Missile Systems Center Det. 12, Kirtland AFB, NM	0.000	0.000		0.000		6.860	Nov-06	Continuing	TBD	
Block 20 design and development	TBD	TBD	0.000	0.000		0.000		9.096	Nov-06	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		99.531		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Program operations	Various	Space and Missile Systems Center, Los Angeles AFB, CA	0.000	0.000		0.000		11.027	Oct-06	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		11.027		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; 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		0.000		110.558		Continuing	TBD	0.000

Project A006

R-1 Shopping List - Item No. 77-4 of 77-11

Exhibit R-3 (PE 0604425F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

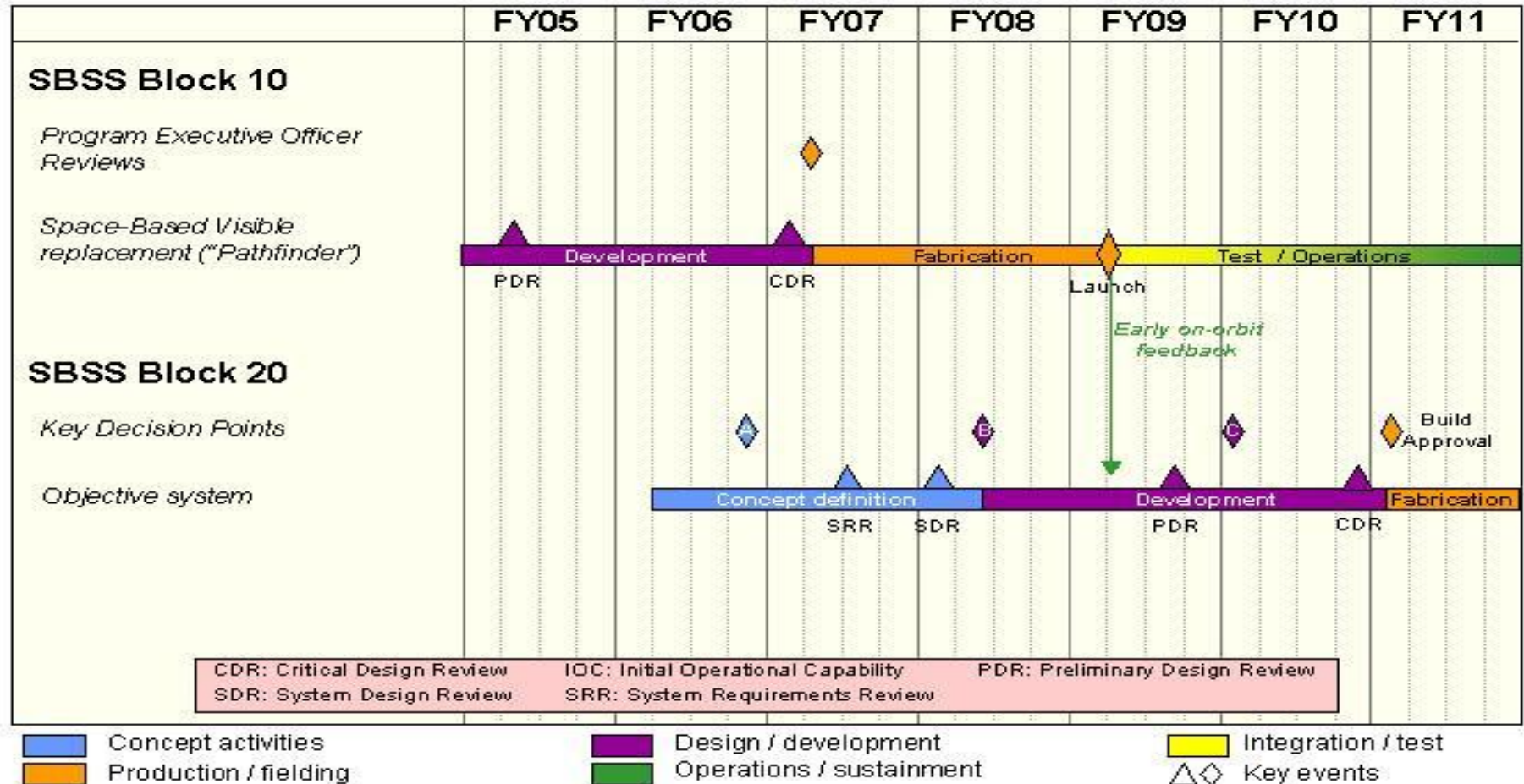
BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness  
Systems

PROJECT NUMBER AND TITLE

A006 Space Based Space  
Surveillance



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) Block 10 Critical Design Review

1Q

(U) Block 10 Program Executive Officer Review

2Q

(U) Block 20 System Requirements Review

3Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

## PROJECT NUMBER AND TITLE

A008 Space Situation Awareness Initiatives

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A008 Space Situation Awareness Initiatives	0.000	0.000	10.599	8.943	7.407	7.793	7.866	Continuing	TBD
Quantity of RDT&E Articles	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 2005 - FY 2011 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.

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

Space Situation Awareness Initiatives improve the integration of the disparate information components of SSA into a single informational picture to better support space command, control, operations, and planning activities with timely data.

The main project initiative, Space Situation Awareness Command and Control (SSA C2), develops software applications to collect, process, fuse, and disseminate intelligence, surveillance, reconnaissance, and environmental data; combines tools developed in these four areas into integrated capabilities for delivery; conducts operational utility evaluations of these using the SSA data fusion testbed; refines and integrates them into space command & control applications; and upgrades the testbed to ensure its ability to evaluate the utility of future applications under operationally-representative conditions. A related Extended Space Sensors Architecture Advanced Concept Technology Demonstration will also develop, test, and demonstrate SSA data fusion capabilities. Successive delivery of SSA C2 capability spirals progressively improves space command and control via more effective correlation and distribution of data collected by the SSA network's various sensors.

This project also encompasses the architecture development and computer modeling efforts of Air Force Space Command's Space Situation Awareness Integration Office (SSAIO), the lead service/system integrator and executive agent for the nation's SSA activities. SSAIO captures SSA capability needs; develops short- and mid-term enterprise architectures; and evaluates satisfaction of capabilities to guide Department of Defense and intelligence community budget formulation, systems integration, and requirements allocation toward improved fulfillment of U.S. SSA needs via greater collaboration and leveraging of community assets.

These initiatives are in Budget Activity 5, System Development and Demonstration, because they develop and demonstrate tools for better fusion and distribution of SSA data or develop architectures guiding associated technical and budgetary planning.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Intelligence data integration and applications	0.000	0.000	1.515
(U) Surveillance & reconnaissance data integration and applications	0.000	0.000	1.278
(U) Space environmental data integration and applications	0.000	0.000	1.212
(U) Fusion tool development, assessments, requirements development, and technical support	0.000	0.000	3.420
(U) Extended Space Sensors Architecture Advanced Concept Technology Demonstration (ESSA ACTD)	0.000	0.000	1.500
(U) SSA architecture development and modeling activities	0.000	0.000	1.674
(U) Total Cost	0.000	0.000	10.599



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness  
Systems

PROJECT NUMBER AND TITLE

A008 Space Situation Awareness  
Initiatives(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E, Air Force (PE 0305910F, Spacetrack)	10.645	16.076	0.000	0.000	0.000	0.000	0.000	0.000	51.733

(U) **D. Acquisition Strategy**

SSA initiatives 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. Most activities develop, test, and deliver capabilities or provide products in successive spirals. Operational needs drive the prioritization and selection of particular applications and architecture products for development.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness  
Systems

PROJECT NUMBER AND TITLE

A008 Space Situation Awareness  
Initiatives

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Intelligence data applications	Various	Various	0.000	0.000		0.000		1.515	Dec-06	Continuing	TBD	
Surveillance & reconnaissance data applications	Various	Various	0.000	0.000		0.000		1.278	Dec-06	Continuing	TBD	
Space environmental data applications	MIPR	Space and Missile Systems Center Det. 11, Peterson AFB, CO	0.000	0.000		0.000		1.212	Nov-06	Continuing	TBD	
ESSA ACTD	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		0.000		1.500	Dec-06	Continuing	TBD	
SSA architecture development	Various	Various	0.000	0.000		0.000		1.674	Dec-06	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		7.179		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		0.000		3.420	Dec-06	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		3.420		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; 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		0.000		10.599		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

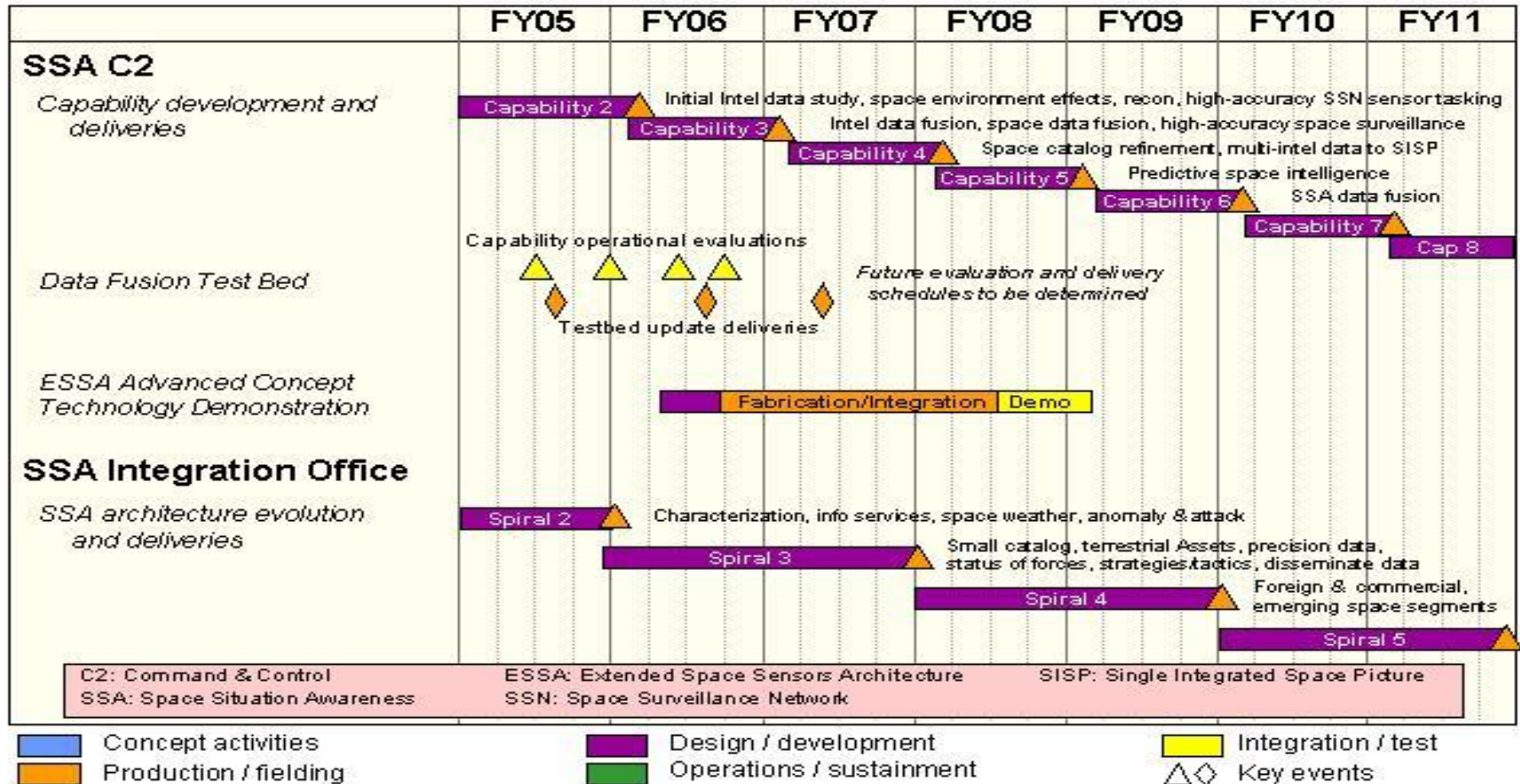
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A008 Space Situation Awareness Initiatives





## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness  
Systems

PROJECT NUMBER AND TITLE

A008 Space Situation Awareness  
Initiatives(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) SSA command &amp; control capability spiral delivery

1Q

(U) Data fusion testbed update

2Q



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## UNCLASSIFIED

PE NUMBER: 0604429F

PE TITLE: AIRBORNE ELECTRONIC ATTACK

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	0.000	119.262	12.421	12.485	12.492	12.488	12.491	Continuing	TBD																																				
5192 Network & Sys -of-Sys Dev	0.000	12.125	12.421	12.485	12.492	12.488	12.491	Continuing	TBD																																				
5193 B-52 Stand-Off Jammer	0.000	107.137	0.000	0.000	0.000	0.000	0.000	Continuing	TBD																																				
<p>In FY 2006, Project 655192, Network and System-of-Systems Development and Project 655193, B-52 Stand-Off Jammer, efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Airborne Electronic Attack. Project 655193, B-52 Stand-Off Jammer, is terminated in FY 2007.</p> <p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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&amp;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 AEA will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) stand-in jammer variant called MALD-J, the EC-130H Compass Call Block 35 configuration and Active Electronically Scanned Array (AESA) radar equipped aircraft.</p> <p>This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">120.985</td> <td style="text-align: right;">235.450</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">119.262</td> <td style="text-align: right;">12.421</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-1.723</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Congressional Rescissions</td> <td></td> <td style="text-align: right;">-1.723</td> <td></td> </tr> <tr> <td>    Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Reprogrammings</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    SBIR/STTR Transfer</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p> <ul style="list-style-type: none"> <li>- FY2006, Airborne Electronic Attack efforts were transferred from PE 0604270F, EW Development, into this PE</li> <li>- FY2007, Project 655193, B-52 Stand-Off Jammer terminates</li> </ul>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	0.000	120.985	235.450	(U) Current PBR/President's Budget	0.000	119.262	12.421	(U) Total Adjustments	0.000	-1.723		(U) Congressional Program Reductions				Congressional Rescissions		-1.723		Congressional Increases				Reprogrammings				SBIR/STTR Transfer			
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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC  
ATTACK

## PROJECT NUMBER AND TITLE

5192 Network &amp; Sys -of-Sys Dev

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5192 Network & Sys -of-Sys Dev	0.000	12.125	12.421	12.485	12.492	12.488	12.491	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2006, Project 655192, Network and System-of-Systems Development, efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Airborne Electronic Attack.

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

This project concentrates on the overall systems engineering, architecture and network requirements development, effectiveness assessment and requirements allocation to component systems of the 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 AF 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 System of Systems include the Navy EA-6B and EA-18G core components; the Air Force Miniature Air Launched Decoy (MALD) stand-in jammer variant, MALD-J; the EC-130H Compass Call Block 35 configuration; Active Electronically Scanned Array (AESA) radar equipped aircraft; a low/mid frequency, high power component capable of location and reactive jamming suppression of enemy integrated air defense system (IADS) radars and non-IADS targets.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AEA Synchronization Office Support		1.025	1.121
(U) AEA System of Systems engineering/architecture development/requirements refinement		5.700	5.800
(U) AEA virtual test/modeling & simulation/EW capability investment strategy/technology demonstrations		5.400	5.500
(U) Total Cost	0.000	12.125	12.421

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE

5192 Network &amp; Sys -of-Sys Dev

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> AEA system of systems engineering	MIPR & CPFF	Various				4.650		4.750		Continuing	TBD	
Subtotal Product Development			0.000	0.000		4.650		4.750		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		1.050		Continuing	TBD	
Subtotal Support			0.000	0.000		1.050		1.050		Continuing	TBD	0.000
Remarks:	Requirements support includes contracted requirements refinement support for ACC and AF/XOR											
(U) <u>Test &amp; Evaluation</u> AEA Virtual test/AFEWICS/Technology Demonstrations	Various	Various				5.400		5.500		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		5.400		5.500		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		1.121		Continuing	TBD	
Subtotal Management			0.000	0.000		1.025		1.121		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	0.000		12.125		12.421		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE

5192 Network &amp; Sys -of-Sys Dev

# AEA SoS Synchronization Schedule

## AEA Synch Team

(e.g., travel, training, computer communications, support, etc)

## AEA SoS Eng'rg

EW Systems Eng'rg  
(Yearly increments)  
Architecture Develop  
Ops Views update  
Sys Views update

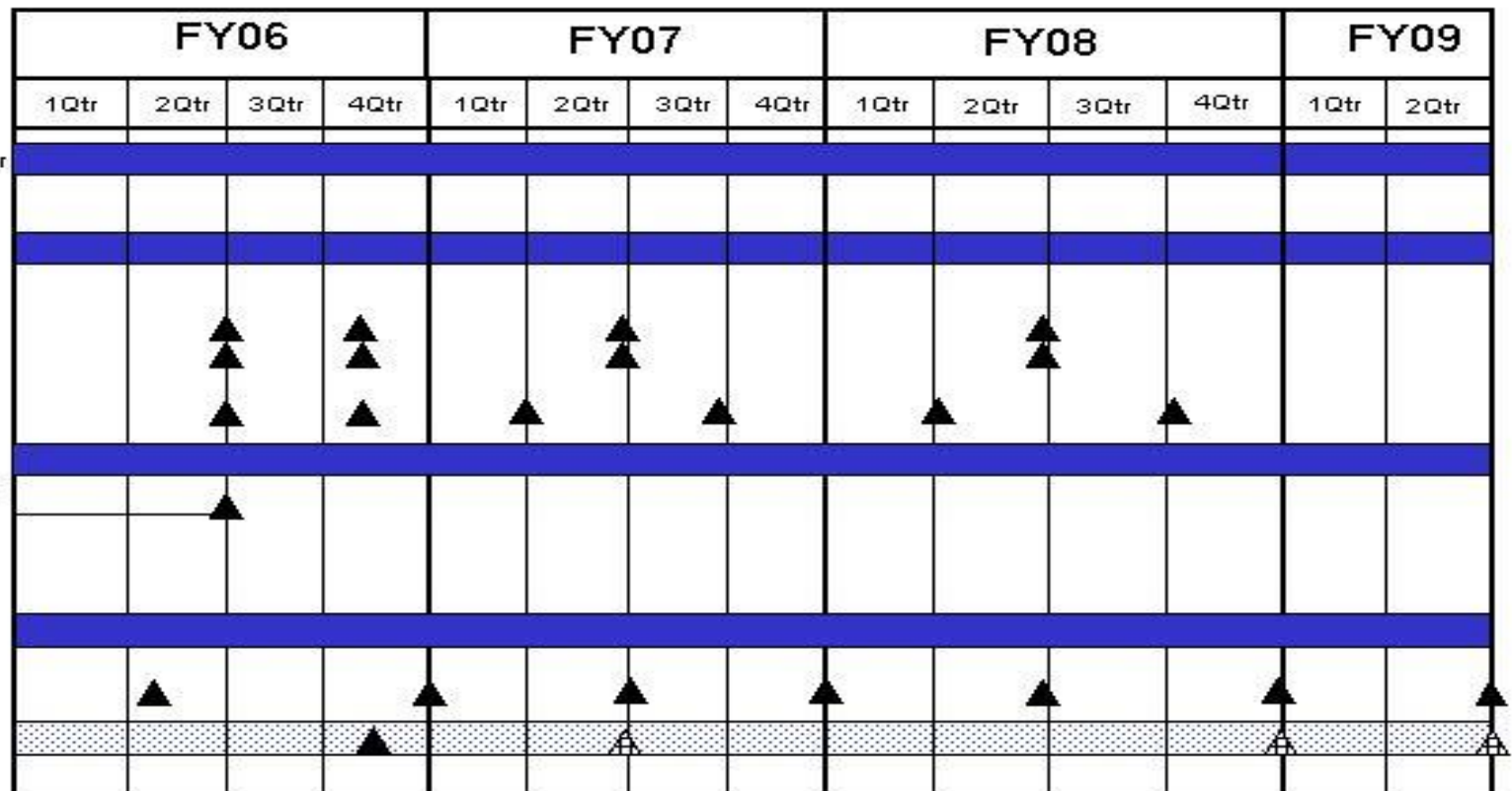
EW Assessments

Working Group Support  
DoD Planning Scenarios  
MCO-3

## AEA EW Invest, Virtual Test, Tech Mat

AF EW Invest Strategy  
(Yearly increments)  
M&S Dew/Events

Tech Demos



▲ = Deliveries

▲ = Potential Deliveries



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE

5192 Network &amp; Sys -of-Sys Dev

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) AEA SoS Systems Engineering

1-4Q

1-4Q

(U) Update AEA SoS Operational View

2-4Q

2-3Q

(U) EW Assessments

2-4Q

1-3Q

(U) Develop AF EW Investment Strategy

1-4Q

1-4Q

(U) Technology Demonstrations

1-4Q

1-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5193 B-52 Stand-Off Jammer	0.000	107.137	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	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, Airborne Electronic Attack.

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

This program is terminated in FY07. The Air Force is determining required funding for program termination and 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) B-52 SOJ Pre-SDD Contract		95.800	0.000
(U) B-52 SOJ SDD Contract			0.000
(U) Tech Demo		7.600	0.000
(U) Mission and Test Support		0.500	0.000
(U) Program Office Support		3.237	0.000
(U) Total Cost	0.000	107.137	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 27442F (AEA procurement)				0.000	0.000	0.000	0.000	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&amp;E Project Cost Analysis

DATE

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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

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
B-52 SOJ Pre-SDD Contract						95.800		0.000			95.800	
B-52 SOJ SDD Contract								0.000		0.000	0.000	
Low Band Phased Array Tech Development						7.600					7.600	
Subtotal Product Development			0.000	0.000		103.400		0.000		0.000	103.400	0.000
Remarks:												
(U) <u>Support</u>												
SOJ Program Support						3.237		0.000		Continuing	TBD	
Government Furnished Equipment						0.000		0.000		Continuing	TBD	
Subtotal Support			0.000	0.000		3.237		0.000		Continuing	TBD	0.000
Remarks:		Studies and Analysis includes modeling and simulation										
(U) <u>Test &amp; Evaluation</u>												
Test Support						0.000		0.000		Continuing	TBD	
Subtotal Test & Evaluation			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		0.000		Continuing	TBD	
Subtotal Management			0.000	0.000		0.500		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	0.000		107.137		0.000		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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:



ICD

## Technology Demonstration Phase

LB Array Tech Demos

Tech Maturation

Requirements Analysis

Program Definition

## LEGEND

ICD: Initial Capabilities Document



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Program termination

1Q



**UNCLASSIFIED**

**TERMINATION OF INVESTMENT-RELATED PROGRAMS**

**FY 2007 President's Budget**

**(Dollars in Millions)**

PE	BPAC	APPN	FY 2005		FY 2006		FY 2007		FY 2008		FY 2009		FY 2010		FY 2011	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0604429F	655193	3600	0.000	0	107.137	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0

**Effort Title**

B-52 Stand-Off Jammer (SOJ), BPAC 655193

**Program Description**

The B-52 Stand-Off Jammer program was to design, document, develop, integrate, test, and install an electronic attack capability that provides high power, wide frequency jamming from stand-off distances outside of enemy air defenses. The system incorporates high probability of intercept receivers for target detection and geo-location, and battle management functions for reactive jamming suppression of enemy integrated air defense systems (IADS) and non-IADS threats within the same frequency band. The program was in source selection for the Pre-System Development and Demonstration prime contractor and preparing for a Milestone A decision. Electronic attack technology maturation efforts continue through FY06.

**Status to Date**

Source selection for prime contractor terminated.

**Rationale for Termination**

As originally conceived, the SOJ program (BPAC 655193) was deemed unaffordable.



## UNCLASSIFIED

PE NUMBER: 0604441F

PE TITLE: Space Based Infrared Systems (SBIRS) High EMD

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604441F Space Based Infrared Systems (SBIRS) High EMD

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	587.121	696.562	668.902	579.369	486.335	380.292	260.530	426.900	8,281.470
3616 SBIRS High Element EMD	587.121	696.562	668.902	579.369	486.335	380.292	260.530	426.900	8,281.470

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

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or 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 Characterization 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 Space 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 program and other related support activities.

(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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	594.169	756.630	653.713
(U) Current PBR/President's Budget	587.121	696.562	668.902
(U) Total Adjustments	-7.048	-60.068	
(U) Congressional Program Reductions		-50.000	
Congressional Rescissions	-0.455	-10.068	
Congressional Increases			
Reprogrammings	9.924		
SBIR/STTR Transfer	-16.517		

(U) **Significant Program Changes:**

USD (AT&L) certified the SBIRS EMD program to Congress on 12 Dec 2005 as required by the Nunn-McCurdy Act. Additional funding was added in fiscal years 2007-2010 to match the OSD Cost Analysis Improvement Group (CAIG) restructured program cost estimate.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3616 SBIRS High Element EMD	587.121	696.562	668.902	579.369	486.335	380.292	260.530	426.900	8,281.470
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or 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 Characterization 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 Space 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 program and other related support activities.

(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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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 for GEO 3 advance procurement, HEO integration and test, HEO message certification, Ground System Development, System Engineering and Program Management, Host SPO support, Technical Intelligence activities, Data Exploitation activities, CTF support activities, continuation of systems integration and test studies and related support activities).	546.568	649.184	619.445
(U) Continue System Program Office Support.	9.388	13.800	14.200
(U) Continue technical analysis and independent verification and validation of contractor by Federally Funded Research and Development Center (FFRDC).	31.165	33.578	35.257
(U) Total Cost	587.121	696.562	668.902

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) MPAF (PE 0305915F, BA-05, P-30)	0.000	0.000	0.000	317.000	1295.000	0.000	0.000	0.000	1,612.000
(U) Other Procurement (PE	0.000	3.640	4.219	3.979	1.947	1.956	1.949	0.000	17.690

Project 3616

R-1 Shopping List - Item No. 79-3 of 79-7

Exhibit R-2a (PE 0604441F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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-03, P-61)

## (U) Related RDT&amp;E:

(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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600							0.000	159.600	
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	3,775.729	546.568	Oct-04	649.184	Oct-05	619.445	Oct-06	1,789.948	7,380.874	7,375.250
SBIRS Pre-SDD Contract Adjustment			4.780							0.000	4.780	
Technology	Various		11.600							0.000	11.600	
Phenomenology	Various		17.350							0.000	17.350	
Sandia Natl Lab (Cobra Brass)	Various		10.000							0.000	10.000	
Not Applicable											0.000	
Subtotal Product Development			3,979.059	546.568		649.184		619.445		1,789.948	7,584.204	7,375.250
Remarks:												
(U) <u>Support</u>												
Aerospace Corp	Reimbursable Order	Aerospace Corp, El Segundo CA	150.527	31.165	Oct-04	33.578	Oct-05	35.257	Oct-06	251.805	502.332	502.332
Prgm Mgmt Supt	Various	Various	65.868	9.388	Oct-04	13.800	Oct-05	14.200	Oct-06	91.632	194.888	194.888
Subtotal Support			216.395	40.553		47.378		49.457		343.437	697.220	697.220
Remarks:												
(U) <u>Test &amp; 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>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			4,195.454	587.121		696.562		668.902		2,133.385	8,281.424	8,072.470



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

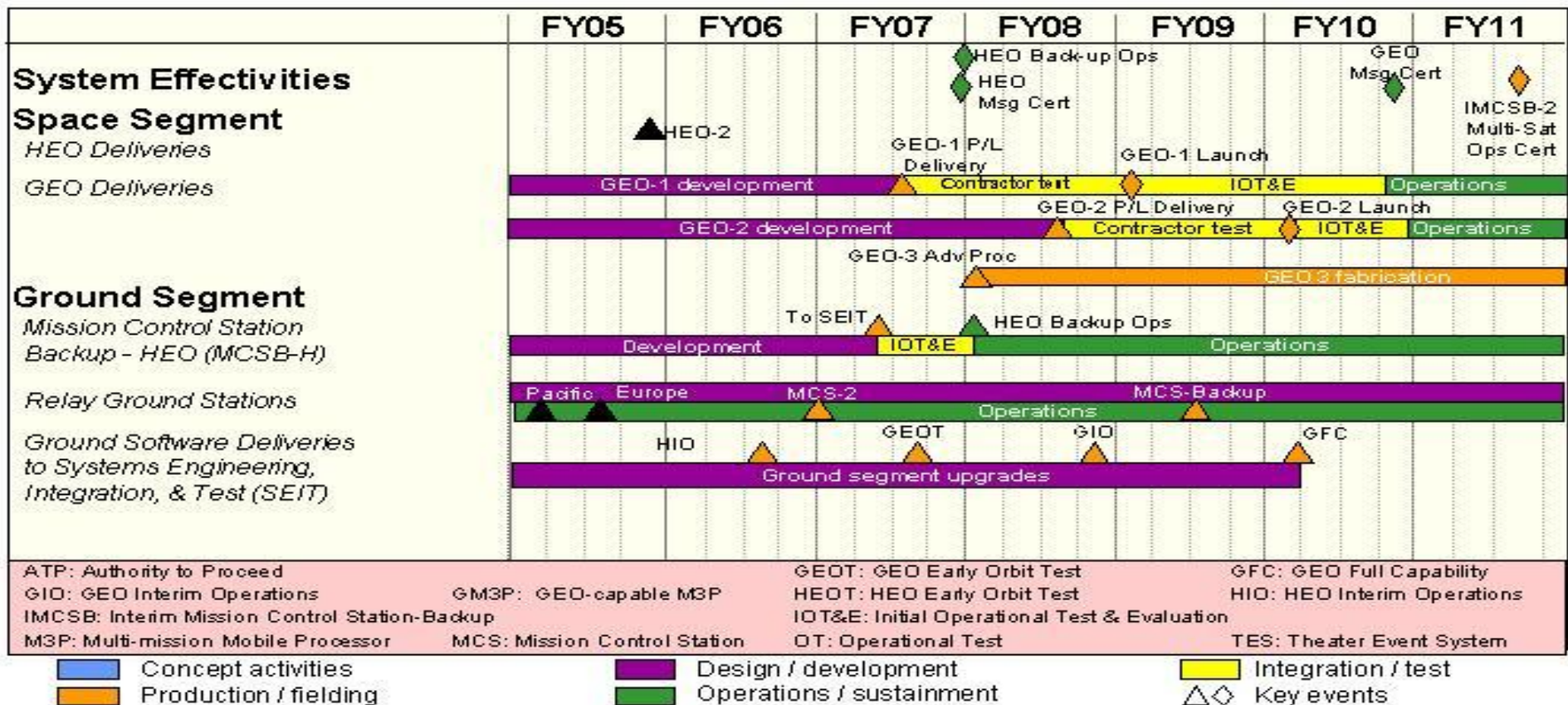
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604441F Space Based Infrared  
Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE

3616 SBIRS High Element EMD





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) Relay Ground Station hardware installation

3Q

(U) HEO Sensor #2 Delivery

4Q

(U) GEO payload thermal vacuum

1Q

(U) HEO Interim operations software delivered to Systems Engineering, Integration, and Test

3Q

(U) Spacecraft Functional Ambient Test

3Q

(U) Relay Ground Station Europe (RGS-E) and Pacific (RGS-P) Asynchronous Transfer Mode  
(ATM) Phase 3 Complete

4Q

(U) Delivery of MCSB-H to SEIT

2Q

(U) GEO-1 payload delivered to LMSSC

3Q

(U) Effectivity 3 HEO message certification

4Q

(U) Effectivity 11 HEO Back-up Operations

4Q



**UNCLASSIFIED**

PE NUMBER: 0604443F

PE TITLE: Alternative Infrared Satellite System (AIRSS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2006</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604443F Alternative Infrared Satellite System (AIRSS)</b>
--	---

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	102.962	228.727	350.000	535.000	700.000	0.000	0.000
A020 AIRSS	0.000	0.000	102.962	228.727	350.000	535.000	700.000	0.000	0.000

In FY 2007, this is a new PE. In FY 2007, Project Number 65A020, Alternative Infrared Satellite System includes new start efforts.

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

(U) The Alternative Infrared Satellite System (AIRSS) mission is to provide a missile warning capability for ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace characterization 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. This program 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.

(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.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget			0.000
(U) Current PBR/President's Budget	0.000	0.000	102.962
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
In FY 2007, this is a new PE.			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604443F Alternative Infrared Satellite System (AIRSS)</b>			PROJECT NUMBER AND TITLE <b>A020 AIRSS</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A020 AIRSS	0.000	0.000	102.962	228.727	350.000	535.000	700.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>(U) The Alternative Infrared Satellite System (AIRSS) mission is to provide a missile warning capability for ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace characterization 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&amp;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. This program 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.</p> <p>(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.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>		<u>FY 2007</u>
(U) AIRSS Concept Definition									92.662
(U) Program office and technical support including federally funded research and development center (FFRDC)									10.300
(U) Total Cost						0.000	0.000		102.962
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)									
(U) <b><u>D. Acquisition Strategy</u></b>									
<p>The AIRSS program has been directed to undertake technology development, risk reduction and program planning to meet a milestone review in FY2008 that could approve start of system design and development (SDD) in FY08. The DoD Executive Agent for Space will provide a plan for the parallel program, to include both the technology risk reduction phase and the subsequent system acquisition phase, to the Defense Acquisition Executive in April 2006.</p>									



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Alternative Infrared Satellite  
System (AIRSS)

PROJECT NUMBER AND TITLE

A020 AIRSS

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> AIRSS Concept Definition Subtotal Product Development Remarks:	Various	various	0.000	0.000		0.000		92.662		Continuing	TBD	0.000
(U) <u>Support</u> Program office and technical support including federally funded research and development center (FFRDC)  Subtotal Support Remarks:	Various	Space and Missile Center, El Segundo, CA	0.000	0.000		0.000		10.300		Continuing	TBD	0.000
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			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
(U) Total Cost			0.000	0.000		0.000		102.962		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

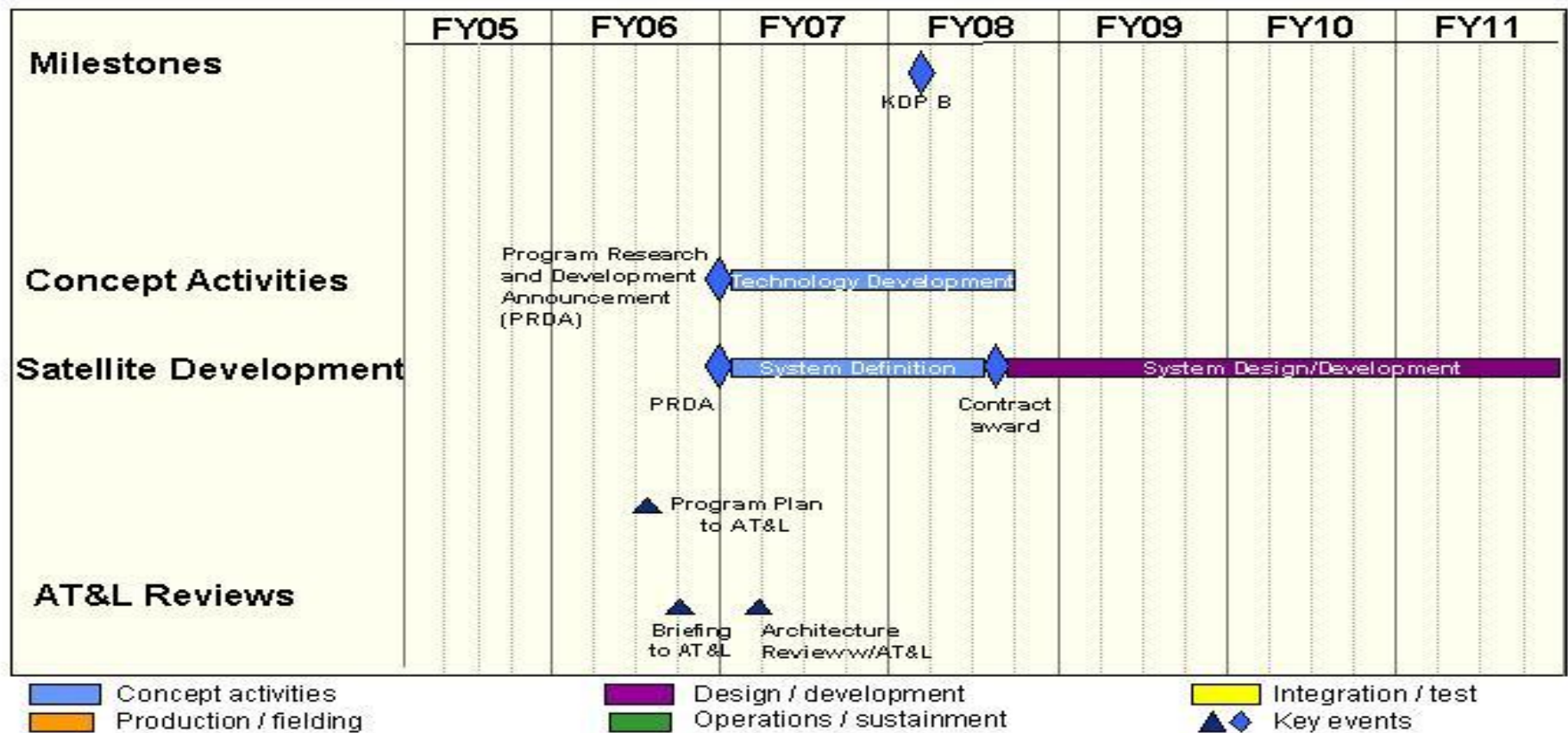
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Alternative Infrared Satellite  
System (AIRSS)

PROJECT NUMBER AND TITLE

A020 AIRSS





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Alternative Infrared Satellite  
System (AIRSS)

PROJECT NUMBER AND TITLE

A020 AIRSS

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Architecture review complete

1Q

(U) System definition start

1Q

(U) Technology development study contracts award

2Q



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## UNCLASSIFIED

PE NUMBER: 0604479F

PE TITLE: MILSTAR LDR/MDR Sat Comm

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat Comm

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019
5010 Milstar Sat Comm Sys	1.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019

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

Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy and Air Force communications terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical warfighters. Milstar I satellites 1 and 2 have a low data rate (LDR) payload that supports strategic and tactical forces with emphasis on highly survivable, minimum essential communications. Milstar II satellites 3 through 6 have both LDR and medium data rate (MDR) payloads with increased tactical capabilities, including higher data rates to mobile forces and nulling that will neutralize close-in enemy jammers. Satellite 3 did not reach its proper orbit and the satellite was placed in its final non-interference orbit and shutdown. Satellites 4 and 5 were successfully launched in 2001 and 2002, respectively. The final Milstar satellite was successfully launched in Apr 2003 and was declared operational in Dec 2003. Contract close out will be completed in FY05; no funds are requested in FY06. Milstar terminals are funded under Program Element 0303601F.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.380	0.000	0.000
(U) Current PBR/President's Budget	1.056	0.000	0.000
(U) Total Adjustments	-0.324	0.000	
(U) Congressional Program Reductions	-0.013		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.274		
SBIR/STTR Transfer	-0.037		
(U) <b><u>Significant Program Changes:</u></b>			
None			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat  
Comm

## PROJECT NUMBER AND TITLE

5010 Milstar Sat Comm Sys

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5010 Milstar Sat Comm Sys	1.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy and Air Force communications terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical warfighters. Milstar I satellites 1 and 2 have a low data rate (LDR) payload that supports strategic and tactical forces with emphasis on highly survivable, minimum essential communications. Milstar II satellites 3 through 6 have both LDR and medium data rate (MDR) payloads with increased tactical capabilities, including higher data rates to mobile forces and nulling that will neutralize close-in enemy jammers. Satellite 3 did not reach its proper orbit and the satellite was placed in its final non-interference orbit and shutdown. Satellites 4 and 5 were successfully launched in 2001 and 2002, respectively. The final Milstar satellite was successfully launched in Apr 2003 and was declared operational in Dec 2003. Contract close out will be completed in FY05; no funds are requested in FY06. Milstar terminals are funded under Program Element 0303601F.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Milstar II contract effort which includes close out and disposal of GFP	0.283		
(U) Program Office Support	0.773		
(U) Total Cost	1.056	0.000	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) N/A									

(U) **D. Acquisition Strategy**

Lockheed Martin was awarded a sole source contract to develop 6 Milstar protected communication satellites. The first two LDR satellites were launched in FY94 and FY95. Satellite 3 launch in FY99 was to provide the first LDR/MDR on-orbit capability, but the satellite did not reach its proper orbit due to a Centaur upper stage failure. Satellites 4 and 5 were launched successfully in 2001 and 2002, respectively. The last LDR/MDR Satellite 6 was successfully launched on 8 April 2003.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat  
Comm

## PROJECT NUMBER AND TITLE

5010 Milstar Sat Comm Sys

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
LMSC (Milstar I) [Sats 1,2,3L]	C/CPAF		4,727.752								4,727.752	
LMSC (Milstar II) [Sats 3M,4,5,6]	SS/CPAF		3,873.441	0.283	Jul-05						3,873.724	
LMSC (Satellite Engineering)	SS/CPAF		222.123								222.123	
SPAWAR (ACMS)	SS/MIPR		165.406								165.406	
LINCOM	SS/CPAF		37.160								37.160	
Lincoln Lab	SS/MIPR		33.235								33.235	
Miscellaneous	Various		272.905								272.905	
Subtotal Product Development			9,332.022	0.283		0.000		0.000		0.000	9,332.305	0.000
Remarks:												
(U) <u>Support</u>												
Aerospace	SS/CPFF/A F		196.269								196.269	
Miscellaneous	Various		174.166	0.773	Oct-04						174.939	
Subtotal Support			370.435	0.773		0.000		0.000		0.000	371.208	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None.											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			9,702.457	1.056		0.000		0.000		0.000	9,703.513	0.000



**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604479F MILSTAR LDR/MDR Sat Comm</b>	PROJECT NUMBER AND TITLE <b>5010 Milstar Sat Comm Sys</b>

Project 5010

R-1 Shopping List - Item No. 81-5 of 81-6

Exhibit R-4 (PE 0604479F)

**UNCLASSIFIED**



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat  
Comm

PROJECT NUMBER AND TITLE

5010 Milstar Sat Comm Sys

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) N/A. No funds in FY06/07.



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## UNCLASSIFIED

PE NUMBER: 0604600F

PE TITLE: Munitions Dispenser Development

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604600F Munitions Dispenser Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.870	5.952	0.000	0.000	0.000	0.000	0.000	0.000	69.587
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	25.870	5.952	0.000	0.000	0.000	0.000	0.000	0.000	69.587

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

This project extends the range and improves accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into the CBU-87 (soft and area targets) and CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness. The WCMD-ER development supports an initial capability on the F-16 and provides 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	27.801	21.738	0.000
(U) Current PBR/President's Budget	25.870	5.952	0.000
(U) Total Adjustments	-1.931	-15.786	
(U) Congressional Program Reductions		-15.700	
Congressional Rescissions	-0.021	-0.086	
Congressional Increases			
Reprogrammings	-1.246		
SBIR/STTR Transfer	-0.664		

(U) **Significant Program Changes:**

Congress approved realignment of WCMD-ER 3600 FY06 funding to WCMD-ER 3011 production funding.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	25.870	5.952	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		

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

This project extends the range and improves accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into the CBU-87 (soft and area targets) and CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness. The WCMD-ER development supports an initial capability on the F-16 and provides 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue WCMD-ER contract to design and procure test hardware.	18.811	4.595	
(U) Continue aircraft integration and testing on F-16 and B-52	6.274	0.878	
(U) Continue engineering support, program office support, and other government support.	0.785	0.479	
(U) Total Cost	25.870	5.952	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Procurement of Ammunition, AF P-1 Line Item 8	58.398	15.490	34.704	0.000	0.000	0.000	0.000	0.000	108.592

(U) **D. Acquisition Strategy**

This program was approved as a Lockheed-Martin pre-planned product improvement by the Secretary of the Air Force. The System Development and Demonstration effort is a Cost Plus Award Fee Contract. The Award Fee program provides incentives for contractor performance including meeting the production unit cost for follow on production contracts.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
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)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development Lockheed Martin	C/CPAF	Missile & Fire Control, Orlando, FL		18.811	Jan-05	4.595	Oct-05			0.000	23.406	45.682
Subtotal Product Development			0.000	18.811		4.595		0.000		0.000	23.406	45.682
Remarks:												
(U) Support AAC/YH	Various	Eglin AFB, FL		0.114		0.080				0.000	0.194	4.602
Support Contracts	Various	Eglin AFB, FL		0.364	Dec-04	0.399	Feb-06			0.000	0.763	1.154
Subtotal Support			0.000	0.478		0.479		0.000		0.000	0.957	5.756
Remarks:												
(U) Test & Evaluation 46 OG/OGML	REO	Eglin AFB, FL		2.925		0.050				0.000	2.975	10.458
Safety				0.030		0.000					0.030	
Aircraft Integration	AF 616	Tinker AFB, OK and WPAFB, OH		3.349		0.828				0.000	4.177	5.845
Subtotal Test & Evaluation			0.000	6.304		0.878		0.000		0.000	7.182	16.303
Remarks:												
(U) Management												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Adjusting Entries												
Withdrawal of \$224K for ANSR not posted to ABIDES				0.224							0.224	1.800
Withdrawal of \$53K for AF withholds not posted to ABIDES				0.053							0.053	0.046
Subtotal Adjusting Entries			0.000	0.277		0.000		0.000		0.000	0.277	1.846
Remarks:												
(U)												
Subtotal			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
Remarks:												
(U) Total Cost			0.000	25.870		5.952		0.000		0.000	31.822	69.587
Project 1015												

R-1 Shopping List - Item No. 82-4 of 82-6

Exhibit R-3 (PE 0604600F)

R-1 Shopping List - Item No. 82-4 of 82-6

Exhibit R-3 (PE 0604600F)



### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

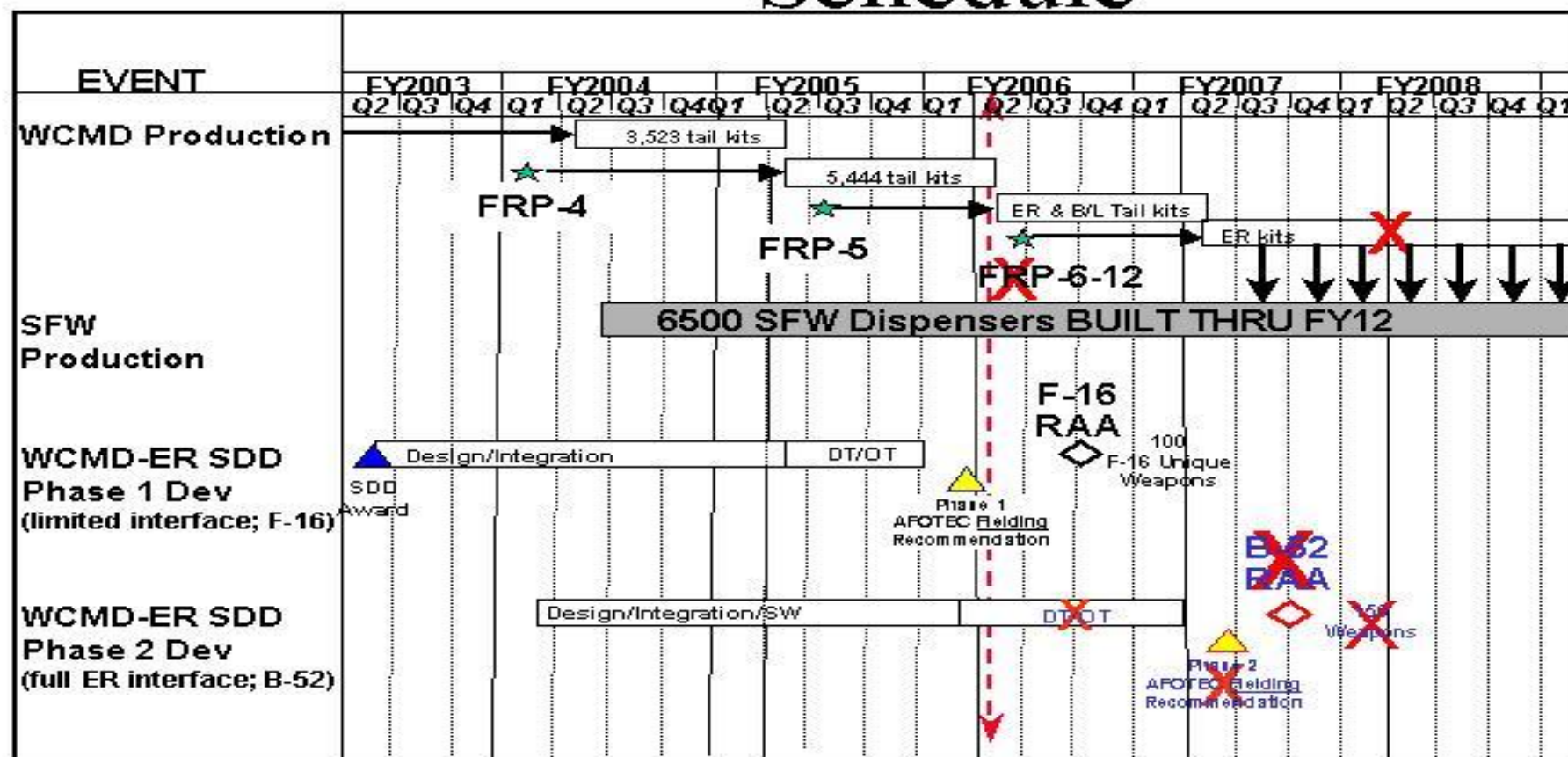
PE NUMBER AND TITLE
---------------------

**0604600F Munitions Dispenser Development**

PROJECT NUMBER AND TITLE	DATE	STATUS	REMARKS
1. PROJECT A	2023-01-15	Completed	On time and within budget.
2. PROJECT B	2023-02-01	In Progress	Minor delays, but on track.
3. PROJECT C	2023-03-10	On Hold	Waiting for client approval.
4. PROJECT D	2023-04-05	Planned	Initial planning phase.
5. PROJECT E	2023-05-20	Completed	Exceeded expectations.

**1015 Wind Corrected Munitions  
Dispenser (WCMD) Kit**

## WCMD / WCMD-ER Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) System Development and Demonstration Contract

1Q

1Q

(U) Preliminary Design Review

(U) Critical Design Review

1Q

(U) Flight Schedule

1Q



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## UNCLASSIFIED

PE NUMBER: 0604602F

PE TITLE: Armament/Ordnance Development

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.015	7.675	5.039	1.991	2.120	2.127	2.111	Continuing	TBD
3133 Bombs & Fuzes	6.629	6.259	3.795	0.710	0.788	0.809	0.813	Continuing	TBD
4696 Armament Standardization Program	1.247	1.272	1.088	1.123	1.159	1.141	1.118	Continuing	TBD
5613 Containers	0.139	0.144	0.156	0.158	0.173	0.177	0.180	Continuing	TBD

(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.

Bombs and Fuzes: 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.

Armament Standardization/Control/Munitions Material 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.



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## Exhibit R-2, RDT&amp;E Budget Item Justification

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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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	8.280	7.786	4.847
(U) Current PBR/President's Budget	8.015	7.675	5.039
(U) Total Adjustments	-0.265	-0.111	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	-0.006	-0.111	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.152	0.000	
SBIR/STTR Transfer	-0.107	0.000	
(U) <u>Significant Program Changes:</u>			
None			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

3133 Bombs &amp; Fuzes

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3133 Bombs & Fuzes	6.629	6.259	3.795	0.710	0.788	0.809	0.813	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

There are two subprojects in the Bombs and Fuzes project: (1) Fuzes: Joint Programmable Fuze (JPF) - JPF enables the fuze settings to be changed from the aircraft, optimizing the performance of the weapon by matching the fuze setting with the target selected. JPF was developed primarily for JDAM and funded by the JDAM program (PE 0604618). This project funds the integration of JPF on other AF legacy weapons. This project also funds the improvements to the JPF program, including reliability enhancements and producibility improvements. (2) Insensitive Munitions (IM) develops an explosive fill and bomb case modification to make conventional weapons insensitive to unplanned stimuli as given in MIL-STD-2105C.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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	1.100	0.480	0.246
(U) JPF legacy weapons integration and other fuze activity	0.465	0.850	0.932
(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	1.347	0.517	1.300
(U) Conduct bomb case study and comparative testing	3.717	4.412	1.317
(U) Total Cost	6.629	6.259	3.795

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) N/A									

(U) **D. Acquisition Strategy**

The acquisition strategy for the MK-84/MK-82 Insensitive Munition (IM) was based on Best Value due to the redundancy of approaches presented by competing offerors.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

3133 Bombs &amp; Fuzes

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u>	<u>Performing</u>	<u>Total</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	<u>Target Value</u>
	<u>Method &amp;</u>	<u>Activity &amp;</u>	<u>Prior to FY</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Complete</u>		<u>of Contract</u>
	<u>Type</u>	<u>Location</u>	<u>2005</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
			<u>Cost</u>									
(U) <u>Product Development</u>												
ATK (HTSF)	CPIF/CPFF	Hopkins, MN	23.968	0.000	N/A	0.000	N/A	0.000	N/A	0.000	23.968	23.968
Kaman/Dayron (JPF)	FPIF	Orlando, FL	8.190	0.465	Dec-04	0.000	N/A	0.000	N/A	0.000	8.655	8.190
Air Force Research Lab (Fuze)	In-house	Eglin AFB, FL	0.000	0.000	N/A	0.053	N/A	0.000	N/A	0.000	0.053	
Air Force Research Lab/MN (IM)	In-house	Eglin AFB, FL	4.235	1.400	N/A	0.550	N/A	0.628	N/A	0.000	6.813	6.813
General Dynamics OTS (IM)	CPFF	Niceville, FL	2.081	0.600	Jan-05	0.405	Jan-06	0.000	N/A	0.000	3.086	3.086
McAAP	Army	McAllester, OK	0.339	0.850	N/A	0.400	N/A	0.000	N/A	0.000	1.589	1.589
Subtotal Product Development			38.813	3.315		1.408		0.628		0.000	44.164	43.646
Remarks:	CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee											
(U) <u>Support</u>												
TEAS/ TEAMS (Fuze Activity)	FFP	Eglin AFB, FL	4.625	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.625	4.625
AAC/YU-FUZES (Fuze Activity)	In-house	Eglin AFB, FL	1.444	0.000	N/A	0.000	N/A	0.000	N/A	1.537	2.981	4.133
AAC/XR (IM)	In-house	Eglin AFB, FL	0.681	0.300	N/A	0.300	N/A	0.480	N/A	0.000	1.761	1.761
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	1.202	0.440	Oct-04	0.365	Oct-05	0.477	Oct-06	0.000	2.484	2.522
Subtotal Support			7.952	0.740		0.665		0.957		1.537	11.851	13.041
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) <u>Test &amp; Evaluation</u>												
Fuze Testing (gov't agencies)	In-house	Various	6.331	0.232	N/A	0.797	N/A	0.938	N/A	1.537	9.835	9.993
46th Test Wing (IM)	In-house	Eglin AFB, FL	1.120	1.400	N/A	0.356	N/A	0.000	N/A	0.000	2.876	2.876
Navy, China Lake ( IM)	Navy	China Lake, CA	0.445	0.942	N/A	3.033	N/A	1.272	N/A	0.000	5.692	6.160
Subtotal Test & Evaluation			7.896	2.574		4.186		2.210		1.537	18.403	19.029
Remarks:												
(U) Total Cost			54.661	6.629		6.259		3.795		3.073	74.418	75.716



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

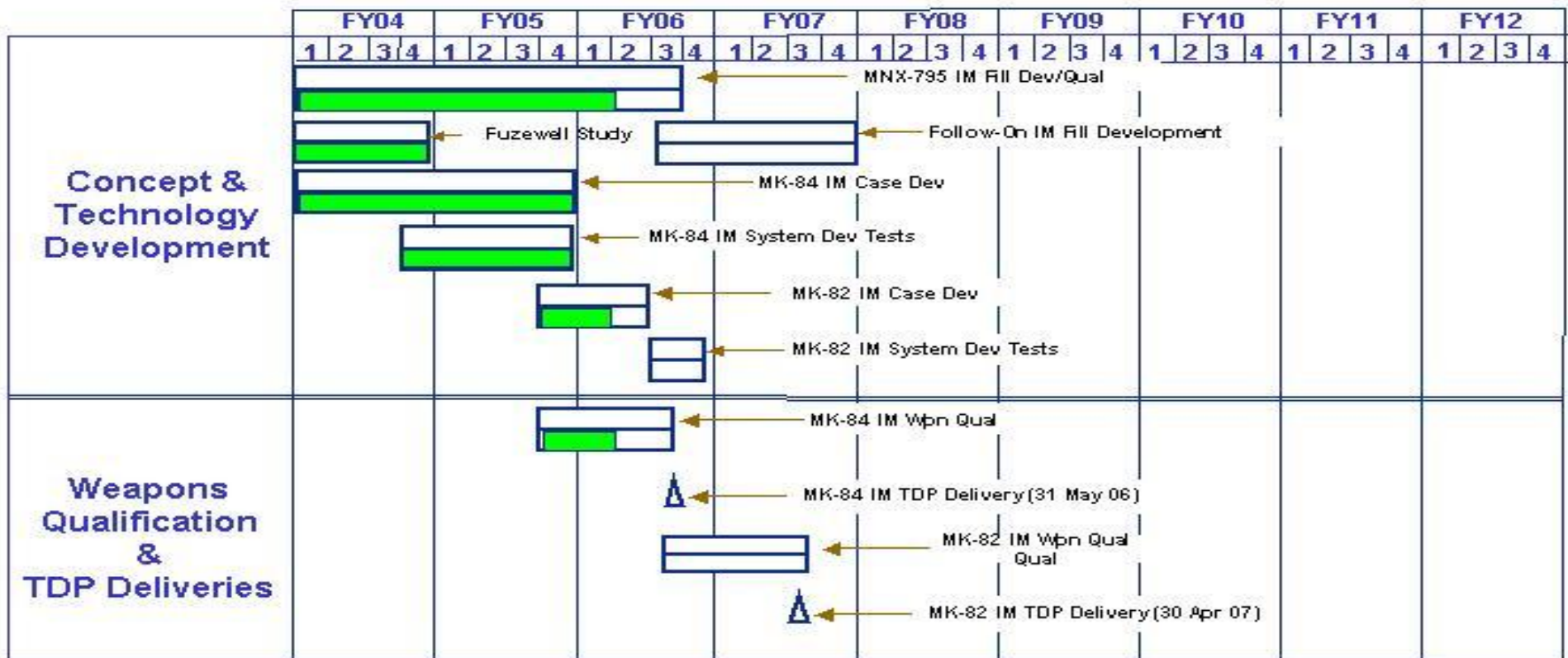
PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

3133 Bombs &amp; Fuzes

## Insensitive Munitions (IM) and Joint Programmable Fuze (JPF) Schedule





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## Exhibit R-4a, RDT&amp;E Schedule Detail

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 Bombs &amp; Fuzes

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) FUZES

(U) JPF Integration on Legacy Weapons &amp; Other Fuze Activity

1-4Q

1-4Q

1-4Q

(U) INSENSITIVE MUNITIONS (IM)

(U) Follow-on IM Fill Development

2-4Q

1-4Q

(U) MK-84 IM Bomb Case Study/Test

1-2Q

(U) Small-scale Sensitivity/Qual Testing

1-3Q

(U) MK-84 IM System Integration/Weapons Qual

3-4Q

1-2Q

(U) MK-82 IM System Integration/Weapons Qual

3-4Q

1-4Q

1-3Q



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## Exhibit R-2a, RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4696 Armament Standardization Program	1.247	1.272	1.088	1.123	1.159	1.141	1.118	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Armament Standardization/Control/Munitions Material 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Design, prototype, test and develop various MMHE projects for AF use.	1.247	1.272	1.088
(U) Total Cost	1.247	1.272	1.088

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**

MMHE is a program of continuing efforts (projects) with activities performed organically or through contracted services.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

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

4696 Armament Standardization  
Program

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Support</u>												
AAC/YBC (Program Office)	In-house (RREO)	Eglin AFB, FL	0.824	0.114	N/A	0.000	N/A	0.097	N/A	Continuing	TBD	TBD
Subtotal Support			0.824	0.114		0.000		0.097		Continuing	TBD	TBD
Remarks:												
(U) <u>Product Development</u>												
AAC/YBC (Program Office)	In-house (RREO)	Eglin AFB, FL	0.000	0.000	N/A	0.815	N/A	0.767	N/A	Continuing	TBD	TBD
J.E. Sverdrup	FFP	Fort Walton Beach, FL	4.306	0.685	Jan-05	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
96 LRS	In-house (RREO)	Eglin AFB, FL	0.885	0.278	N/A	0.115	N/A	0.138	N/A	Continuing	TBD	TBD
EDSD	In-house (RREO)	Eglin AFB, FL	0.078	0.020	N/A	0.006	N/A	0.006	N/A	Continuing	TBD	TBD
Phototype Fabrication Shop	In-house (RREO)	Eglin AFB, FL	1.200	0.150	N/A	0.336	N/A	0.080	N/A	Continuing	TBD	TBD
Subtotal Product Development			6.469	1.133		1.272		0.991		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			7.293	1.247		1.272		1.088		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

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February 2006

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.



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

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February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization  
Program(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Study, Design, and Test MMHE

1-4Q

1-4Q

1-4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5613 Containers	0.139	0.144	0.156	0.158	0.173	0.177	0.180	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.006	0.006	0.006
(U) Provide container design expertise and technical support to programs such as BLU-122/A, MAALD, P5, and WCMD	0.006	0.006	0.006
(U) Manage and operate the CDRS database and support service	0.127	0.132	0.144
(U) Total Cost	0.139	0.144	0.156

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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 SDRS is to share ideas and standardize munitions containers throughout the Services.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

5613 Containers

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Support</u>												
AAC/YBC (Program Office)	In-house	Eglin AFB, FL	1.054	0.122	N/A	0.126	N/A	0.136	N/A	Continuing	TBD	TBD
Subtotal Support			1.054	0.122		0.126		0.136		Continuing	TBD	TBD
Remarks:												
(U) <u>Product Development</u>												
J.E.Sverdrup	FFP	Fort Walton Beach, FL	1.604	0.017	Feb-05	0.018	Feb-06	0.020	Feb-07	Continuing	TBD	TBD
Subtotal Product Development			1.604	0.017		0.018		0.020		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			2.658	0.139		0.144		0.156		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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.



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

5613 Containers

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Support CDRS Activities/Meetings

1-4Q

1-4Q

1-4Q



## UNCLASSIFIED

PE NUMBER: 0604604F

PE TITLE: Submunitions

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604604F Submunitions

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.682	5.397	5.759	1.983	1.741	1.838	1.707	Continuing	TBD
3166 Joint Smart Munitions Test and Evaluation	5.682	5.397	5.759	1.983	1.741	1.838	1.707	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 is a joint US Air Force/US Army project which 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 Army 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	5.772	5.475	5.728
(U) Current PBR/President's Budget	5.682	5.397	5.759
(U) Total Adjustments	-0.090	-0.078	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	-0.004	-0.078	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.070	0.000	
SBIR/STTR Transfer	-0.016	0.000	
(U) <u>Significant Program Changes:</u>			
FUNDING: None			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604604F Submunitions</b>			PROJECT NUMBER AND TITLE <b>3166 Joint Smart Munitions Test and Evaluation</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3166 Joint Smart Munitions Test and Evaluation	5.682	5.397	5.759	1.983	1.741	1.838	1.707	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>This program element provides support for smart munitions and related technologies test and evaluation (T&amp;E) activities, including T&amp;E support for programs in engineering and manufacturing development. Project 3166 is a joint US Air Force/US Army project which provides RDT&amp;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 Army 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.</p> <p>This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Continue weapon effectiveness evaluation and weaponization studies						0.994	0.762	0.813	
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies						0.515	0.336	0.360	
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink						0.756	1.571	1.677	
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development						1.776	1.307	1.397	
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons						0.304	0.263	0.280	
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)						0.350	1.158	1.232	
(U) Design a retrofit for the CBU-87 submunition (BLU-97) fuze to reduce unexploded ordnance						0.987	0.000	0.000	
(U) Total Cost						5.682	5.397	5.759	
<div style="display: flex; justify-content: space-between; padding: 5px;"> <span>Project 3166</span> <span>R-1 Shopping List - Item No. 84-2 of 84-6</span> <span>Exhibit R-2a (PE 0604604F)</span> </div>									



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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. There are two contracts supporting the program office in executing the testing activities.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE			
										February 2006			
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			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Support Macaulay Brown/ANSTEC	FFP	Technical Analysis and Test Support, Eglin AFB, FL	1.706	0.100	Apr-05	0.080	Apr-05	0.000	N/A	Continuing	TBD	TBD	
Other (several small contracts)	CPIF	Technical/Cost Analysis, Eglin AFB, FL and Arlington, VA	0.191	0.300	Jan-05	0.300	Jan-06	0.300	Jan-07	Continuing	TBD	TBD	
Subtotal Support			1.897	0.400		0.380		0.300		Continuing	TBD	TBD	
Remarks:	For support contractors, once the contract is awarded, we continue funding via annual additions and do not award new contracts each year. CPIF = Cost Plus Incentive Fee; FFP = Firm Fixed Price												
(U) Test & Evaluation Sverdrup	CPIF	Technical Analysis and Test Support, Eglin AFB, FL	10.904	0.412	Jun-01	0.433	Jun-01	0.454	Jun-01	Continuing	TBD		
46th Test Wing (46 OG)	N/A	Conducting Tests and Analysis, Eglin AFB, FL	76.897	3.633	N/A	4.334	N/A	4.730	N/A	Continuing	TBD	TBD	
Subtotal Test & Evaluation			87.801	4.045		4.767		5.184		Continuing	TBD	TBD	
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.												
(U) Management 46th Test Wing (46 OG)	N/A	Planning and Conducting Tests, Eglin AFB, FL	6.613	0.250	N/A	0.250	N/A	0.275	N/A	Continuing	TBD	TBD	
AFRL/MN	N/A	Contract Mgt and Technical Review Eglin AFB, FL	0.000	0.087	N/A	0.000	N/A	0.000	N/A	Continuing	TBD		
Subtotal Management			6.613	0.337		0.250		0.275		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) Research and Development UXO Contracts (2) through AFRL/MN	N/A	Eglin AFB, FL	0.000	0.900	Aug-05	0.000	N/A	0.000	N/A	Continuing	TBD		
Subtotal (U) Research and Development			0.000	0.900		0.000		0.000		Continuing	TBD	0.000	
Remarks:													
(U) Total Cost			96.311	5.682		5.397		5.759		Continuing	TBD	TBD	
Project 3166	R-1 Shopping List - Item No. 84-4 of 84-6											Exhibit R-3 (PE 0604604F)	



## UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile		DATE
		February 2006
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

**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. This project is also funded by the Army and other Services on a case by case basis. The type of activities is given in Section B. The timing, duration, and level of effort is decided at the annual Steering Committee meetings.



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests

1-4Q

1-4Q

1-4Q

(U) Design a retrofit for CBU-87 submunition fuze

2-4Q

1-4Q



## UNCLASSIFIED

PE NUMBER: 0604617F

PE TITLE: Agile Combat Support

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604617F Agile Combat Support

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	16.989	11.211	10.095	10.904	9.610	9.864	10.108	Continuing	TBD
2895 CE Readiness	6.405	5.955	6.496	6.676	6.765	6.913	7.043	Continuing	TBD
4910 Aeromedical Readiness	10.584	5.256	3.599	4.228	2.845	2.951	3.065	Continuing	TBD

In FY06, Project 2895, Civil Engineering Readiness (CE), included 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 supporting numerous global contingencies such as humanitarian efforts, Global War On Terrorism, and Enduring Freedom for security, base defense, relief efforts, and special operations throughout the world. Specific ACS capabilities being developed include: power generation and distribution systems to reduce airlift; deployable medical grade oxygen generation systems; a family of deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, Command, Control, Communications, Computers and Intelligence (C4I) operations, medical and personnel shelters, systems to repair runway damage, and Joint Service (Army-led) test, evaluation and acquisition of protective systems, and equipment to be used by Air Force EOD technicians for reconnaissance and mine clearing missions.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	18.886	10.173	9.996
(U) Current PBR/President's Budget	16.989	11.211	10.095
(U) Total Adjustments	-1.897	1.038	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.015	-0.162	
Congressional Increases		1.200	
Reprogrammings	-1.643		
SBIR/STTR Transfer	-0.239		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
<b>05 System Development and Demonstration (SDD)</b>	<b>0604617F Agile Combat Support</b>	
<p>In FY05, Project 4910 received four Congressional Adds in the amounts of \$2.8M, \$4.2M, \$1M, and \$1M, respectively for AERO Medical Readiness Water sterilization, Isolation Units with Reactive Nanoparticle Materials, Advanced Casualty Care for AFSOC, and Biostatic Protective Clothing for AFSOC.</p> <p>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.</p>		



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2895 CE Readiness	6.405	5.955	6.496	6.676	6.765	6.913	7.043	Continuing	TBD
Quantity of RDT&E Articles	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. Agile Combat Support Sys 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. Light weight, rapidly deployable equipment has become essential in supporting numerous global contingencies such as humanitarian efforts, Global War On terrorism, security, base defense, relief efforts, and special operations throughout the world. Specific ACSSS capabilities being developed and fielded include: deployable power generation and distribution systems to reduce airlift and energy consumption, deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, C4I operations, medical and personnel shelters, systems to repair runway damage; and Joint Service (Army-led) test, evaluation and acquisition of protective systems, and equipment to be used by Air Force EOD technicians for reconnaissance, mine clearing operations, accessing and neutralizing improvised explosive devices, and equipment in support of Homeland Defense missions.

The Agile Combat Support Sys 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue SDD for All-purpose Remote Transport System (ARTS)/Attachments	2.100	0.761	
(U) Provide Joint Robotics Program (JRP) Support			0.100
(U) Continue risk-reduction activities for Rapid Parking Ramp Expansion (RPRE) SDD	0.100	2.614	2.800
(U) Continue Large Shelter System (LSS) SDD (Stop Work Order initiated Apr 05 (Contract in termination for convenience of the Government)	1.800		
(U) Continue(d) SDD for Multimedia Training Systems (MTS)	1.500	1.000	1.664
(U) Continue(d) Product Evaluations for Civil Engineer Systems & Equipment Analyses (CESEA) (Formerly Commercial Technology Exploitation (CTE))	0.905	1.380	1.432
(U) Support Man-Transportable Robotics System (MTRS) (Formerly Modular Automated Robotic System (MARS)) pre-production activities		0.200	
(U) Initiate SDD for Next-Generation Emergency Airfield Lighting System (NEALS)			0.500
(U) Total Cost	6.405	5.955	6.496



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Other Base and Maintenance Support, Mobility Equipment (WSC 845420)	262.972	44.852	26.043	37.735	59.188	74.038	31.908	Continuing	TBD
(U) Other Procurement, AF, Other Base and Maintenance Support, Air Base Operability (WSC 845100)	13.185	5.389	5.063	6.148	6.438	6.571	6.737	Continuing	TBD

(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 Agile Combat Support Systems Squadron (ACSSS) 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, ACSSS 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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support					PROJECT NUMBER AND TITLE 2895 CE Readiness			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>	
(U) <u>Product Development</u> ARTS/Attachments	FFP	Applied Research Associates, South	6.755	2.100	Mar-05	0.761	Jan-06			0.000	9.616	9.955	
Joint Robotics Program (JRP) Support	FFP	Royalton, VT ACSSS, Eglin AFB, FL						0.100	Jan-07	Continuing	TBD	TBD	
Rapid Parking Ramp Expansion	FFP	TBD	0.000	0.100	Mar-05	2.614	Dec-05	2.800	Dec-06	0.700	6.214	4.700	
Large Shelter System (LSS)	FFP	Vertigo, Inc., Lake Elsinore, CA	2.607	1.800	Feb-05					0.000	4.407	4.700	
Multimedia Training Systems (MTS)	FFP	Multiple	5.075	1.500	Jan-05	1.000	Feb-06	1.664	Mar-07	Continuing	TBD	TBD	
Civil Engineer Sys & Equipment Analysis (CESEA)(Formerly CTE)	FFP	Multiple	1.970	0.905	May-05	1.380	May-06	1.432	May-07	Continuing	TBD	TBD	
Man-Transportable Robotics Sys (MTRS) (Formerly MARS)	TBD	TBD				0.200				0.000	0.200	0.200	
Next-Generation Emergency Airfield Lighting System (NEALS)	TBD	TBD						0.500	Feb-07	5.500	6.000	6.000	
Subtotal Product Development			16.407	6.405		5.955		6.496		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	
Remarks:													
(U) <u>Test &amp; Evaluation</u> Various	Various			0.000						Continuing	TBD		
None											0.000		
Subtotal Test & Evaluation			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	
Remarks:													
(U) Total Cost			16.407	6.405		5.955		6.496		Continuing	TBD	TBD	
NOTE: This is a level of effort Program Element with 20+ years of projects. Prior years breakout not available.													
Project 2895 R-1 Shopping List - Item No. 85-5 of 85-13 Exhibit R-3 (PE 0604617F)													

Project 2895

R-1 Shopping List - Item No. 85-5 of 85-13

Exhibit R-3 (PE 0604617F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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

FY05

FY06

FY07

FY08

(U) Schedule Profile**ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)**

- Continued ARTS Box Rake SDD
- ARTS Box Rake Production
- Submunitions Clearance System (SCS) SDD Phase I & II
- Initiate SCS Production
- Continue T&E for ARTS Data Feedback System (DFS)
- DFS Production

**RAPID PARKING RAMP EXPANSION (RPRE)**

- Conduct FY05 RPRE Pre-SDD activities
- Conduct FY06 RPRE Pre-SDD activities
- RPRE Milestone B Decision
- Award RPRE SDD Contract
- Initiate RPRE T&E

**LARGE SHELTER SYSTEM (LSS)**

- Initiated SDD Stop Work Order - Contract under termination

**MULTIMEDIA TRAINING SYSTEMS (MMTS)**

- Conduct FY05 MMTS Projects
- Conduct FY06 MMTS Projects
- Conduct FY07 MMTS Projects

T &amp; E

△

△

Production

△

T &amp; E I

△△

II

△

Production

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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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

FY05

FY06

FY07

FY08

(U) Schedule Profile**CIVIL ENGINEER SYSTEMS AND EQUIPMENT ANALYSIS  
(CESEA)**

- Conduct FY05 CESEA Product Evaluations
- Conduct FY06 CESEA Product Evaluations
- Conduct FY07 CESEA Product Evaluations

**MAN TRANSPORTABLE ROBOTICS SYSTEM (MTRS)**

- Exercise MTRS Option
- MTRS Production Delivery

**NEXT-GENERATION EMERGENCY AIRFIELD LIGHTING  
SYSTEM (NEALS)**

- Submit NEALS RFP
- Award NEALS SDD Contract
- Initiate NEALS T&E





## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)				
(U) Continue ARTS Box Rake SDD		2Q		
(U) Award ARTS Box Rake Procurement Contract		2Q		
(U) Continue Data Feedback System (DFS) T&E		3Q		
(U) Award DFS Procurement Option		3Q		
(U) Begin Submunitions Clearance System (SCS) SDD Phase I	3Q			
(U) Begin Submunitions Clearance System (SCS) SDD Phase II		3Q		
(U) Award SCS Procurement Option		4Q		
(U) RAPID PARKING RAMP EXPANSION (RPRE)				
(U) Conduct FY05 RPRE Pre-SDD activities	4Q			
(U) Conduct FY06 RPRE Pre-SDD activities		1Q		
(U) RPRE Milestone B Decision		3Q		
(U) Award SDD Contract			1Q	
(U) Initiate RPRE T&E			2Q	
(U) LARGE SHELTER SYSTEM (LSS)				
(U) Conduct FY05 SDD activities	2Q			
(U) Initiated "Stop Work Order" Contract under Termination for Convenience of the Government	3Q			
(U) MULTIMEDIA TRAINING SYSTEMS (MTS)				
(U) Complete FY05 MTS Projects	3Q			
(U) Complete FY06 MTS Projects		3Q		
(U) Complete FY07 MTS Projects			3Q	
(U) CIVIL ENGINEER SYS & EQUIPMENT ANALYSIS(CESEA)				
(U) Complete FY05 CESEA Product Evaluations	4Q			
(U) Conduct FY06 CESEA Product Evaluations		3Q		
(U) Conduct FY07 CESEA Product Evaluations			3Q	
(U) MAN-TRANSPORTABLE ROBOTICS SYS (MTRS)(FORMERLY MARS)				
(U) Support MTRS Pre-Production Activities		2Q		
(U) Exercise MTRS Option			1Q	
(U) NEXT-GENERATION EMERGENCY AIRFIELD LIGHTING SYSTEM (NEALS)				
(U) Submit NEALS RFP			1Q	
(U) Award NEALS SDD Contract			2Q	
(U) Initiate NEALS T&E			3Q	
Project 2895	R-1 Shopping List - Item No. 85-8 of 85-13	Exhibit R-4a (PE 0604617F)		

Project 2895

R-1 Shopping List - Item No. 85-8 of 85-13

Exhibit R-4a (PE 0604617F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4910 Aeromedical Readiness	10.584	5.256	3.599	4.228	2.845	2.951	3.065	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue operation support, market research, and acquisition strategy for deployable oxygen systems	0.100	0.200	
(U) Continue development of oxygen systems to meet deployable oxygen requirements	0.877	2.955	2.035
(U) Conduct analysis and begin SDD activities for Expeditionary Trauma Resuscitation	0.000	0.651	1.293
(U) Congressional add for Advanced Casualty Care for AFSOC	0.979	0.000	0.000
(U) Initiate Congressional add for AERO Medical Readiness Water Sterilization (Continuation of FY04 Congressional add for Nano-technology to produce sterile water)	2.745	0.000	0.000
(U) Congressional add for Biostatic Protective Clothing for AFSOC	0.980	1.183	0.000
(U) Congressional add for Isolation Units with Reactive Nanoparticle Materials	4.116	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	0.787	0.267	0.271
(U) Total Cost	10.584	5.256	3.599

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF, Other Base Maintenance and Support, Medical/Dental Equipment (WSC 845060)	15.101	15.485	16.377	16.941	18.809	19.245	16.630	Continuing	TBD

(U) **D. Acquisition Strategy**

All major projects are awarded under best-value competitive solicitation.



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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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

(U) Schedule Profile**DEPLOYABLE OXYGEN SYSTEM (DOS)**

- Completed Deployable Liquid Oxygen System (DOLS) prototype development
- Small oxygen generator and storage unit
- Medium oxygen generator and storage unit
- Large oxygen generator and storage unit (MS B, 2Q FY08)

**NANO-TECHNOLOGY TO PRODUCE STERILE WATER**

- Completed Technology Insertion Agreement (TIA)

**EXPEDITIONARY TRAUMA RESUSCITATION**

- Conduct MS B decision based on technology maturation

FY05

FY06

FY07



MS B ▲



MS B ▲

SDD

SDD MS C ▲

MS C ▲

▲ MS B  
SDD



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) DEPLOYABLE OXYGEN SYSTEMS			
(U) -Completed Deployable Liquid Oxygen System (DOLS) prototype development	1Q		
(U) -Conduct Milestone B for small oxygen generator and storage unit		4Q	
(U) -Conduct Milestone C for small oxygen generator and storage unit			4Q
(U) -Conduct Milestone B for medium oxygen generator and storage unit	3Q		
(U) -Conduct Milestone C for medium oxygen generator and storage unit			4Q
(U) -Complete Technology Insertion Agreement (TIA) for Nano-Technology to produce sterile water	2Q		
(U) EXPEDITIONARY TRAUMA RESUSCITATION			
(U) -Conduct Milestone B decision dependent upon technology maturation			2Q



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## UNCLASSIFIED

PE NUMBER: 0604618F

PE TITLE: Joint Direct Attack Munition

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604618F Joint Direct Attack Munition

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	15.450	0.000	0.000	0.000	0.000	425.864	425.864
3890 Joint Direct Attack Munitions	0.000	0.000	15.450	0.000	0.000	0.000	0.000	425.864	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/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the F-117A, 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 for moving surface targets in adverse weather to include maritime interdiction using Joint Surveillance/Target Attack Radar System (JSTARS) as a guide for the weapon. AMSTE adds moving targets and maritime interdiction capability to the JDAM target list. The AMSTE effort will begin in FY07 and production units will be delivered late FY08.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	15.450
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	0.000		
Congressional Increases	0.000		
Reprogrammings	0.000		
SBIR/STTR Transfer	0.000		
(U) <u>Significant Program Changes:</u>			
FY07 - funds added for AMSTE			



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3890 Joint Direct Attack Munitions	0.000	0.000	15.450	0.000	0.000	0.000	0.000	425.864	425.864
Quantity of RDT&E Articles	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/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the F-117A, 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 for moving surface targets in adverse weather to include maritime interdiction using Joint Surveillance/Target Attack Radar System (JSTARS) as a guide for the weapon. AMSTE adds moving targets and maritime interdiction capability to the JDAM target list. The AMSTE effort will begin in FY07 and production units will be delivered late FY08.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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	0.000	15.300
(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	0.000	0.150
(U) Total Cost	0.000	0.000	15.450

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) (U) Procurement of Ammunition, Air Force, JDAM, Appn. 3011, PE 0207583F	514.390	220.290	174.906	111.553	105.408	105.937	109.325	0.000	3,078.400
(U) (U) Procurement of Ammunition, Air Force, Seek Eagle, Appn. 3011, PE	0.000	0.000	0.107	0.000	0.000	0.000	0.000	0.000	0.975



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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)

0207590F

(U) D. Acquisition Strategy

The contract for the AMSTE effort is planned as a Cost Plus Award Fee (CPAF) contract.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## PE NUMBER AND TITLE

## PROJECT NUMBER AND TITLE

## 05 System Development and Demonstration (SDD)

## 0604618F Joint Direct Attack Munition

## 3890 Joint Direct Attack Munitions

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
				<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</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						0.000	253.552	253.552
Prime Contractor (Boeing) -- AMSTE Development	CPAF	Boeing St Louis						11.100	Feb-07		11.100	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		0.000		11.250		0.000	295.459	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								19.345	19.345
Subtotal Support			40.473	0.000		0.000		0.000		0.000	40.473	40.473
Remarks:		TAMS contractor provides management and financial support to the System Program Office (SPO).										
(U) <u>Test &amp; Evaluation</u>												
Aircraft SPO Support	Various	Eglin AFB, FL	13.905					2.000	Feb-07		15.905	15.905
Flight Testing	Various	Eglin AFB, FL/Edwards AFB and China Lake, CA/Hill AFB, UT	49.189					2.200	Feb-07		51.389	51.389
Ground Testing	Various	Eglin AFB, FL/China Lake, CA	14.983								14.983	14.983
JPF Wind Tunnel Testing	TBD	Arnold Engineering Development Center, TN	3.320								3.320	3.320
Government Furnished Equipment (GFE)	Various	N/A	4.335			0.000		4.200		0.000	4.335	4.335
Subtotal Test & Evaluation			85.732	0.000		0.000		4.200		0.000	89.932	89.932
Remarks:												
(U) Total Cost			410.414	0.000		0.000		15.450		0.000	425.864	425.864

Project 3890

R-1 Shopping List - Item No. 86-5 of 86-7

Exhibit R-3 (PE 0604618F)



February 2006

## 05 System Development and Demonstration (SDD)

## 0604618F Joint Direct Attack Munition

### n|3890 Joint Direct Attack Munitions



## JDAM AMSTE Schedule

**NOTE: CONOPS/Rqmts/Test Plan is being funding under another R&D program**



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

(U) Development Contract Award

2Q

(U) Qual/DT/OT

4Q



## UNCLASSIFIED

PE NUMBER: 0604706F  
PE TITLE: Life Support Systems

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604706F Life Support Systems</b>																																								
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	8.333	13.373	12.370	12.907	13.822	14.936	15.517	Continuing	TBD																																				
412A Life Support Systems	8.333	13.373	12.370	12.907	13.822	14.936	15.517	Continuing	TBD																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved/enhanced aircrew performance capabilities; 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 PE 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 life support programs. Program is in Budget Activity 5 because projects are in Acquisition Phase B, development.</p>																																													
<p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">11.330</td> <td style="text-align: right;">7.315</td> <td style="text-align: right;">8.100</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">8.333</td> <td style="text-align: right;">13.373</td> <td style="text-align: right;">12.370</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-2.997</td> <td style="text-align: right;">6.058</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: right;">-0.009</td> <td style="text-align: right;">-0.192</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td style="text-align: right;">6.250</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: right;">-2.708</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: right;">-0.280</td> <td></td> <td></td> </tr> </tbody> </table>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	11.330	7.315	8.100	(U) Current PBR/President's Budget	8.333	13.373	12.370	(U) Total Adjustments	-2.997	6.058		(U) Congressional Program Reductions				Congressional Rescissions	-0.009	-0.192		Congressional Increases		6.250		Reprogrammings	-2.708			SBIR/STTR Transfer	-0.280		
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<p>(U) <b><u>Significant Program Changes:</u></b></p> <p>FY 2005 Congressional Adds: \$2.0 for Lower Anti-G Garment; \$1.8M for Integrated Mission Helmet; and \$1.0M for ACES II Ejection Seat Improvement</p> <p>FY 2006 Congressional Adds: \$3.5M Enhanced Quick Donning Oxygen Mask, \$1.050M Joint Service Advanced Anti-Gravity Lower Anti-G Garment, \$1.7M ACES II Improvements</p>																																													



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604706F Life Support Systems

## PROJECT NUMBER AND TITLE

412A Life Support Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
412A Life Support Systems	8.333	13.373	12.370	12.907	13.822	14.936	15.517	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved/enhanced aircrew performance capabilities; 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 PE 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 life support programs. Program is in Budget Activity 5 because projects are in Acquisition Phase B, development.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Congressional Add for ACES II Ejection Seat Improvements		1.700	
(U) Aircrew Laser Eye Protection (ALEP) Block 2 SDD	2.646	4.815	4.252
(U) Active Noise Reduction for Crew Helmets SDD		0.319	2.130
(U) Congressional Add for Lower Anti-G Garment	1.605		
(U) Congressional Add for ACES II Safety Improvements	0.925		
(U) Congressional Add for Joint Service Advanced Anti-Gravity Lower Anti-G Garment		1.050	
(U) Congressional Add for Integrated Mission Helmet	1.713		
(U) Congressional Add for Enhanced Quick donning Oxygen Mask		3.433	
(U) Anti-Exposure Suit (replace 74/16/P)			0.328
(U) Program Management /Technical Support/Travel/Test & Evaluation Support	1.444	1.235	1.390
(U) Helicopter Restraint			0.572
(U) Quick Don Oxygen Mask			0.350
(U) Integrated Aircrew Ensemble			1.846
(U) Integrated/Modular Helmet			0.795
(U) Improved Rescue Beacon		0.821	0.707
(U) Total Cost	8.333	13.373	12.370



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF Items									
Less Than \$5M (Safety	23.291	2.072							25.363
Equipment) WSC 842990:									
(U) Other Procurement, AF Items									
Less Than \$5M (Safety	20.920	11.807	19.304	21.003	22.979	23.550	23.936		143.499
Equipment) WSC 842140:									

(U) **D. Acquisition Strategy**

Acquisition strategy is carried out at the project level.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u>	<u>Performing</u>	<u>Total</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	<u>Target Value</u>
	<u>Method &amp;</u>	<u>Activity &amp;</u>	<u>Prior to FY</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Complete</u>		<u>of Contract</u>
	<u>Type</u>	<u>Location</u>	<u>2005</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
			<u>Cost</u>									
(U) <u>Product Development</u>												
Aircrew Laser Eye Protection	FFP	Rockwell Scientific, CA	0.100	2.646		4.815		4.252			11.813	
Improved Rescue Beacon	TBD	TBD				0.821		0.707			1.528	
Active Noise Reduction Helmet	TBD	AFRL				0.319		2.130			2.449	
ACES II Safety Improvements (Congressional Add)	FFP	Universal Propotion		0.925							0.925	
Lower Anti-G Garment	TBD	AFRL		1.605							1.605	
Integrated Mission Helmet (Congressional Add)	FFP	Spec Pro Huntsville, AL		1.713							1.713	
Enhanced Quick Donning Oxygen Mask (Congressional Add)	TBD	TBD				3.433					3.433	
Joint Service Advanced Anti-Gravity Lower Anti-G Garment (Congressional Add)	TBD	TBD				0.925					0.925	
ACES II Improvements (Congressional Add)	TBD	TBD				1.700					1.700	
Anti-Exposure Suit (replace 74/16/P)	TBD	TBD						0.328			0.328	
Helicopter Restraint	TBD	TBD						0.572			0.572	
Quick Don Oxygen Mask	TBD	TBD						0.350			0.350	
Integrated Aircrew Ensemble	TBD	TBD						1.846			1.846	
Integrated/Modular Helmet	TBD	TBD						0.795			0.795	
											0.000	
											0.000	
Subtotal Product Development			0.100	6.889		12.013		10.980		0.000	29.982	0.000
Remarks:												
(U) <u>Support</u>												
Program Management Support			0.215	0.499		0.255		0.355		Continuing	TBD	
Travel			0.080	0.120		0.080		0.085		Continuing	TBD	
Tech Eng & Acq			0.699	0.800		0.925		0.850		Continuing	TBD	
Subtotal Support			0.994	1.419		1.260		1.290		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFRL				0.025		0.100		0.100			0.225	
Subtotal Test & Evaluation			0.000	0.025		0.100		0.100		0.000	0.225	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
Remarks:												
(U) Total Cost			1.094	8.333		13.373		12.370		Continuing	TBD	0.000

Project 412A

R-1 Shopping List - Item No. 87-4 of 87-9

Exhibit R-3 (PE 0604706F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

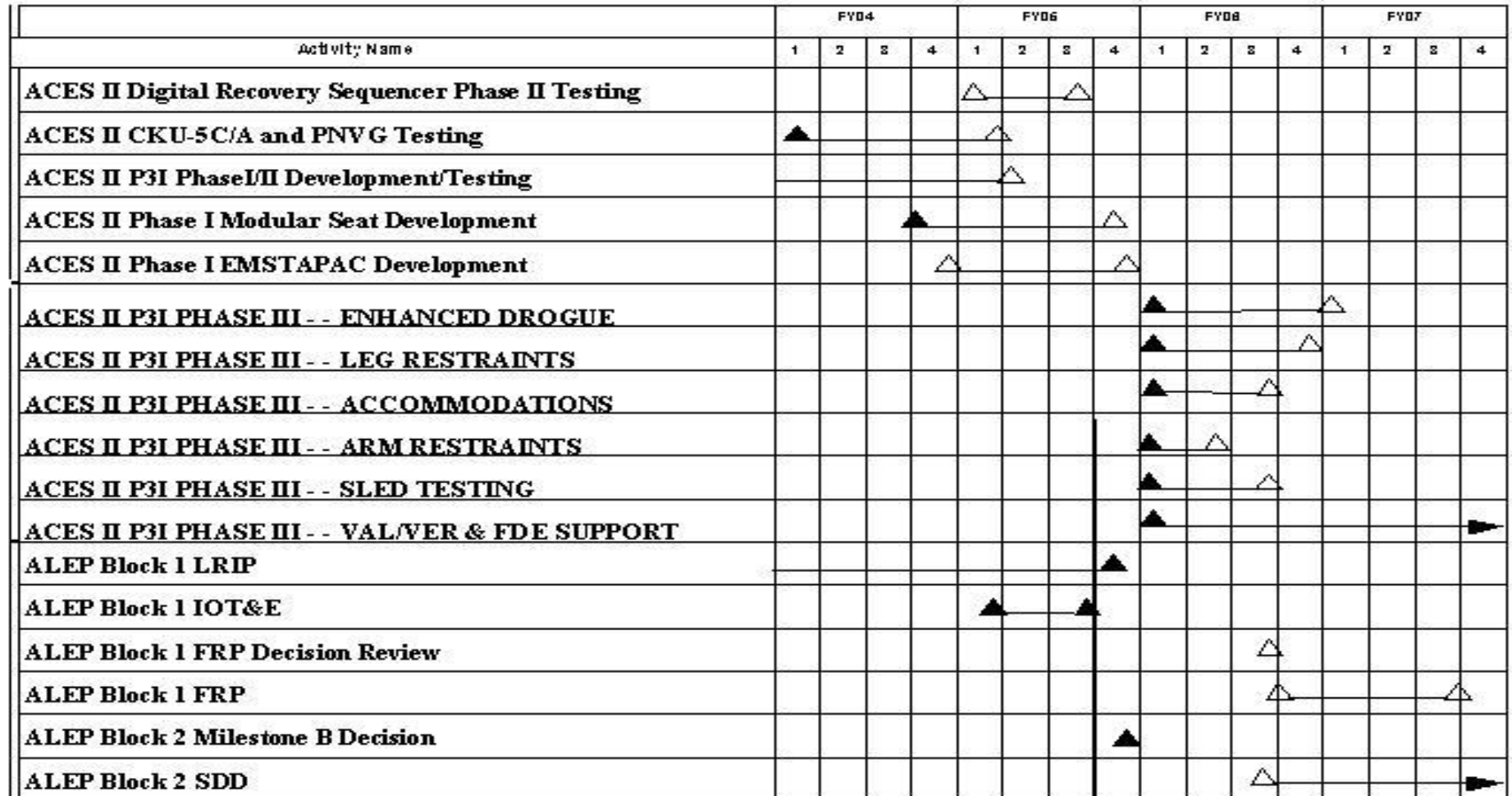
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems





## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Activity Name	FY04				FY05				FY06				FY07			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AHNR Aircraft Noise Profile Testing								▲				△				
AHNR Market Research								▲			△					
AHNR CCD Development										△		△				
AHNR Milestone B Decision													△			
AHNR SDD Contract Award															△	
Lower Anti-G Request for AFRL Support Issued						▲										
Lower Anti-G AFRL ROM Received							▲									
Lower Anti-G Task Award/MIPR Funds							▲									
Lower Anti-G Test Assets Obtained								▲			△					
Lower Anti-G G-Protection Test Protocol Approved											△					
Lower Anti-G G-Protection Data Collection/Analysis											△				△	
Lower Anti-G Performance Test Protocol Approved												△				
Lower Anti-G Performance Data Collection/Analysis												△			△	



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Activity Name	FY04				FY05				FY06				FY07			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IMH Task Order Award								▲								
IMH Risk Management Plan Complete								▲								
IMH User and Market Survey								▲	▲							
IMH Final Test Plan Complete										△						
IMH Testing										△		△				
IMH Analysis of Alternatives Complete												△	△			
Lower Anti-G Congressional Add (TBD)																
Enhanced Quick Donning Oxygen Mask Congressional Add (TBD)																
ACE II Ejection Seat Improvement Congressional Add (TBD)																
Advanced Beacon P-Spec finalized										△						
Advanced Beacon CCB										△						
Advanced Beacon release draft RFP										△						
Advanced Beacon release RFP										△						
Advanced Beacon SDD contract award phase I											△					
Advanced Beacon SDD contract award phase II																△



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Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
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) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) AHNH Aircraft Noise Profile Testing Complete		4Q		
(U) AHNH Market Research Complete		3Q		
(U) AHNH CCD Development Complete		4Q		
(U) AHNH Milestone B Decision			1Q	
(U) AHNH SDD Contract Award			3Q	
(U) ACES II DRS Testing complete	3Q			
(U) ACES II PNVG Testing complete		3Q		
(U) ACES II P3I Phase III		3Q		
(U) ACES II Modularity Phase II		4Q		
(U) ACES II EMSTAPAC		1Q		
(U) ALEP Block 1 IOT&E Completion		2Q		
(U) ALEP Block 1 FRP Decision Review		3Q		
(U) ALEP Block 1 FRP		3Q		
(U) ALEP Block 2 Milestone B Decision	4Q			
(U) ALEP Block 2 SDD		3Q		
(U) Advanced Beacon P-Spec Finalization		2Q		
(U) Advanced Beacon CCB		2Q		
(U) Advanced Beacon release draft RFP		2Q		
(U) Advanced Beacon release		2Q		
(U) Advanced Beacon SDD contract award phase I		3Q		
(U) Advanced Beacon SDD contract award phase II			2Q	
(U) Lower Anti-G Request for AFRL Support Issued	2Q			
(U) Lower Anti-G AFRL ROM Received	3Q			
(U) Lower Anti-G Task Award/MIPR Funds	4Q			
(U) Lower Anti-G Test Assets Received		3Q		
(U) Lower Anti-G G-Protection Testing Protocol Approved		3Q		
(U) Lower Anti-G Protection Testing Complete			3Q	
(U) Lower Anti-G Performance Testing Protocol Approved		4Q		
(U) Lower Anti-G Performance Testing Complete			3Q	
(U) IMH Task Order Award	4Q			
(U) IMH Risk Management Plan Complete	4Q			
(U) IMH User and Market Survey Complete		1Q		
Project 412A	R-1 Shopping List - Item No. 87-8 of 87-9	Exhibit R-4a (PE 0604706F)		



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## UNCLASSIFIED

PE NUMBER: 0604735F

PE TITLE: Combat Training Ranges

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604735F Combat Training Ranges

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.712	8.794	14.363	17.613	17.489	17.668	17.698	Continuing	TBD
2286 Combat Training Range Equipment	15.712	8.794	14.363	17.613	17.489	17.668	17.698	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. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations. 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 ground system integration, location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of Air Warrior capabilities at the Nellis Complex, the integration of next generation range instrumentation standards, and the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F-22A and F-35, Joint Strike Fighter (JSF), 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) 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 Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	21.326	6.122	15.092
(U) Current PBR/President's Budget	15.712	8.794	14.363
(U) Total Adjustments	-5.614	2.672	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.016	-0.128	
Congressional Increases		2.800	
Reprogrammings	-5.071		
SBIR/STTR Transfer	-0.527		
(U) <b><u>Significant Program Changes:</u></b>			
FY05: Reduced for higher AF priorities			
FY06: Increased via Congressional add for Nellis "Air Warrior" combat training system pod integration			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604735F Combat Training Ranges</b>			PROJECT NUMBER AND TITLE <b>2286 Combat Training Range Equipment</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2286 Combat Training Range Equipment	15.712	8.794	14.363	17.613	17.489	17.668	17.698	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations. 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 ground system integration, location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of Air Warrior capabilities at the Nellis Complex, the integration of next generation range instrumentation standards, and the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F-22A and F-35, Joint Strike Fighter (JSF), 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) to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.</p> <p>This program is in Budget Activity 5 - Systems Development and Demonstration because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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 continue Joint Tactical Radio System (JTRS) compliance; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, and weapons simulations; Combat Training Range (CTR) programs basic operating support, system acquisition and						10.658	7.660	11.551	

Project 2286

R-1 Shopping List - Item No. 88-4 of 88-8

Exhibit R-2a (PE 0604735F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

engineering support; integration of Air Warrior capabilities at the Nellis Complex; and next generation range instrumentation standards and capabilities.

(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.

5.054

1.134

2.812

(U) Total Cost

15.712

8.794

14.363

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) Other Procurement, AF, Combat Training Ranges, 3080 BP83

31.764

25.277

13.565

19.622

19.958

20.409

20.711

Continuing

TBD

(U) Initial Spares, 3080 BP86

0.780

0.792

0.832

0.863

0.884

0.906

0.921

Continuing

TBD

(U) Total OPAF, PEC 0207429F

32.544

26.069

14.397

20.485

20.842

21.315

21.632

Continuing

TBD

(U) Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19

13.906

13.918

4.934

15.317

15.605

15.910

16.356

Continuing

TBD

(U) Initial Spares, 3010 BP16

1.164

1.409

1.487

1.570

1.621

1.662

1.683

Continuing

TBD

(U) Total APAF, PEC 0207429F

15.070

15.327

6.421

16.887

17.226

17.572

18.039

Continuing

TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Sverdrup (P5CTS)	CPAF			2.838	Jan-05	0.289	Mar-06	0.716	Oct-06	Continuing	TBD	
Colsa/BTAS Corp (P5CTS)	CPAF			0.269	Oct-04	0.329	Oct-05	0.815	Oct-06	Continuing	TBD	
Cubic Defense Applications (P5CTS)	CPIF/FFP		1.633	2.954	Feb-05	1.686	Feb-06	5.241	Feb-07	Continuing	TBD	
Standard Research International (P5CTS)	FFP		1.228	0.125	Apr-05	0.132	Dec-05	0.350	Apr-07	Continuing	TBD	
Modern Technologies Corp (JTE )	CPAF		7.491	4.000	Mar-05	0.600	Mar-06	2.076	Mar-07	Continuing	TBD	
E W Systems (TRAINS)	FFP		0.369	0.617	Mar-05	0.369	Mar-06	0.351	Mar-07	Continuing	TBD	
Rockwell-Collins (P5CTS)	FFP		0.000	0.897	Jun-05	0.500	Feb-06	1.000	Feb-07	Continuing	TBD	
Army JTRS-Cluster 5 (P5CTS)	FFP		0.000	0.500	Jan-05	0.500	Jan-06	0.500	Feb-07	Continuing	TBD	
Navy (P5CTS)	FFP		9.536	0.225	Feb-05	0.000		0.000		Continuing	TBD	
Air Warrior (Nellis - P5CTS)	TBD		0.000	0.000		2.800	Apr-06				2.800	
F15 SPO OFP (P5CTS)	FFP		1.492	0.119	Feb-05	0.100	Apr-06	0.400	Apr-07	Continuing	TBD	
F16 SPO OFP (P5CTS)	FFP		1.371	0.150	Dec-04	0.000		0.150	Oct-06	Continuing	TBD	
Subtotal Product Development			23.120	12.694		7.305		11.599		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SAF/AQX	Various		0.000	0.150		0.000		0.000		Continuing	TBD	
OO/ALC/LH, Hill AFB, UT	Various		0.629	0.437		0.165		0.385		Continuing	TBD	
AAC/RISS, Eglin AFB, FL	Various		11.332	2.331		1.249		2.379		Continuing	TBD	
Subtotal Support			11.961	2.918		1.414		2.764		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 Test Wing, Eglin AFB FL	Various		0.640	0.100		0.075		0.000		Continuing	TBD	
Subtotal Test & Evaluation			0.640	0.100		0.075		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			35.721	15.712		8.794		14.363		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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 Software  
Incremental UpdatesSpiral 2 – Internal Subsystem  
Development

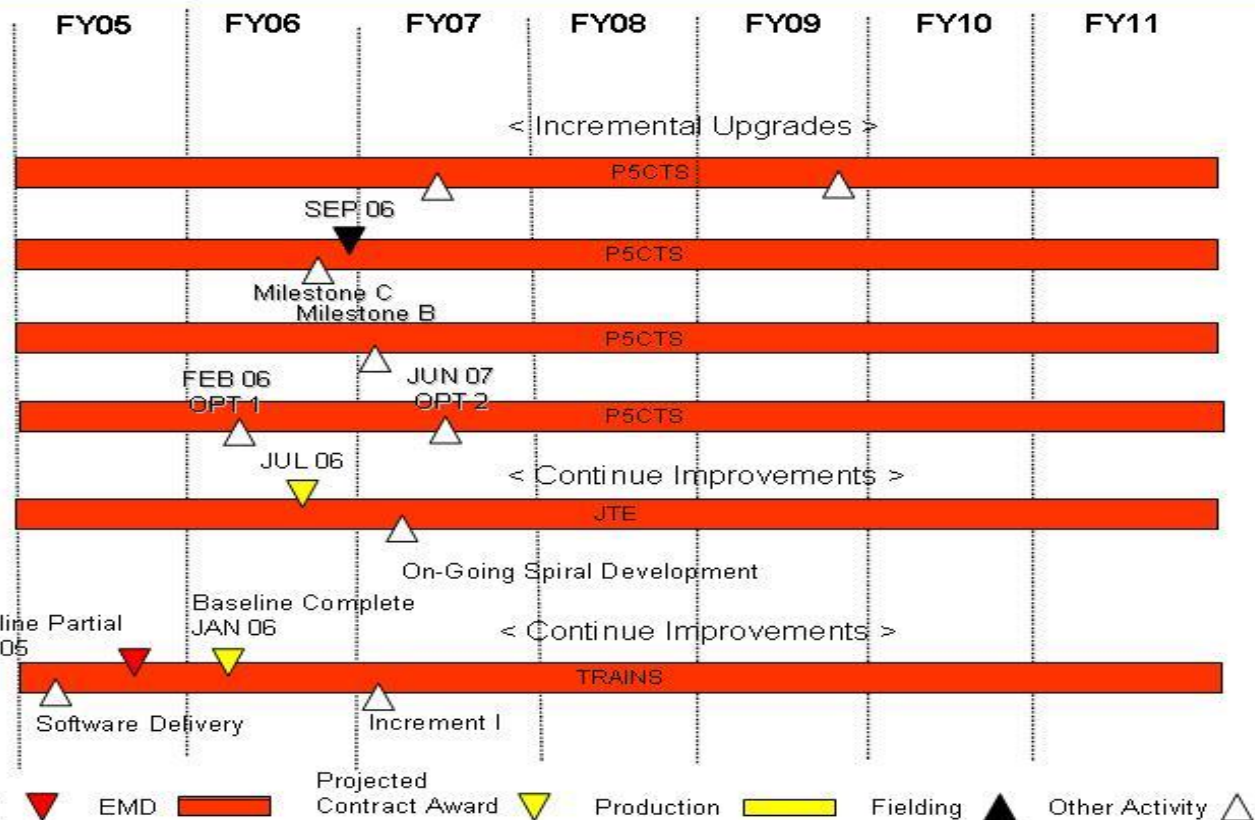
Spiral 3 – Rack Mounted Subsystem

Spiral 4 – Advanced Data Link

## JTE

Joint Threat Emitter Program

## TRAINS

Threat Reaction Analysis Indicator  
System



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) P5CTS Development			
(U) - Spiral I (Non-Developmental Item System w/Software Incremental Updates)	1-4Q	1-4Q	1-4Q
(U) Aircraft and Ground Interoperability			
(U) - Spiral II (Internal Subsystem Development)	1-4Q	1-4Q	
(U) - Spiral III (Rack Mounted Subsystem)			1-4Q
(U) - Spiral IV (Advanced Data Link)	3-4Q	1-4Q	1-4Q
(U) JTE Development			
(U) -- Initial Developmental Contract Award		3Q	
(U) -- Spiral Development and Continue Improvements			1-4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)			
(U) -- Contract Award	4Q	2Q	1Q
(U) -- Software Delivery	1Q		
(U) -- Continue Improvements		1-4Q	1-4Q



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## UNCLASSIFIED

PE NUMBER: 0604740F

PE TITLE: Integrated Command &amp; Control Applications

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604740F Integrated Command &amp; Control Applications

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.279	18.872	0.167	0.188	0.178	0.182	0.206	Continuing	TBD
2523 Product Lines	0.258	0.161	0.167	0.188	0.178	0.182	0.206	Continuing	TBD
2524 Reuse and Component Support	21.021	18.711	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.258	0.161	0.264
(U) Current PBR/President's Budget	21.279	18.872	0.167
(U) Total Adjustments	21.021	18.711	
(U) Congressional Program Reductions	-0.016	-0.016	
Congressional Rescissions	-0.266	-0.273	
Congressional Increases	21.900	19.000	
Reprogrammings			
SBIR/STTR Transfer	-0.597		

(U) **Significant Program Changes:**

In FY06, Congress added \$19.0M for: 1) Air Force Electronic Systems Command/National Product Line Asset Center (NPLACE), 2) Airborne Web Services (AWS), 3)



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604740F Integrated Command & Control Applications**

Asset Source for Software Engineering Technology eWing Program (ASSET), 4) Distributed Mission Interoperability Toolkit (DMIT), 5) Enterprise Services for Reachback Capabilities, 6) Global Awareness Presentation System (GAPS), 7) Integration of Force Protection Enterprise System, and 8) Net-Centric Information Visualization Services (NIVS).



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2523 Product Lines	0.258	0.161	0.167	0.188	0.178	0.182	0.206	Continuing	TBD
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Qualify components for product lines/program management support	0.258	0.161	0.167
(U) Total Cost	0.258	0.161	0.167

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>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
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			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		0.258	Oct-04	0.161	Oct-05	0.167	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	0.258		0.161		0.167		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.258		0.161		0.167		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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: 10 JAN 06

	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<b>PROGRAM MANAGEMENT SUPPORT</b>							





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

(U) Qualify components for product lines/program management support

1-4Q

1-4Q

1-4Q



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604740F Integrated Command &amp; Control Applications</b>			PROJECT NUMBER AND TITLE <b>2524 Reuse and Component Support</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2524 Reuse and Component Support	21.021	18.711	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	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 components that are being developed are consistent with the Department of Defense Architecture Framework, the Air Force Architecture, Constellation Net, etc. Further, these components are using guidance from the Net Centric Enterprise Services/Joint C2 (NCES/JC2) program as well as Net Centric Enterprise Solutions for Interoperability (NESI) and the C2 Enterprise Reference Architecture (C2ERA) to ensure long term viability as the AF moves towards a net centric operations capability. These components consist of:

Airborne Web Services (AWS) - a series of web services for the AWACS and JSTARS programs to allow the exchange of data between the aircraft and ground users.

Asset Source for Software Engineering Technology/eWing (ASSET/eWing) - will provide fused Force Protection sensor data via web services using a Service Oriented Architecture.

Data Fusion and Integration of the Net-centric Force Protection Capability - will provide fused publish/subscribe services, an archive capability for the force protection community of interest.

Distributed Mission Interoperability Toolkit (DMIT) - provides a service oriented architecture based communication, presence, and data compression capability at the infrastructure level.

Enterprise Service Reachback Capability (ESRBC) - will provide access to multiple scenarios that will facilitate training and exercise networks to be established more quickly.

Global Awareness Presentation System (GAPS) - a visualization system that provides fused situational awareness and strategic information to commanders at US Strategic Command.

Air Force Electronic Systems Command/National Product Line Asset Center (NPLACE) - provides a development and test facility for various web services and service oriented architecture reference implementations.

Net Centric Information Visualization Services (NVIS) - will establish a framework and reference implementation for visualization geospatial data from satellite to personal view/perspective.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) NPLACE	2.497	2.455	
(U) ATIS eWING, JSTARS, C2 Mgr for AFSOC (FY05)	6.635		
(U) 3D Viz Services, IGEMS, GAPS (FY05)	6.929		
(U) Distributed Mission Interoperability Toolkit (DMIT)	4.960	4.920	
(U) Enterprise Services for Reach Back Capabilities (ESRBC)		1.773	
(U) Data Fusion and Integration of the Net-centric Force Protection Enterprise Services (DFFP)		1.680	
(U) Airborne Web Services (AWS) Spiral 3		1.679	
(U) Net-Centric Information Visualization Services (NVIS) aka SALVO		0.988	
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM		0.988	
(U) Asset/eWing		4.228	
(U) Total Cost	21.021	18.711	0.000

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

(U) D. Acquisition Strategy

All major contracts for Reuse and Component Support development will be awarded after full and open competition.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE	February 2006			
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract		
(U) Product Development NPLACE	C/FFP	West Virginia High Technology Center, West Virginia		2.300	Feb-05	2.297	Feb-06			Continuing	TBD	TBD		
ATIS eWING, JSTARS, C2 Manager for AFSOC	C/FFP	SAIC West Virginia		6.021	Feb-05					Continuing	TBD	TBD		
3-D Viz Services, IGEMS, GAPS	C/FFP	ProLogic, West Virginia		6.200	Apr-05					Continuing	TBD	TBD		
DMIT	C/FFP	Gestalt, Camden, New Jersey		4.900	Mar-05	4.603	Mar-06			Continuing	TBD	TBD		
Enterprise Services for Reach Back Capabilities	C/FFP	Gestalt, Camden, New Jersey				1.660	Mar-06			Continuing	TBD	TBD		
Integration of Force Protection Enterprise Services (DFFP)	C/FFP	Fenwick Tech Inc. West Virginia				1.573	Apr-06			Continuing	TBD	TBD		
Airborne Web Services (AWS) Spiral 3	C/FFP	SAIC West Virginia				1.572	Mar-06			Continuing	TBD	TBD		
Net-Centric Info Visualization Services (NVIS) aka SALVO	C/FFP	ProLogic, West Virginia				0.925	Mar-06			Continuing	TBD	TBD		
Global Awareness Presentation System for USSTRATCOM	C/FFP	ProLogic, West Virginia				0.925	Mar-06			Continuing	TBD	TBD		
Asset/eWing	C/FFP	SAIC West Virginia				3.956	Mar-06			Continuing	TBD	TBD		
Subtotal Product Development Remarks:			0.000	19.421		17.511		0.000		Continuing	TBD	TBD		
(U) Support Contractor Support	T&M	ESC Hanscom AFB, MA		0.800	Feb-05	1.200	May-06			Continuing	TBD	TBD		
Subtotal Support Remarks:			0.000	0.800		1.200		0.000		Continuing	TBD	TBD		
(U) Test & Evaluation Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000		
(U) Management Project 2524														

R-1 Shopping List - Item No. 89-10 of 89-13

Exhibit R-3 (PE 0604740F)

R-1 Shopping List - Item No. 89-10 of 89-13

Exhibit R-3 (PE 0604740F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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

Program Management Support		0.800	Feb-05			Continuing	TBD	TBD
Subtotal Management	0.000	0.800		0.000	0.000	Continuing	TBD	TBD
Remarks:								
(U) <u>Not applicable.</u>								
(U) Total Cost	0.000	21.021		18.711	0.000	Continuing	TBD	TBD
Remarks:								



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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: 10 JAN 06

***IC2A Schedule***

	FY2005	FY2006	FY2006
<b>JStars web services</b>	▲ ▲	▲ ▲	
<b>DMIT</b>	▲ ▲	▲ ▲	
<b>ESRBC</b>		▲ ▲	
<b>NVIS/SALVO</b>	▲	▲	
<b>GAPS</b>	▲	▲ ▲	
<b>NPLACE</b>	→		
<b>DFFP</b>		▲ ▲	
<b>ASSET/eWing</b>		▲ ▲	



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) NPLACE	1-4Q	1-4Q	
(U) ATIS, JSTARS, C2 Manager for AFSOC	2-4Q		
(U) 3-D Viz Services, IGEMS, GAPS	3-4Q		
(U) DMIT	2-4Q	2-4Q	
(U) Enterprise Services for Reach Back Capabilities		2-4Q	
(U) Airborne Web Services (AWS) Spiral 3		2-4Q	
(U) Global Awareness Presentation System for USSTRATCOM	4Q	2-4Q	
(U) Asset eWING		2-4Q	
(U) Net Centric Info Visualization Services (NVIS)	4Q	2Q	
(U) Integration of Force Protection Enterprise Services (DFFP)		2-4Q	



## UNCLASSIFIED

PE NUMBER: 0604750F

PE TITLE: Intelligence Equipment

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604750F Intelligence Equipment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.426	2.730	1.426	1.453	1.480	1.513	1.537	Continuing	TBD
2053 National Air Intel Center	2.426	2.730	1.426	1.453	1.480	1.513	1.537	Continuing	TBD

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

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information operations (IO) 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 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 AFIWC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIWC 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 AFIWC 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 HQ Air Combat Command (ACC) and 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&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.349	1.369	1.413
(U) Current PBR/President's Budget	2.426	2.730	1.426
(U) Total Adjustments	1.077	1.361	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.023	-0.039	
Congressional Increases	1.100	1.400	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress added \$1.1M in FY05 and \$1.4M in FY06 for Hard and Deeply Buried Target and Underground Facilities Detection (HDBT / UGF - D) efforts. These funds are being used to advance and enhance planned projects (mainly new HDBT-UGF detection / analysis tools and techniques) in this area.



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2053 National Air Intel Center	2.426	2.730	1.426	1.453	1.480	1.513	1.537	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Congress added \$1.1M in FY05 and \$1.4M in FY06 for Hard and Deeply Buried Target and Underground Facilities Detection (HDBT / UGF - D) efforts. These funds are being used to advance and enhance planned projects (mainly new HDBT-UGF detection / analysis tools and techniques) in this area.

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

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information operations (IO) 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 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 AFIWC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIWC 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 AFIWC 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 HQ Air Combat Command (ACC) and 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.



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification							DATE		
							February 2006		
BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604750F Intelligence Equipment		2053 National Air Intel Center			
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U)	Continued / Complete High Speed Engine Propulsion Tools Phase 4 (SCRAM Jet Engine Model)					0.265	0.050	0.050	
(U)	Completed Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)					0.138			
(U)	Completed Laser Weapons (LODUR) Threat Assessment Tool					0.153			
(U)	Completed Analysis & Exploitation of Hardened & Deeply Buried Target - Detection (HDBT-D) Using Hyperspectral and MASINT Tools					0.273			
(U)	Completed Analysis & Exploitation of Hardened & Deeply Buried Target - Detection (HDBT-D) Using Hyperspectral and MASINT Tools (Part of FY05 Congressional Add for HDBT-D)					0.065			
(U)	Initiated / Continue Terrain Map Comparison Tools for HDBT-D (Partial FY05 / FY06 Congressional Adds for HDBT-D)					0.336	0.400		
(U)	Complete Terrain Map Comparison Tools for HDBT-D							0.150	
(U)	Initiated / Continue / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test					0.270	0.609	0.263	
(U)	Continue Upgrade of TEL-SCOPE Tool with Expanded Operational Capability (EOC)					0.212	0.310	0.200	
(U)	Initiated / Continue Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Part of FY05 / FY06 Congressional Adds for HDBT-D)					0.450	0.400		
(U)	Complete Phase 1 of ASL for HDBT-D							0.100	
(U)	Initiated / Continue Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Partial of FY05 / FY06 Congressional Adds for HDBT-D)					0.264	0.400		
(U)	Complete Phase 2 of ASL for HDBT-D							0.100	
(U)	Initiate Automatic Registration Tools for HDBT-D (Part of FY06 Congressional Add for HDBT-D)						0.200		
(U)	Complete Automatic Registration Tools for HDBT-D							0.100	
(U)	Initiate / Continue Information in Warfare (IIW) -- Geospatial Information System (GIS)-Based Integrated Analytic Environment (GIANT)						0.050	0.050	
(U)	Initiate / Continue Integrated Air Defense System (IADS) -- TEL-SCOPE / Air Defense Net (ADNet) Machine-to-Machine (M2M) Integration						0.311	0.363	
(U)	Initiate Radio Frequency (RF) Cross Detection Capabilities							0.050	
(U)	Total Cost					2.426	2.730	1.426	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable								
Project 2053									
R-1 Shopping List - Item No. 90-4 of 90-9									
Exhibit R-2a (PE 0604750F)									



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

(U) D. Acquisition Strategy

Requirements for new / upgraded intelligence analysis tools for NASIC and AFIWC are gathered and prioritized by the Air Intelligence Agency (AIA). Development of capabilities to meet those requirements is managed by AF Research Laboratories (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.



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604750F Intelligence Equipment					PROJECT NUMBER AND TITLE 2053 National Air Intel Center			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) Product Development													
High Speed Propulsion Tools Phase 4 ( Scram-Jet)	C/CPFF	Pratt & Whitney West Palm Beach, FL	0.250	0.265	Jan-05	0.050	Mar-06	0.050	Nov-06	0.000	0.615	0.654	
Advanced Analysis Capability: Integrated Avionics Support Model	C/CPFF	Northrop-Grumman Corp (Defense Mission Systems), Fairborn, OH & SAIC, Beavercreek, OH	0.740	0.138	Nov-04	0.000		0.000		0.000	0.878	0.878	
Laser Weapons (LODUR) Threat Assessment Tool	C/CPFF	Applied Sciences Laboratories, Inc., Albuquerque, NM	0.330	0.153	Nov-04	0.000		0.000		0.000	0.483	0.483	
Analysis & Exploitation of Hardened, Deeply-Buried Targets / Underground Facilities (HDBT / UGF) Using Hyperspectral & MASINT Tools (Including part of FY05 Congressional Add for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.180	0.338	Nov-04	0.000		0.000		0.000	0.518	0.518	
Terrain Map Comparison Tools for HDBT / UGF) Detection (HDBT / UGF - D) (Including parts of FY05 / FY06 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.336	Jun-05	0.400	Mar-06	0.150	Nov-06	0.650	1.536	1.536	
MASINT Exploitation Technology Applications Facility (METAf) for HDBT / UGF - D Algorithm Development and Test	C/CPFF	Alion Science and Technology, Albuquerque, NM and Rome, NY	0.000	0.270	Mar-05	0.609	Mar-06	0.263	Nov-06	0.000	1.142	1.142	
TEL-SCOPE Expanded Operational Capability (EOC)	C/FFP	Prediction Systems, Inc., Spring Lake, NJ & Northrop Grumman Mission	0.100	0.212	Nov-04	0.310	Dec-05	0.200	Dec-06	Continuing	TBD	0.822	
Project 2053													
R-1 Shopping List - Item No. 90-6 of 90-9													
Exhibit R-3 (PE 0604750F)													



## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)					0604750F Intelligence Equipment					2053 National Air Intel Center		
Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Including parts of FY 05 / FY06 Congressional Adds for HDBT-D)	C/CPFF	Systems, Fairborn, OH CACI / MTL Systems Inc., Dayton, OH	0.000	0.450	Mar-05	0.400	Mar-06	0.100	Nov-06	0.000	0.950	0.950
Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Including parts of FY05 / FY06 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.264	Mar-05	0.400	Mar-06	0.100	Nov-06	0.000	0.764	0.764
Automatic Registration Tools for HDBT-D (Including part of FY06 Congressional Add for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.200	Mar-06	0.100	Nov-06	0.000	0.300	0.300
Information in Warfare (IIW) -- Geospatial Information System (GIS) - Based Integrated Analytic Environment (GIANT)	C/TBD	TBD	0.000	0.000		0.050	Apr-06	0.050	Nov-06	Continuing	TBD	TBD
Integrated Air Defense System (IADS) Model / ADNet TEL-SCOPE M2M Integration	C/CPFF	Prediction Systems Inc, Spring Lake, NJ & BAE Systems, Burlington, MA & Northrop Grumman Mission Systems, Fairborn, OH	0.000	0.000		0.311	Mar-06	0.363	Nov-06	Continuing	TBD	TBD
Radio Frequency (RF) Cross Detection Capabilities	C/TBD	TBD	0.000	0.000		0.000		0.050	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			1.600	2.426		2.730		1.426		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			1.600	2.426		2.730		1.426		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

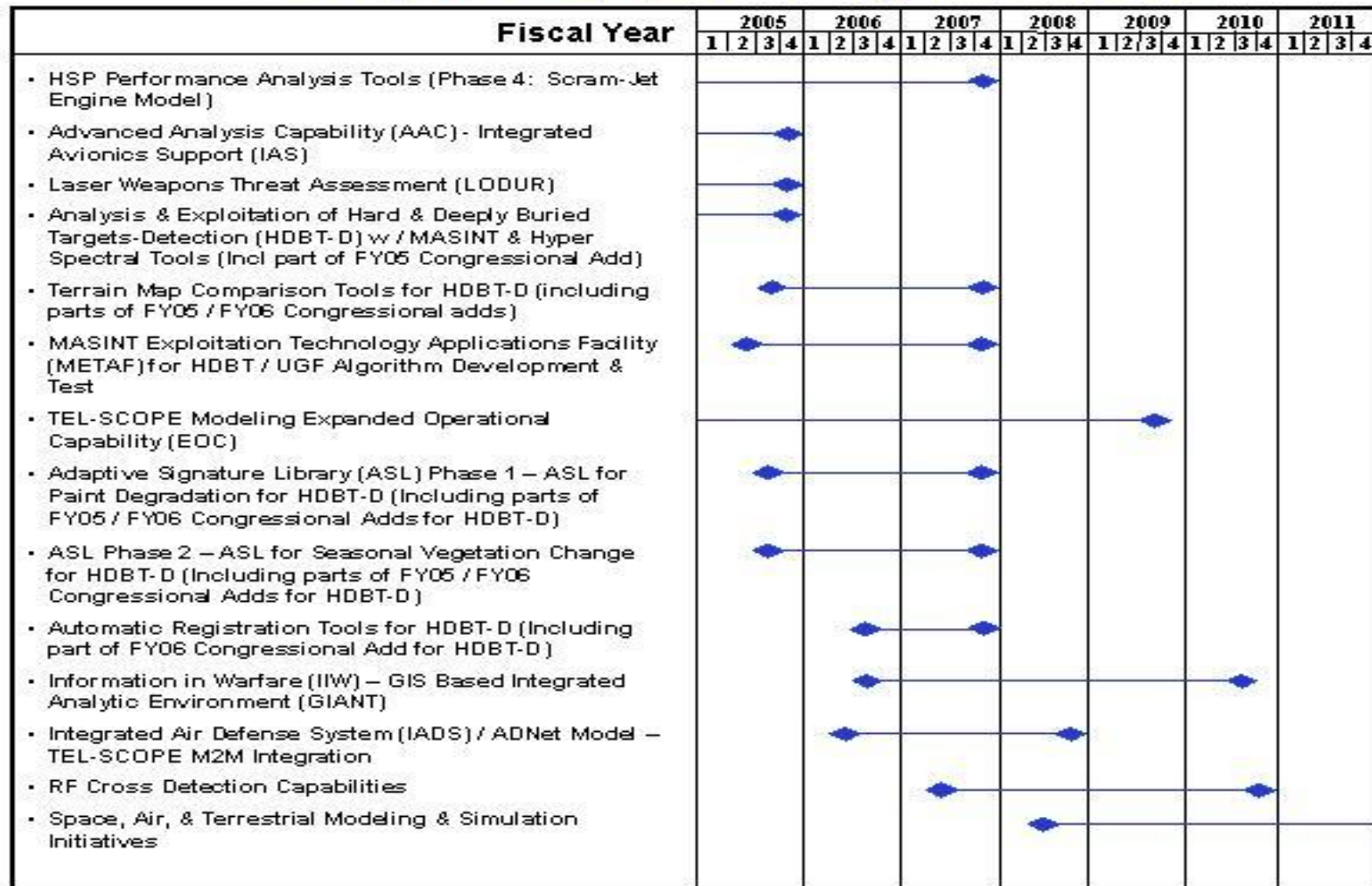
PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

## Intelligence Equipment Program Schedule





## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2006	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)	0604750F Intelligence Equipment	2053 National Air Intel Center	
(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue / Complete HSP Engine Propulsion Tools (Phase 4: SCRAM Jet Engine Model)	1-4Q	1-4Q	4Q
(U) Completed Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)	4Q		
(U) Completed Laser Weapons (LODUR) Threat Assessment Tool	4Q		
(U) Completed Analysis and Exploitation of HDBT-D using Hyperspectral & MASINT Tools (Including FY05 Congressional Add)	4Q		
(U) Initiated / Continue / Complete Terrain Map Comparison Tools for HDBT-D (Includes parts of FY05 / FY06 Congressional Adds for HDBT-D)	3Q	1-4Q	4Q
(U) Initiated / Continue / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test	2Q	1-4Q	4Q
(U) Continue TEL-SCOPE Expanded Operational Capability (EOC)	1-4Q	1-4Q	1-4Q
(U) Initiated / Continue / Complete Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Includes parts of FY05 / FY06 Congressional Adds for HDBT-D)	3Q	1-4Q	4Q
(U) Initiated / Continue / Complete Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Includes parts of FY05 / FY06 Congressional Adds for HDBT-D)	3Q	1-4Q	4Q
(U) Initiate / Complete Auto Registration Tools for HDBT-D (Includes part of FY06 Congressional Add for HDBT-D)		3Q	4Q
(U) Initiate / Continue Information in Warfare (IIW) -- Geospacial Information System (GIS)-Based Integrated Analytic Environment (GIANT)		3Q	1-4Q
(U) Initiate / Continue Integrated Air Defense System (IADS) Model--TEL-SCOPE / ADNET M2M Integration		2Q	1-4Q
(U) Initiate Radio Frequency (RF) Cross Detection Capabilities			2Q



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## UNCLASSIFIED

PE NUMBER: 0604762F

PE TITLE: Common Low Observable Verification Sys

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604762F Common Low Observable Verification Sys

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.940	8.568	0.000	0.000	0.000	0.000	0.000	0.000	61.641
4683 Common Low Observable Verification System	8.940	8.568	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 wholebody 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 provides 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. Due to software / hardware development issues, CLOVerS development is estimated to extend six additional months from 4Q FY06 to 2Q FY07. 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	10.212	8.568	
(U) Current PBR/President's Budget	8.940	8.568	
(U) Total Adjustments	-1.272	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.008		
Congressional Increases			
Reprogrammings	-1.000		
SBIR/STTR Transfer	-0.264		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4683 Common Low Observable Verification System	8.940	8.568	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		

(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 wholebody 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 provides 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. Due to software / hardware development issues, CLOVerS development is estimated to extend six additional months from 4Q FY06 to 2Q FY07. 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Cart 4/5 development and continue ancillary equipment development.	6.734	6.199	
(U) Field Testing	1.788	1.914	
(U) Program Office Support	0.418	0.455	
(U) Total Cost	8.940	8.568	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) BP12 - PE27145F:Appn: Aircraft Procurement, AF (APAF) Budget Activity: Aircraft (A/C) Procurement/Common Support Equipment, Program Title: Common Low Observable Verification System (CLOVerS)	0.000	0.000	20.228	20.666	33.055	34.230	35.000	2.643	145.822
(U) BP16 - PE27145F: Appn: Spares for Common Low	0.000	0.000	0.962	0.987	1.625	2.663	2.694	1.901	10.832

Project 4683

R-1 Shopping List - Item No. 91-3 of 91-7

Exhibit R-2a (PE 0604762F)



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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(U) **C. Other Program Funding Summary (\$ in Millions)**Observable Verification System  
(CLOVerS)

## (U) Operational &amp; Support Funding

(3400) for Common Low Observable Verification System (CLOVerS)	0.000	0.000	0.000	0.000	1.620	1.672	1.684	38.822	43.798
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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 stretched the period of performance. The program has experienced technical challenges and currently being restrctured. Due to software / hardware development issues, CLOVerS development is estimated to extend six additional months from 4Q FY06 to 2Q FY07 and requires additional funds in FY06 and FY07.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Develop CLOVerS EMD Unit	CPFF	Boeing Co., St Louis	39.724	7.900	Dec-04	7.350	Oct-05			0.000	54.974	53.301
Subtotal Product Development			39.724	7.900		7.350		0.000		0.000	54.974	53.301
Remarks:												
(U) <u>Support</u> Electromagnetic Licensing and Misc Support	Various	Joint Spectrum Center, 88 CG, AFRL	2.495	0.550	Dec-04	0.664	Jan-06				3.709	3.636
Independant Logistics Assessment	Fixed	LOGTEC, Fairborn, OH		0.072	Nov-05	0.099	Nov-05				0.171	0.171
Subtotal Support			2.495	0.622		0.763		0.000		0.000	3.880	3.807
Remarks:												
(U) <u>Program Office Support</u> PMA	Various	Various	1.790	0.418	Oct-04	0.455	Oct-05				2.663	2.653
Subtotal Program Office Support			1.790	0.418		0.455		0.000		0.000	2.663	2.653
Remarks:												
(U) Total Cost			44.009	8.940		8.568		0.000		0.000	61.517	59.761



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

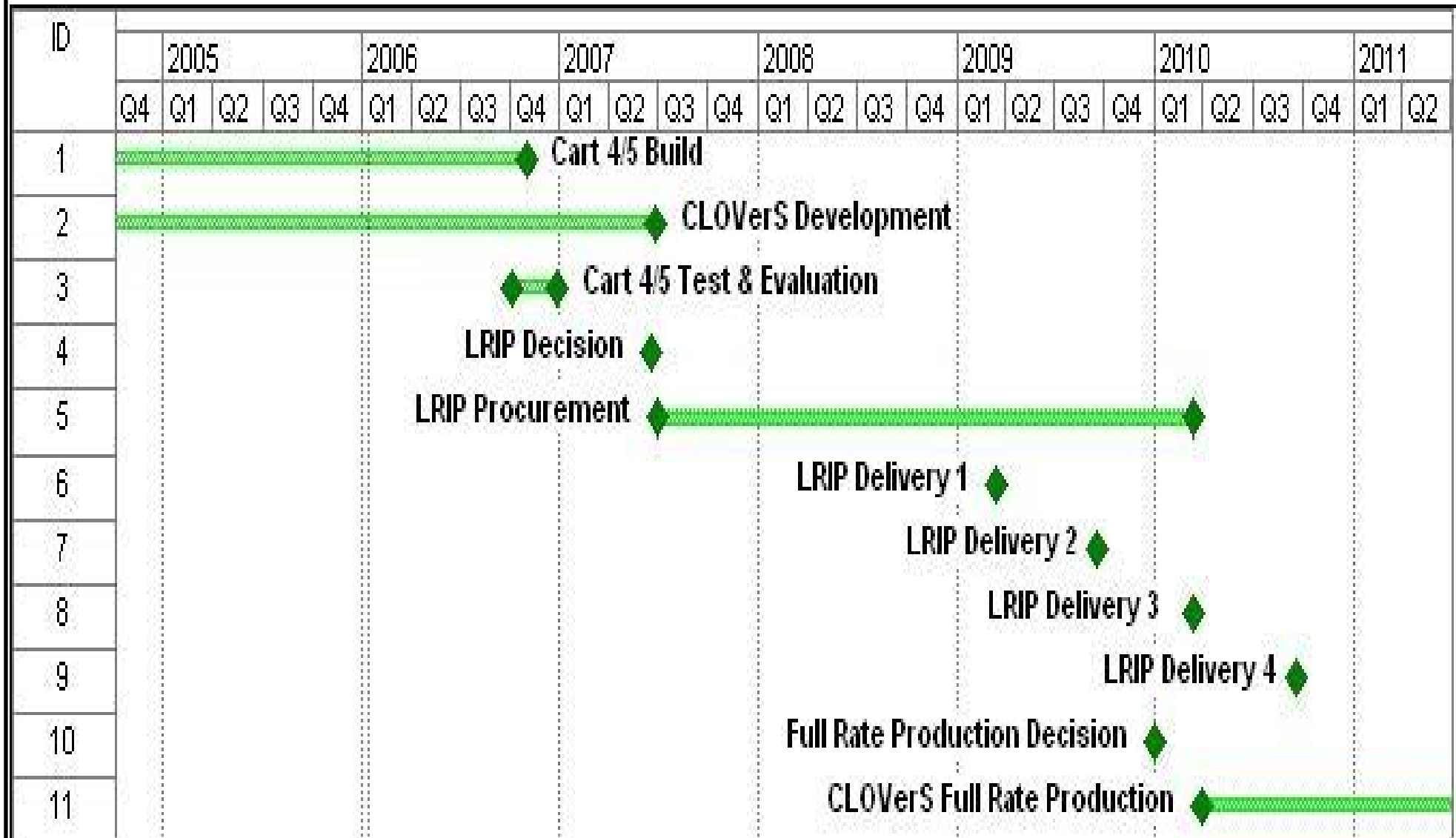
BUDGET ACTIVITY

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

Project 4683

R-1 Shopping List - Item No. 91-6 of 91-7

Exhibit R-4 (PE 0604762F)



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Cart 4/5 Build and Integration

2-4Q

(U) Cart 4/5 Test &amp; Eval

4Q

(U) EMD Completion

2-3Q

(U) LRIP Contract Award

2-3Q



## UNCLASSIFIED

PE NUMBER: 0604800F

PE TITLE: Joint Strike Fighter EMD

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0604800F Joint Strike Fighter EMD

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2,080.058	2,333.009	1,999.068	1,708.903	1,393.280	1,103.051	733.432	Continuing	TBD
3831 Joint Strike Fighter	2,080.058	2,333.009	1,999.068	1,708.903	1,393.280	1,103.051	733.432	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed 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 cost) to T&E Support, PE 65807F.

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

The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies, with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. 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 Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 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 2006, 2 in FY 2007, 6 in FY 2008, and 6 in FY 2009) reflects flight test articles; 7 ground test articles are also budgeted in SDD.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	2,181.272	2,474.763	2,192.584
(U) Current PBR/President's Budget	2,080.058	2,333.009	1,999.068
(U) Total Adjustments	-101.214	-141.754	
(U) Congressional Program Reductions	-0.004	-108.035	
Congressional Rescissions	-1.673	-33.719	
Congressional Increases			
Reprogrammings	-41.965		
SBIR/STTR Transfer	-57.572		

(U) **Significant Program Changes:**

NOTE: This submission reflects JSF Program Replan. Additional design work and scope was required to achieve weight reductions in the STOVL variant, necessitating an increase in cost and schedule. See R-4a Schedule Exhibit for detailed schedule changes. In addition, PB07 terminates funding for the F136 Alternate Engine Program (See details in Termination Form)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	2,080.058	2,333.009	1,999.068	1,708.903	1,393.280	1,103.051	733.432	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies, with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. 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 Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 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 2006, 2 in FY 2007, 6 in FY 2008, and 6 in FY 2009) reflects flight test articles; 7 ground test articles are also budgeted in SDD.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Development and Demonstration (SDD) for Air System with Lockheed Martin including International Commonality Effort (ICE) commenced execution in FY02. FY06 and FY07 continue SDD execution of the Air System, including airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts	3,506.788	3,774.561	3,587.400
(U) System Development and Demonstration (SDD) for F135 Propulsion System with Pratt & Whitney including International Commonality Effort (ICE) commenced in FY02. FY06 and FY07 continue SDD execution of the F135 Propulsion System, including engine testing, autonomic logistics, integration and performing technology maturation efforts.	956.382	846.726	583.900
(U) FY06 and FY07 continue the Fighter Engineer Team (General Electric/Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration.	212.232	332.606	0.000
(U) SDD Systems Engineering (SE) and mission support activities, including Modeling, Simulation and Analysis (MS&A) efforts, risk reduction activities and program office functions commenced in FY02. FY05, FY06, and FY07 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.	246.547	446.343	561.427
(U) Total Cost	4,921.949	5,400.236	4,732.727

Project 3831

R-1 Shopping List - Item No. 92-2 of 92-8

Exhibit R-2a (PE 0604800F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

FY 2005

FY 2006

FY 2007

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 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) USN RDT&E	2083.779	2269.197	2030.979	1710.781	1323.284	1021.458	645.357	Continuing	TBD
(U) Int'l Partner Funding	758.112	798.030	702.680	479.340	226.185	166.230	136.720	Continuing	TBD
(U) USN PROCUREMENT			245.016	1876.432	4663.380	4610.037	3850.870	Continuing	TBD
(U) USAF PROCUREMENT		118.405	1113.098	1406.295	2156.737	2568.499	3631.273	Continuing	TBD
(U) USN Initial Spares and Repair Parts				117.653	185.612	245.603	251.628	Continuing	TBD
(U) USAF Initial Spares and Repair Parts			98.084	102.232	186.308	190.313	273.210	Continuing	TBD
(U) USN MILCON									
(U) USAF MILCON 0207142F	9.715	0.000	0.000	85.402	79.998	0.000	0.000	Continuing	TBD
(U) USAF MILCON 91211F	0.900								

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 Air Force. 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.

(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.



## UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604800F Joint Strike Fighter EMD</b>	PROJECT NUMBER AND TITLE <b>3831 Joint Strike Fighter</b>
<p>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.</p> <p>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.</p> <p>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.</p> <p>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 &amp; Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts. The JSF Acquisition Strategy and updated program schedule were approved following the May 05 DAB.</p> <p>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.</p>		
Project 3831	R-1 Shopping List - Item No. 92-4 of 92-8	Exhibit R-2a (PE 0604800F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Ft. Worth, TX	6,691.000	3,503.600	Oct-04	3,774.561	Oct-05	3,587.400	Oct-06	Continuing	TBD	25,704.015
Lockheed Martin	SS/BOA	Ft. Worth, TX	3.200	0.000		0.000		0.000			3.200	3.200
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	3.000	3.188		0.000		0.000			6.188	6.188
Pratt & Whitney	SS/CPAF	Hartford, CT	2,422.000	942.758	Oct-04	846.727	Oct-05	583.899	Oct-06	Continuing	TBD	5,878.004
Pratt & Whitney	SS/BOA/ID	Hartford, CT	37.000	13.624	Oct-04						50.624	50.624
	IQ											
General Electric	SS/CPAF	Cincinnati, OH	444.000	102.624	Oct-04	0.000		0.000			546.624	546.624
General Electric	SS/BOA	Cincinnati, OH	1.961	5.258							7.219	7.219
General Electric	SS/IDIQ	Cincinnati, OH	3.000	1.884	Oct-04	0.000	Oct-05	0.000			4.884	4.884
General Electric	SS/CPAF	Cincinnati, OH		102.466	Oct-04	332.606					435.072	435.072
Systems Engineering						101.771	Oct-05	112.425	Oct-06		214.196	214.196
Subtotal Product Development			9,605.161	4,675.402		5,055.665		4,283.724		Continuing	TBD	32,850.026
Remarks:												
(U) <u>Support</u>												
NAWC Lakehurst	Various	NAWC Lakehurst	2.783	0.818	Oct-04	0.990	Oct-05	1.203	Oct-06	Continuing	TBD	TBD
NAWC Patuxent River	Various	Patuxent River, VA	135.283	70.636	Oct-04	57.790	Oct-05	91.283	Oct-06	Continuing	TBD	TBD
NAWC China Lake	Various	Various	38.542	49.407	Oct-04	43.996	Oct-05	42.603	Oct-06	Continuing	TBD	TBD
ASC	Various	Wright Patterson AFB	20.173	10.362	Oct-04	22.472	Oct-05	26.766	Oct-06	Continuing	TBD	TBD
AFFTC	Various	Various	37.908	2.505	Oct-04	3.073	Oct-05	4.321	Oct-06	Continuing	TBD	
ESC	Various	Hanscom AFB	7.225	2.225	Oct-04	17.678	Oct-05	17.600	Oct-06	Continuing	TBD	
Other	Various	Various	142.367	0.000	Oct-04	0.000	Oct-05	0.000	Oct-06	Continuing	TBD	
Miscellaneous	Various	Various	16.230	7.358	Dec-04	13.534	Oct-05	12.443	Dec-06	Continuing	TBD	
Sverdrup/Anteon	C/CPAF	Arlington, VA	13.349	7.192	Dec-04	21.681	Dec-05	22.489	Dec-06	Continuing	TBD	
AI-ES, Arlington, VA	SS/CPFF	Arlington, VA	19.120	9.711	Dec-04	16.735	Dec-05	22.587	Dec-06	Continuing	TBD	
Subtotal Support			432.980	160.214		197.949		241.295		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
NAWC Patuxent	Various	NAWC Patuxent		37.573		24.445	Oct-05	37.924	Oct-06	Continuing	TBD	
AFFTC	Various	Edwards AFB		11.934		39.768	Oct-05	70.329	Oct-06	Continuing	TBD	
NAWC China Lake	Various	NAWC China Lake		4.364		5.380	Oct-05	2.180	Oct-06	Continuing	TBD	
WEPS	Various	Eglin AFB		0.000		33.803	Oct-05	35.600	Oct-06	Continuing	TBD	
OT	Various	Various		1.412		5.146	Oct-05	7.265	Oct-06	Continuing	TBD	
Other (including Classified PIDs)	Various	Various		0.234		6.082	Oct-05	9.300	Oct-06	Continuing	TBD	
Subtotal Test & Evaluation			0.000	55.517		114.624		162.598		Continuing	TBD	0.000

Project 3831

R-1 Shopping List - Item No. 92-5 of 92-8

Exhibit R-3 (PE 0604800F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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

Remarks:

(U) Management

Stanley	SS/CPFF	Arlington, VA	25.000	14.367	Oct-04	14.968	Oct-05	21.128	Oct-06	Continuing	TBD	TBD
Aegis	SS/CPFF	Arlington, VA	7.172	3.896	Dec-04	3.928	Dec-05	6.600	Dec-06	Continuing	TBD	TBD
Program Management Support				12.553		13.102	Oct-05	17.382	Oct-06	Continuing	TBD	
Subtotal Management			32.172	30.816		31.998		45.110		Continuing	TBD	TBD

Remarks:

(U) Total Cost			10,070.313	4,921.949		5,400.236		4,732.727		Continuing	TBD	TBD
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Remarks: Prior Years reflect \$4,379.834 USAF/\$4,466.337 USN/\$1,249.969 International/Total \$10,070.314

FY 2005 reflects \$2,080.058 USAF/\$2,083.779 USN/\$758.112 International/Total \$4921.949

FY 2006 reflects \$2,333.009 USAF/\$2,269.197 USN/\$798.030 International/Total \$5,400.236

FY 2007 reflects \$1,999.068 USAF/\$2,030.979 USN/\$702.680 International/Total \$4,732.727



UNCLASSIFIED

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R4, Schedule Profile

DATE:

January 2006

APPROPRIATION/BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

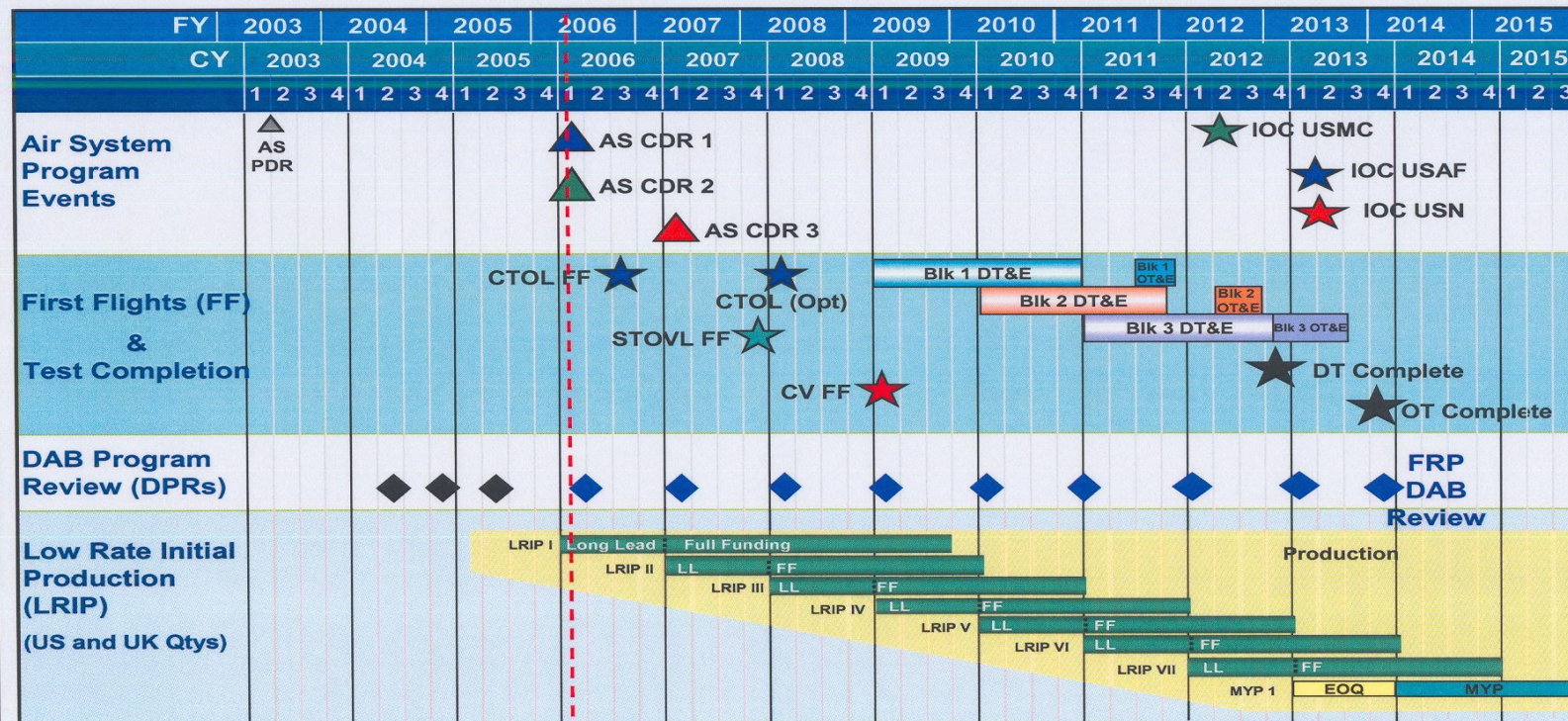
PROGRAM ELEMENT NUMBER AND NAME

0604800F / JOINT STRIKE FIGHTER EMD

PROJECT NUMBER AND NAME

3831 / JOINT STRIKE FIGHTER

## JSF Top Level Schedule SDD Program



FOR OFFICIAL USE ONLY

Project 3831

R-1 SHOPPING LIST - Item No. 90-7 of 90-8

Exhibit R-4 (PE 0604800F)

UNCLASSIFIED

Project 3831

R-1 Shopping List - Item No. 92-7 of 92-8

Exhibit R-4 (PE 0604800F)

1035

UNCLASSIFIED



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) DAB Program Review (DPR)

1-2Q

2Q

2Q

(U) Critical Design Reviews (CDR 1&amp;2 FY06, CDR 3 FY07)

2Q

2Q

(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight

4Q



**UNCLASSIFIED**

**TERMINATION OF INVESTMENT-RELATED PROGRAMS**

**FY 2007 President's Budget**

**(Dollars in Millions)**

PE	BPAC	APPN	FY 2005		FY 2006		FY 2007		FY 2008		FY 2009		FY 2010		FY 2011	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0604800F	653831	3600	212.232	0	332.606	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0

**Effort Title**

Fighter Engine Team (General Electric/Rolls Royce) F136 System Development and Demonstration

**Program Description**

Development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration.

**Status to Date**

PB07 Terminates funding for the F136 Alternate Engine Program. Terminating the F136 program is projected to save DoD \$1.8B, including \$408M in FY07. The F-35 program continues to execute planned FY06 F136 activities pending a contract termination decision.

**Rationale for Termination**

The decision to cancel the F136 program provides the Air Force the best balance of risk and cost. It was not a reflection of F136 performance, cost, or management. Recent experience with engine development for F-22 and F/A-18E/F indicates sole source risks are modest and acceptable. The Pratt & Whitney F135 engine continues to meet or exceed stringent performance requirements.



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## UNCLASSIFIED

PE NUMBER: 0604851F  
PE TITLE: ICBM - EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604851F ICBM - EMD					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	94.684	31.948	0.000	0.000	0.000	0.000	0.000	0.000	366.590
133B Rapid Execution & Combat Targeting (REACT)	14.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.976
4371 Safety Enhanced Reentry Vehicle (SERV) Program	52.391	26.180	0.000	0.000	0.000	0.000	0.000	0.000	230.287
4823 ECS Replacement Program	19.196	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.280
5080 ICBM Security	8.156	5.768	0.000	0.000	0.000	0.000	0.000	0.000	33.047

(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 Rapid Execution and Combat Targeting (REACT) Program designs and develops the modifications to the weapon system control consoles to correct launch readiness deficiencies.

The Safety Enhanced Reentry Vehicle (SERV) Program designs, develops, and tests the modifications necessary to adapt the Minuteman III Reentry System to accommodate the MK 21 Reentry Vehicle.

The Propulsion System Rocket Engine (PSRE) Life Extension Program (LEP) designs and develops the components necessary to refurbish the Minuteman III post-boost vehicle to correct age-related degradations.

The Environmental Control System (ECS) Replacement Program designs and develops the modifications necessary to refurbish, update, and/or replace components of the current Minuteman III ECS in the Launch Facilities (LFs) and Missile Alert Facilities (MAFs).

The Global Positioning System (GPS) Metric Tracking Capability Program designs and develops the modifications to the Minuteman III Range Instrumentation/Safety Wafer needed to use GPS for obtaining real-time position data to meet test range safety requirements.

The ICBM Support Equipment project designs and develops items used to maintain/modernize the Minuteman III weapons systems base, depot, launch control, and missile test capabilities.

The ICBM Security Program designs and develops the components necessary to counter emerging threats and vulnerabilities identified in the Security Review Document.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

All of these modernization programs are designed to keep the Minuteman III weapon system at its required availability and reliability levels through 2020.

This program is in Budget Activity 05 because the projects are being developed for the Air Force but have not received production approval.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	90.880	32.415	0.000
(U) Current PBR/President's Budget	94.684	31.948	0.000
(U) Total Adjustments	3.804	-0.467	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	-0.069	-0.467	
Congressional Increases			
Reprogrammings	6.400		
SBIR/STTR Transfer	-2.527		
(U) <u>Significant Program Changes:</u>			
None in FY05, None in FY06			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>133B Rapid Execution &amp; Combat Targeting (REACT)</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
133B Rapid Execution & Combat Targeting (REACT)	14.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.976
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Rapid Execution and Combat Targeting (REACT) Service Life Extension Program (SLEP) will modify the 50 Minuteman (MM) III Launch Control Centers (LCCs), Weapon System Control Consoles (WSCC) and the 19 other trainer and test facilities that support the MM III Weapon System. Hardware changes include upgrading the Embedded Memory Array Dynamic (EMAD) Card, replacing the Visual Display Units (VDU), and replacing the Head Disk Assembly (HDA) with current technology. The Console Operation Program (COP) software will be modified to correct identified deficiencies currently deployed to the warfighter and will be independently tested to provide Nuclear Surety Cross Check Analysis (NSCCA).</p> <p>This document is for the RDT&amp;E phase of REACT. The production phase is budgeted under (old and new) Modification # 3413, PE 0101213F.</p> <p>FY05 was the last year for development funding.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Completed development of COP software, HDA hardware, VDU hardware and EMAD hardware						12.404	0.000	0.000	
(U) Completed NSCCA on COP software						2.193	0.000	0.000	
(U) Provided other government support						0.344	0.000	0.000	
(U) Total Cost						14.941	0.000	0.000	
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, REACT, Mod #3413) (BA-03, P-011) BP21	13.853	0.119	0.000	0.000	0.000	0.000	0.000	0.000	35.755
NOTE: Procurement data above is only for items being procured as a result of the current RDT&E effort, not total procurement from REACT Program inception.									
(U) <b><u>D. Acquisition Strategy</u></b>									
A Cost Plus Award Fee (CPAF) contract addendum was added to the ICBM Prime Integration Contract in the 3QFY02 for everything but the Nuclear Safety Cross Check Analysis (NSCCA) effort which was contracted for separately under a CPAF contract.									



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

133B Rapid Execution & Combat  
Targeting (REACT)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	45.919	12.404	Jan-05	0.000		0.000		0.000	58.323	
Subtotal Product Development			45.919	12.404		0.000		0.000		0.000	58.323	0.000
Remarks:												
(U) <u>Support</u> NSCCA	CPAF	Logicon (Northrop Grumman), San Pedro, CA	5.121	2.193	Jan-05	0.000		0.000		0.000	7.314	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.995	0.344	N/A					0.000	1.339	
Subtotal Support			6.116	2.537		0.000		0.000		0.000	8.653	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> None				0.000		0.000		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> Subtotal Management			0.000	0.000		0.000		0.000			0.000	
Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			52.035	14.941		0.000		0.000		0.000	66.976	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

133B Rapid Execution & Combat  
Targeting (REACT)

REACT	FY02				FY03				FY04				FY05				FY06			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Milestone B</b>		▲																		
<b>System Design Contract</b>			▲																	
<b>COP Test Readiness</b>												▲								
<b>COP Functional Configuration Reviews</b>																▲				
<b>VDU Interim Design Reviews (IDR) 1&amp;2</b>								▲				▲								
<b>VDU FCA</b>																▲				
<b>EMAD IDRs 1&amp;2</b>				▲			▲													
<b>EMAD prod Go-Ahead</b>										▲										
<b>HDA IDRs 1&amp;2</b>						▲				▲										
<b>HDA Prod Readiness</b>												▲								

COP = Console Operations Program

EMAD = Embedded Memory Array Display

HDA = Head Disk Assembly

VDU = Visual Display Unit



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

133B Rapid Execution & Combat  
Targeting (REACT)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Visual Display Unit Functional Configuration Audit (FCA)

1Q

(U) COP Functional Configuration Audit (FCA)

4Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4371 Safety Enhanced Reentry Vehicle (SERV) Program	52.391	26.180	0.000	0.000	0.000	0.000	0.000	0.000	230.287
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The SERV program will modify 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.

This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received full production approval.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continued design of the MM III airborne vehicle equipment (AVE) hardware and software needed for the MK21 RV	13.685	5.927	0.000
(U) Continued development of the MM III command and launch equipment software needed for the MK21 RV	7.350	0.000	0.000
(U) Continued NSCCA on SERV software	5.620	0.000	0.000
(U) Completed design of the MM III support equipment needed for the MK21 RV	1.691	0.000	0.000
(U) Continued system test and evaluation for all newly designed/developed hardware/software	11.669	5.220	0.000
(U) Continued development of trainers/training needed for employing the MK21 RV on the MM III	2.971	1.451	0.000
(U) Conducted initial flight testing	9.205	13.282	0.000
(U) Provide other government support	0.200	0.300	0.000
(U) Total Cost	52.391	26.180	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Safety Enhanced	55.135	58.895	67.304	64.882	48.300	0.000	0.000	0.000	314.802

Project 4371

R-1 Shopping List - Item No. 93-7 of 93-19

Exhibit R-2a (PE 0604851F)



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## Exhibit R-2a, RDT&amp;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)**

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&amp;E Project Cost Analysis

DATE

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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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPIF/AF	Northrop Grumman, Clearfield, UT	133.761	37.366	Dec-04	17.033	Jan-06	0.000		0.000	188.160	
Subtotal Product Development			133.761	37.366		17.033		0.000		0.000	188.160	0.000
Remarks:												
(U) <u>Support</u> NSCCA	CPAF	Logicon, San Pedro, CA	16.105	5.620	Jan-05	0.000	N/A	0.000		0.000	21.725	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	1.850	0.200	N/A	0.300	N/A			0.000	2.350	
Subtotal Support			17.955	5.820		0.300		0.000		0.000	24.075	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Vandenberg AFB	Project Order	Air Force test team at Vandenberg AFB CA (AFOTEC,AF SPC, 576th Flight Test Sq, DOE)		9.205	N/A	8.847	N/A	0.000		0.000	18.052	
None											0.000	
Subtotal Test & Evaluation			0.000	9.205		8.847		0.000		0.000	18.052	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
Remarks:												
(U) Total Cost			151.716	52.391		26.180		0.000		0.000	230.287	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

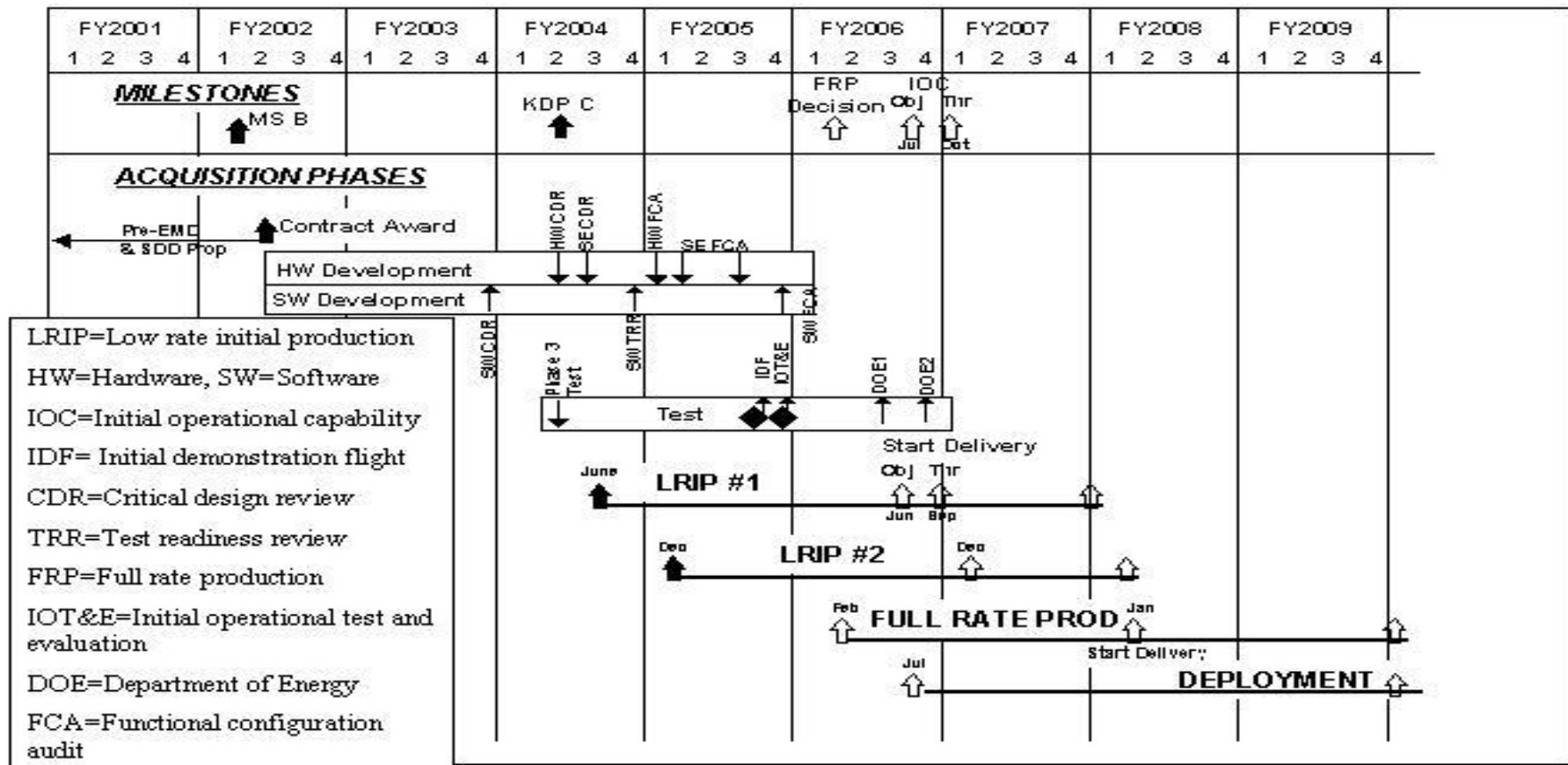
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4371 Safety Enhanced Reentry Vehicle (SERV) Program

## Safety Enhanced Reentry Vehicle Program





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;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

4371 Safety Enhanced Reentry  
Vehicle (SERV) Program(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Flight Hardware Functional Configuration Audit

1Q

(U) Initial Demonstration Flight

4Q

(U) Flight Test #2

4Q

(U) Department of Energy Flight Test #1

3Q

(U) Initial Operating Capability

4Q



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## Exhibit R-2a, RDT&amp;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

4823 ECS Replacement Program

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4823 ECS Replacement Program	19.196	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.280
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Minuteman III Environmental Control System (ECS) Replacement Program will replace the failing 1960's ECS equipment. The existing ECS is adversely affecting weapon system availability as well as driving increased support costs due to high failure rates, non-availability of replacement parts, and a lack of diagnostic capabilities. This program will replace the existing ECS equipment in MM III Launch Facilities (LFs), Missile Alert Facilities (MAFs), and test and trainer sites with modern equipment to extend the life of ECS to 2020. This document is for the RDT&E phase of ECS. The production phase is budgeted under Modification #5739, PE 0101213F.

FY05 was the last year for development funding.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Provided other government support	0.556	0.000	0.000
(U) Completed design and development of ECS components	2.375	0.000	0.000
(U) Completed test and evaluation of ECS components	14.731	0.000	0.000
(U) Completed diagnostics and retest efforts	1.534	0.000	0.000
(U) Total Cost	19.196	0.000	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Environmental Control System Modification, Mod #5739) (BA-03, P-011)	0.000	29.681	62.850	62.579	62.456	61.802	5.031	0.000	284.399

(U) **D. Acquisition Strategy**

The ECS Replacement Program is being conducted under the ICBM Prime Integration Contractor (IPIC). The effort will be completed on a Cost Plus Award Fee (CPAF) contract.



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## Exhibit R-3, RDT&amp;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

4823 ECS Replacement Program

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	15.795	18.640	Jan-05	0.000		0.000		0.000	34.435	
Subtotal Product Development			15.795	18.640		0.000		0.000		0.000	34.435	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	1.289	0.556	N/A	0.000		0.000		0.000	1.845	
Subtotal Support			1.289	0.556		0.000		0.000		0.000	1.845	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> None						0.000		0.000			0.000	
None											0.000	
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) Total Cost			17.084	19.196		0.000		0.000		0.000	36.280	0.000



## Exhibit R-4, RDT&amp;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

4823 ECS Replacement Program

ICBM Environmental Control System	FY03				FY04				FY05				FY06			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestone B	▲															
Contract Award		▲														
Preliminary Design Review				▲												
Critical Design Review								▲								
Functional Configuration Audit												▲				
Physical Configuration Audit													▲			
Begin Production														△		



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

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February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4823 ECS Replacement Program

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Critical Design Review

1Q

(U) Functional Configuration Audit

4Q

(U) Physical Configuration Audit

1Q



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

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February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5080 ICBM Security	8.156	5.768	0.000	0.000	0.000	0.000	0.000	0.000	33.047
Quantity of RDT&E Articles	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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Component design, development and evaluation	7.996	5.608	0.000
(U) Provide other government support	0.160	0.160	0.000
(U) Total Cost	8.156	5.768	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Missile Procurement AF, PE 0101213F, Minuteman Squadrons, MMIII Modifications, ICBM Security, Mod 5914 (BA-03, P-012)	39.012	40.924	76.078	74.381	68.888	55.648	27.997	Continuing	TBD

(U) **D. Acquisition Strategy**

The Security effort will be managed under a CPAF contract with the ICBM Prime Integration Contractor (IPIC).



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604851F ICBM - EMD

## PROJECT NUMBER AND TITLE

5080 ICBM Security

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	18.946	7.996	Jan-05	5.608	Jan-06	0.000		0.000	32.550	
Subtotal Product Development			18.946	7.996		5.608		0.000		0.000	32.550	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.177	0.160	N/A	0.160	N/A	0.000		0.000	0.497	
Subtotal Support			0.177	0.160		0.160		0.000		0.000	0.497	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> 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) Total Cost			19.123	8.156		5.768		0.000		0.000	33.047	0.000



### Exhibit R-4, RDT&E Schedule Profile

DATE \_\_\_\_\_

February 2006

BUDGET ACTIVITY

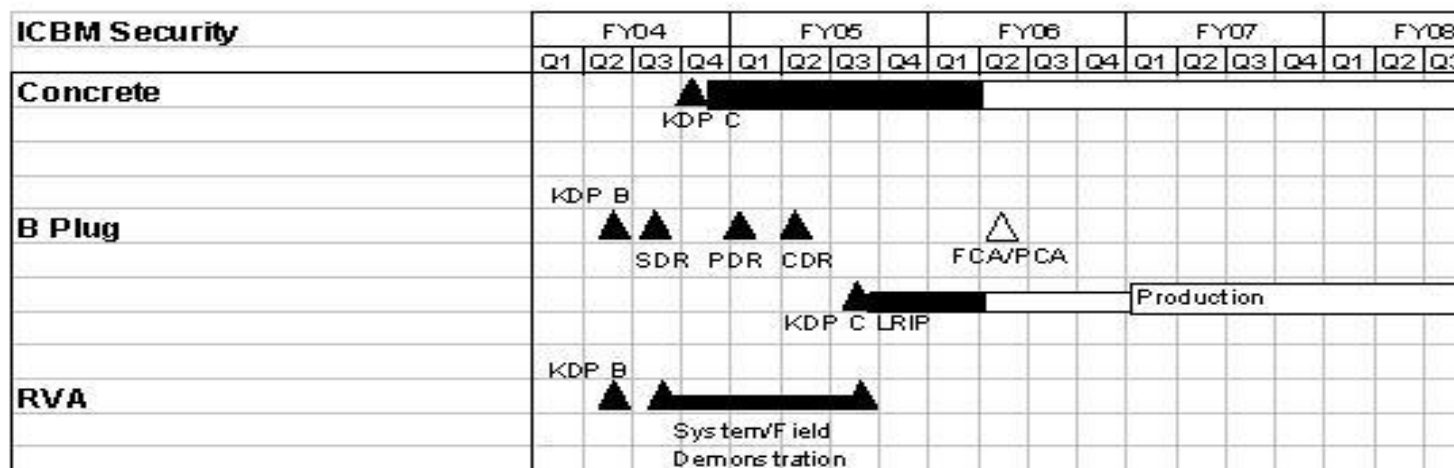
## 05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
1. <i>Introduction</i>
2. <i>Background</i>
3. <i>Methodology</i>
4. <i>Results</i>
5. <i>Discussion</i>
6. <i>Conclusion</i>
7. <i>References</i>
8. <i>Appendix</i>
9. <i>Index</i>
10. <i>Summary</i>

**0604851F ICBM - EMD**

	PROJECT NUMBER AND TITLE
--	--------------------------

## 5080 ICBM Security



Acronyms: KDP = Key Decision Point  
SDR = System Design Review  
PDR = Preliminary Design Review  
CDR = Critical Design review  
FCA/PCA = Functional/Physical Configuration Audit  
LRIP = Low Rate Initial Production  
RVA = Remote Visual Assessment



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5080 ICBM Security

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Preliminary Design Review B Plug

1Q

(U) Critical Design Review B Plug

2Q

(U) Functional Configuration Audit B Plug

2Q

(U) Remote Visual Assessment Field Demonstration

3Q



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## UNCLASSIFIED

PE NUMBER: 0604853F

PE TITLE: Evolved Expendable Launch Vehicle - EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	20.991	25.721	18.513	0.000	0.000	0.000	0.000	0.000	1,416.715																																				
0004 Evolved Expendable Launch Vehicle	20.991	25.721	18.513	0.000	0.000	0.000	0.000	0.000	1,416.715																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Evolved Expendable Launch Vehicle (EELV) program is a jointly funded (government and industry) space launch system developed in partnership with industry to provide two families of launch vehicles (Delta IV &amp; Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.</p> <p>EELV is a launch service, not a weapon system, which is primarily funded with production funding. However, the program still has a few 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 and other related support activities.</p> <p>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.</p> <p>An EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. The HLV demonstration test article was launched on 21 Dec 2004.</p> <p>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.</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">26.763</td> <td style="text-align: right;">26.093</td> <td style="text-align: right;">18.303</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">20.991</td> <td style="text-align: right;">25.721</td> <td style="text-align: right;">18.513</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-5.772</td> <td style="text-align: right;">-0.372</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: right;">-0.021</td> <td style="text-align: right;">-0.372</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: right;">-5.000</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: right;">-0.751</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	26.763	26.093	18.303	(U) Current PBR/President's Budget	20.991	25.721	18.513	(U) Total Adjustments	-5.772	-0.372		(U) Congressional Program Reductions				Congressional Rescissions	-0.021	-0.372		Congressional Increases				Reprogrammings	-5.000			SBIR/STTR Transfer	-0.751		
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UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification		DATE February 2006
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD	
None.		

UNCLASSIFIED



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0004 Evolved Expendable Launch Vehicle	20.991	25.721	18.513	0.000	0.000	0.000	0.000	0.000	1,416.715
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Evolved Expendable Launch Vehicle (EELV) program is a jointly funded (government and industry) space launch system developed in partnership with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.

EELV is a launch service, not a weapon system, which is primarily funded with production funding. However, the program still has a few 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 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.

An EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. The HLV demonstration test article was launched on 21 Dec 2004.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue GPS Metric Tracking Booster Capability Integration	6.091	9.920	7.217
(U) SPO Support	0.900	1.801	1.296
(U) Assured Access initiatives	14.000	14.000	10.000
(U) Total Cost	20.991	25.721	18.513

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) MPAF (BA 05, PE 0305953F, P-28)*	413.956	773.205	936.490	1244.838	1105.076	1250.753	1428.705	13,158.510	20,311.533

Project 0004

R-1 Shopping List - Item No. 94-4 of 94-8

Exhibit R-2a (PE 0604853F)



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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)**

\* The Cost To Complete value is an estimate based on 95 AF launches in the current manifest, FY 2002-2020.

(U) **D. Acquisition Strategy**

The EELV concept of families of launch vehicles emphasizes commonality of hardware, infrastructure, and economies of scale 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 \$1B. 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 USD (AT&L). 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, which will begin in FY06, separates the launch price from the infrastructure costs. Follow-on Launch Service Buys will include launch service costs on a fixed-price contract. National launch capability infrastructure costs, to include launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc., will be funded on an annual basis. The Space System Acquisition Strategy (SSAS) for EELV was revised to reflect this modified approach to provide assured access to space with two viable launch service providers.

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 existing systems. The EELV system will launch the majority of the government portion of the NLF through 2020 and the government will continue to work in partnership with industry to capture continuous product and process improvements that will enhance reliability and reduce both the contractors' and government's total operating costs.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Prime Contractor Boeing	OTA/ILS		685.257	3.155	Oct-04	11.960	Nov-05	8.608	Nov-06		708.980	
Prime Contractor Lockheed Martin	OTA/ILS		544.346	16.936	Oct-04	11.960	Nov-05	8.609	Nov-06		581.851	
Subtotal Product Development			1,229.603	20.091		23.920		17.217		0.000	1,290.831	0.000
Remarks:												
(U) <u>Support</u>												
SPO/CTF Range Mission Spt	Various		39.529	0.900		1.801		1.296			43.526	
FFRDC	SS/CPAF		67.214								67.214	
Other Cntr Spt	Various		15.144								15.144	
Subtotal Support			121.887	0.900		1.801		1.296		0.000	125.884	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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) Total Cost			1,351.490	20.991		25.721		18.513		0.000	1,416.715	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

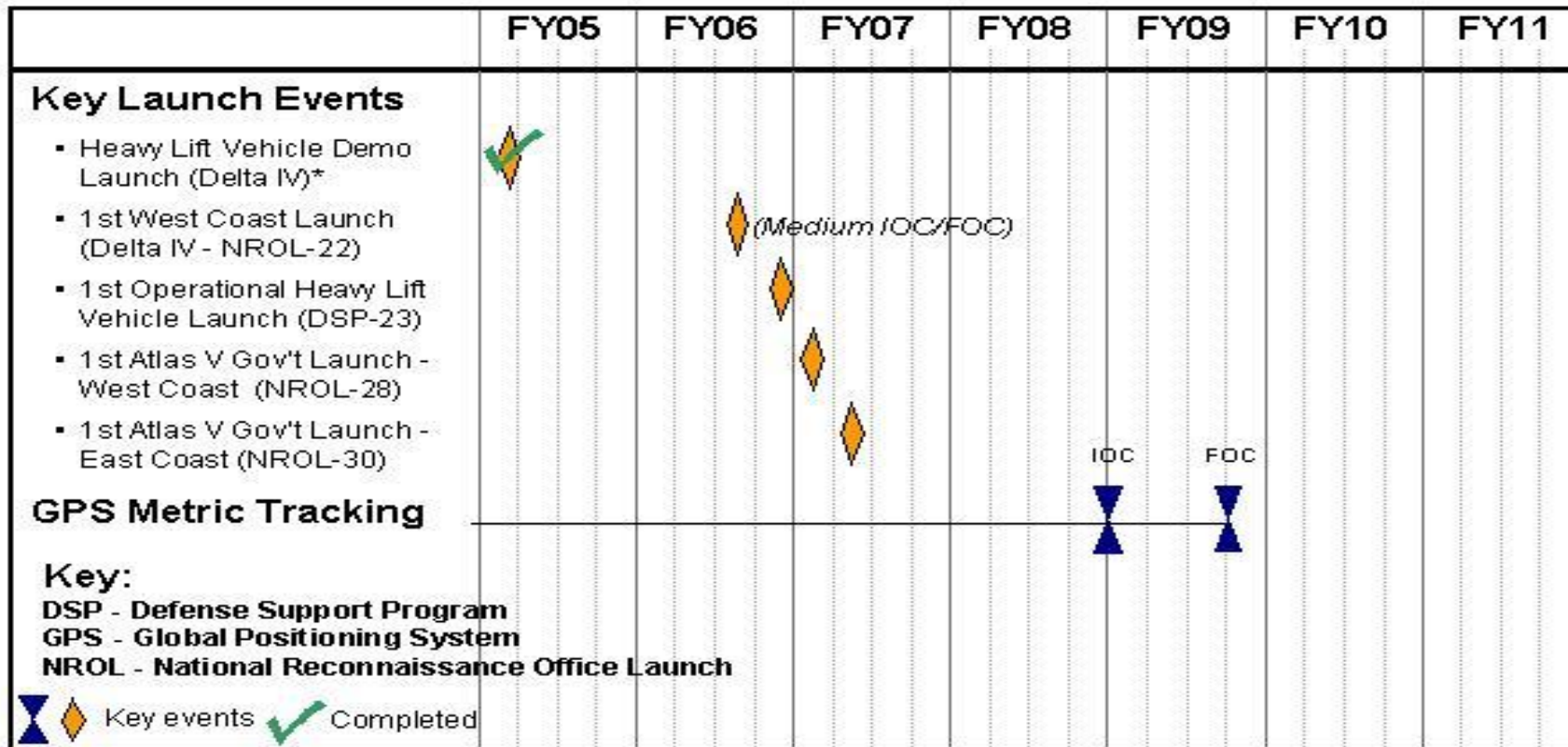
PE NUMBER AND TITLE

0604853F Evolved Expendable  
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch  
Vehicle

## EELV Program - Key Events





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) GPS Metric Tracking Project Planning &amp; Requirements Integration

1-4Q

1-4Q

1-4Q

(U) HLV Demonstration Launch

1Q

(U) 1st West Coast Launch of Delta IV

3Q

(U) 1st Government Operational HLV Launch

4Q

(U) 1st West Coast Launch of Atlas V

1Q

(U) 1st Government East Coast Launch of Atlas V

2Q



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## UNCLASSIFIED

PE NUMBER: 0605011F

PE TITLE: RDT&amp;E For Aging Aircraft

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	25.249	41.090	25.490	26.039	26.335	26.832	27.185	Continuing	TBD																																				
4685 Aging Aircraft	25.249	41.090	25.490	26.039	26.335	26.832	27.185	Continuing	TBD																																				
<p>Note: Funds for the FY 2006 Congressionally-directed Non-Destructive Testing Corrosion Detection in the amount of \$1.0 million are in the process of being moved to PE 0603112F, Project 633153, Advanced Materials for Weapon Systems, from PE 0605011F, Project 654685, RDT&amp;E for Aging Aircraft, for execution. Funds for the FY 2006 Congressionally-directed Electro-Magnetic In-Flight Propeller Balancing System in the amount of \$1.5 million are in the process of being moved to PE 0401115F, Project 674885, C-130 Modifications, from PE 0605011F, Project 654685, RDT&amp;E for Aging Aircraft, for execution.</p>																																													
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 identifying opportunities to reduce 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 2006, Congress added \$0.5 million for Advanced Avionics Insertion for Legacy Aircraft, \$1.0 million for Aging Aircraft Structural Repair Facility Study, \$4.2 million for Aging Landing Gear Life Extension (ALGLE), \$2.5 million for Improved Fleet Readiness and 3-D Modeling, \$4.2 million for Productivity Improvements for Landing Gear Overhaul Technologies, \$1.0 million for Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC, and \$1.4 million for Smart Weapons Triple Ejection Rack Development. This 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.</p>																																													
<p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">31.783</td> <td style="text-align: center;">24.384</td> <td style="text-align: center;">25.597</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: center;">25.249</td> <td style="text-align: center;">41.090</td> <td style="text-align: center;">25.490</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: center;">-6.534</td> <td style="text-align: center;">16.706</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: center;">-0.024</td> <td style="text-align: center;">-0.594</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td style="text-align: center;">17.300</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: center;">-5.698</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: center;">-0.812</td> <td></td> <td></td> </tr> </tbody> </table>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	31.783	24.384	25.597	(U) Current PBR/President's Budget	25.249	41.090	25.490	(U) Total Adjustments	-6.534	16.706		(U) Congressional Program Reductions				Congressional Rescissions	-0.024	-0.594		Congressional Increases		17.300		Reprogrammings	-5.698			SBIR/STTR Transfer	-0.812		
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Reprogrammings	-5.698																																												
SBIR/STTR Transfer	-0.812																																												
<p>(U) <b><u>Significant Program Changes:</u></b></p>																																													

R-1 Shopping List - Item No. 95-2 of 95-14

Exhibit R-2 (PE 0605011F)



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**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2006**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0605011F RDT&E For Aging Aircraft**

C. Not Applicable.

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## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4685 Aging Aircraft	25.249	41.090	25.490	26.039	26.335	26.832	27.185	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: Funds for the FY 2006 Congressionally-directed Non-Destructive Testing Corrosion Detection in the amount of \$1.0 million are in the process of being moved to PE 0603112F, Project 633153, Advanced Materials for Weapon Systems, from PE 0605011F, Project 654685, RDT&E for Aging Aircraft, for execution. Funds for the FY 2006 Congressionally-directed Electro-Magnetic In-Flight Propeller Balancing System in the amount of \$1.5 million are in the process of being moved to PE 0401115F, Project 674885, C-130 Modifications, from PE 0605011F, Project 654685, RDT&E for Aging Aircraft, for execution.

**(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 identifying opportunities to reduce 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 2006, Congress added \$0.5 million for Advanced Avionics Insertion for Legacy Aircraft, \$1.0 million for Aging Aircraft Structural Repair Facility Study, \$4.2 million for Aging Landing Gear Life Extension (ALGLE), \$2.5 million for Improved Fleet Readiness and 3-D Modeling, \$4.2 million for Productivity Improvements for Landing Gear Overhaul Technologies, \$1.0 million for Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC, and \$1.4 million for Smart Weapons Triple Ejection Rack Development. This 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MAJOR THRUST: Aging Aircraft Structures Projects. 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. Note: Increase in FY 2006 funding is due to increased emphasis on Structures Projects.	2.969	5.352	3.138
(U) In FY 2005: Identified common requirements and developed implementation strategies for delivery of cross-cutting solutions for aircraft 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 (includes Air Vehicle Health Management project). 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			



Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
calculations, and predictions. Transitioned advanced non-destructive inspection capabilities and provided hidden corrosion and sub-layer crack detection, damage quantification, structural degradation monitoring, and data management for predictive analyses. Delivered enhanced hardware for detecting additional forms of corrosion (exfoliation and pitting). Developed technologies to upgrade repair and replacement methodologies. Provided new or improved repair methodologies, material processes, and design and repair selection software. Delivered repair and design analysis software (includes Composite Repair of Aircraft Structures Design and Analysis Software project), freeform fabrication of replacement structural components (includes thermal additive manufacturing project), material substitution guidelines for multi-year delivery, and evaluation of ten year-old composite repair patches to determine if patch bond process adjustments are necessary. Delivered an advanced aircraft corrosion protection system that will transition an environmentally benign, long-life aircraft coating system with chromate-free surface preparation.					
(U) In FY 2006: Continue to 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. Continue 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. Develop enhanced capability to inspect for delaminations in metal and composite structures. Develop additional technologies to upgrade repair and replacement methodologies. Continue to provide new or improved repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.					
(U) In FY 2007: Continue to identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft 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. Continue to 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					



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
honeycomb composites. Provide repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.			
(U) MAJOR THRUST: Aging Aircraft Avionics Projects. 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 FY 2006 and out funding is due to greater focus on Avionics Projects.	4.999	13.012	17.914
(U) In FY 2005: Established the enabling technology to affordably upgrade over 3,000 fielded triple ejection bomb racks (TER-9As) used for gravity munitions carriage, so that they can alternately support precision guided munitions carriage. Planned effort will potentially establish 300 percent increase in smart munitions (1760 connectivity) carriage capabilities over existing bomb racks and avoid imposed aircraft reconfiguration changes that burden flight line personnel. Leveraging upon MIL-STD 1553 databus technology development activities, built flight capable hardware, and performed integration activities to demonstrate the technology/hardware on the F-16 aircraft. Began updating MIL-STD 1553B. Maximized VCA toolsets through two initiatives: the development of an Integrated Change Roadmap (ICR) cross-cutting tool that identifies the platforms and services that have common avionics upgrade requirements; and the design and development of a functional technology for affected platforms having common requirements. Initiatives will enable the VCA program to advance towards establishing a strategic capabilities investment process, integrating the ICR cross-cutting tool that identifies common avionics upgrade requirements with the design and development of comparable enabling capabilities required by diverse platforms. Emphasis was placed on identifying opportunities to accelerate capability deployment to the warfighter. 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 2006: 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			



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
performance. Establish an upgraded 1553 chipset, possessing 200 times increased bandwidth capabilities over current 1553 aircraft/munitions interface capabilities. Continue MIL-STD 1553B update activity to define capabilities of 1553 chipset, as well as how to validate and test those capabilities. Planned efforts include first release of extended MIL-STD 1553C. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Maintain the Viable Combat Avionics toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. 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.					
(U) In FY 2007: Continue efforts to provide an affordable F-15 HUD CRT replacement item. Planned activities include F-15 flight testing and migration of HUD CRT to another aircraft platform. 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 twenty-two platform and stores program offices during implementation. Provide for the development of optional 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) MAJOR THRUST: Aging Aircraft Subsystems Projects. Extends the service life, controls the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Cross-cutting opportunities which will reduce total ownership costs are identified using business case analyses. Note: Increase in FY 2006 funding is due to greater emphasis on Subsystems Projects.			1.147	5.672	4.438
(U) In FY 2005: Integrated the Air Force Wire Integrity Program (AFWIP) web-based data collection system with the Air Force Knowledge database system. Formally integrated the AFWIP wire awareness computer-based training to field units. Developed wire troubleshooting fault isolation process procedures and incorporated in general series technical manual. Spiral-developed validated wiring diagnostic equipment to meet the demands of the maintenance community.					
(U) In FY 2006: Continue demonstration and development of wiring diagnostic equipment and data collection effort.					
Project 4685		R-1 Shopping List - Item No. 95-7 of 95-14	Exhibit R-2a (PE 0605011F)		



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
	Perform initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.				
(U)	In FY 2007: Continue demonstration and development of wiring diagnostic equipment and data collection effort. Continue to perform initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.				
(U)					
(U)	MAJOR THRUST: Enterprise Knowledge Management. Utilizes and enhances the advanced collaborative tools embedded in the Enterprise Knowledge Management (EKM) program. Facilitates the extraction, integration, and sharing of aging aircraft information, knowledge, technology, and solutions among Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry. Provides a knowledge capture/management system with collaboration capability for understanding the overall scope of aging aircraft problems, developing an integrated strategic plan for corrective actions, and using decision tools for the aging aircraft fleet. Supports the Capabilities Review and Risk Assessment in identifying and resolving capability gaps by capturing and automating the Roadmap Integration processes used by the Aeronautical, Air Armament, command and control, and space enterprises. Provides participants the ability to quickly see the impact of funding decisions on warfighting capability. Development completes after FY 2004 and EKM management transitions to fee for service.	0.305	0.000	0.000	
(U)	In FY 2005: Facilitated transition of EKM to fee for service.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Aging Landing Gear Life Extension.	4.442	4.140	0.000	
(U)	In FY 2005: Continued to integrate the elements of emerging materials/technologies, improved designs, state-of-the-art repair/overhaul technologies, and optimized business data processes for the purpose of extending the life of aging landing gear systems.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Academic Center for Aging Aircraft (ACAA).	4.054	0.000	0.000	
(U)	In FY 2005: Continued to facilitate new partnerships with agencies and organizations to work aging fleet needs; focusing on delivery of products in narrow problem areas, providing the greatest benefit to the joint community, and which act as pilot programs to exercise and prove out the infrastructure and methodologies established by the				



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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05 System Development and Demonstration (SDD)		0605011F RDT&E For Aging Aircraft	4685 Aging Aircraft		
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
	Academic Center for Aging Aircraft institutions.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Enterprise Availability and Cost Optimization System.		0.965	0.000	0.000
(U)	In FY 2005: Provided warfighter aging aircraft availability and investment optimization tools for B-2 fleet and Air Combat Command cross-fleet modernization and sustainment.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Fleet Capability Assessment Process.		1.254	0.000	0.000
(U)	In FY 2005: Determined the risks in effectiveness, availability, deployability, sustainability, and readiness of the aeronautical fleet. Provided rapid impact assessments on planned or proposed operations.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Fleet Readiness		1.254	0.000	0.000
(U)	In FY 2005: Pursued additional improvements to fleet readiness in the areas of fleet management/structural analysis, non-destructive evaluation and health management, prevention, and repair/replacement by: enhanced structural analysis of aircraft center wing box structure, corrosion measurements on aircraft structural materials, and non-destructive inspection of aircraft structural components.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: LEAN Depot Engine Repair/Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.		1.254	0.986	0.000
(U)	In FY 2005: Pursued improvements to reduce man-hours and increase production throughput on turbine engines to include prototyping engine fuel nozzle cleaning and testing equipment in the engine overhaul facilities at Oklahoma City-Air Logistics Center.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.				
(U)	In FY 2007: Not Applicable.				



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Exhibit R-2a, RDT&E Project Justification			DATE		
			February 2006		
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)		FY 2005	FY 2006	FY 2007
(U)					
(U)	CONGRESSIONAL ADD: TER-O MIL-STD-1760 ("SMART") Modification.		1.641	0.000	0.000
(U)	In FY 2005: Pursued modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons. Modification will potentially provide each weapon station with increased smart weapon load capability over standard pylon carry.				
(U)	In FY 2006: Not Applicable.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Advanced Aircraft Avionics and Electronics Insertion/Advanced Avionics Insertion for Legacy Aircraft.		0.965	0.493	0.000
(U)	In FY 2005: Identified and analyzed the use of advanced avionics thermal management technology from diverse military and commercial derivative aircraft. Conducted an architecture definition study focused on establishing an infrastructure that is easily integrated with existing airframe technology and supports long-term commercial technology compatibility and growth. Established qualification testing requirements.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Advanced Avionics Insertion for Legacy Aircraft.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Aging Aircraft Structural Repair Facility Study.		0.000	0.986	0.000
(U)	In FY 2005: Not Applicable.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Aging Aircraft Structural Repair Facility Study.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Improved Fleet Readiness and 3-D Modeling.		0.000	2.464	0.000
(U)	In FY 2005: Not Applicable.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Improved Fleet Readiness and 3-D Modeling.				
(U)	In FY 2007: Not Applicable.				
(U)					
(U)	CONGRESSIONAL ADD: Productivity Improvements for Landing Gear Overhaul Technologies.		0.000	4.140	0.000
(U)	In FY 2005: Not Applicable.				
(U)	In FY 2006: Conduct Congressionally-directed effort for Productivity Improvements for Landing Gear Overhaul Technologies.				
(U)	In FY 2007: Not Applicable.				
Project 4685					
R-1 Shopping List - Item No. 95-10 of 95-14					
Exhibit R-2a (PE 0605011F)					



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Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2006</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>		PROJECT NUMBER AND TITLE <b>4685 Aging Aircraft</b>			
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U)									
(U)	CONGRESSIONAL ADD: Smart Weapons Triple Ejection Rack Development.					0.000	1.380	0.000	
(U)	In FY 2005: Not Applicable.								
(U)	In FY 2006: Conduct Congressionally-directed effort for Smart Weapons Triple Ejection Rack Development.								
(U)	In FY 2007: Not Applicable.								
(U)									
(U)	CONGRESSIONAL ADD: Electro-Magnetic In-Flight Propeller Balancing System.					0.000	1.479	0.000	
(U)	In FY 2005: Not Applicable.								
(U)	In FY 2006: Funds for the FY 2006 Congressionally-directed Electro-Magnetic In-Flight Propeller Balancing System are in the process of being moved to PE 0401115F, Project 674885, C-130 Modifications.								
(U)	In FY 2007: Not Applicable.								
(U)									
(U)	CONGRESSIONAL ADD: Non-Destructive Testing Corrosion Detection.					0.000	0.986	0.000	
(U)	In FY 2005: Not Applicable.								
(U)	In FY 2006: Funds for the FY 2006 Congressionally-directed Non-Destructive Testing Corrosion Detection are in the process of being moved to PE 0603112F, Project 633153, Advanced Materials for Weapon Systems.								
(U)	In FY 2007: Not Applicable.								
(U)									
(U)	Total Cost					25.249	41.090	25.490	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
		<u>FY 2005</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>Cost to</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
(U)	Related Activities:								
(U)	<b><u>D. Acquisition Strategy</u></b>								
	Funding may be executed internally within the Agile Combat Support 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&amp;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)

0605011F RDT&amp;E For Aging Aircraft

4685 Aging Aircraft

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
S&K Technologies, Inc.	IDIQ			1.722		1.185					2.907	
Edgewater	IDIQ			3.185		6.765					9.950	
Anteon	Cost Plus			0.716							0.716	
Raytheon/Northrop Grumman/Boeing/Lockheed	CPFF					3.600					3.600	
United States Air Force Academy	N/A					1.300					1.300	
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ			1.141		2.185					3.326	
Alion Science & Tech	T&M			1.141							1.141	
Northrop Grumman IT	T&M			0.878							0.878	
UDRI/GTRI/TAMUS	DESP			3.689							3.689	
General Atomics	T&M			5.183		8.218					13.401	
Raytheon	CPFF			1.493							1.493	
Numerous	Various			6.101		17.837		25.490			49.428	
Subtotal Product Development			0.000	25.249		41.090		25.490		0.000	91.829	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
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			0.000	25.249		41.090		25.490		0.000	91.829	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

## Aging Aircraft Schedule

		FY 05				FY 06				FY 07			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Structures</b>													
	Cont Proj												
	RFP												
	Contract												
<b>Avionics</b>													
	Cont Proj												
	RFP												
	Contract												
<b>Subsystems</b>													
	Cont Proj												
	RFP												
	Contract												
<b>EKM</b>													
	Cont Proj												
	RFP												
	Contract												



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q
(U) Enterprise Knowledge Management	1-4Q		
(U) Request for Proposal Release	1Q		
(U) Contract Award	2Q		



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PE NUMBER: 0207434F

PE TITLE: Link 16 Support and Sustainment

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0207434F Link 16 Support and Sustainment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	120.633	161.345	172.625	142.449	152.320	154.994	156.665	Continuing	TBD
5049 JINTACCS	8.734	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5050 TDL System Integration	111.899	161.345	172.625	142.449	152.320	154.994	156.665	Continuing	TBD

In FY06, Project #655049 funding merged with Project #655050 since Project #655049 efforts include the development and deployment of Tactical Data Links, which is accomplished in Project #655050.

(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 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), and Variable Message Format (VMF).

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 includes the coordination of all TDL and United States Message Text format (USMTF) message standards, USMTF configuration management, platform/system interoperability assessments, and interoperability certification testing. 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.

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 Link 16 networks across all deployed joint and allied platforms. The Tactical Data Networks (TDN) Squadron performs several cross-platform activities to ensure proper integration of Link 16 capabilities and interoperability of Link 16 networks. TDL efforts include incorporating changes and additions to the TDL 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. In addition, the TDN Squadron has management responsibility for the Air Force's Air Defense Systems Integrator (ADSI) systems.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	134.547	157.677	184.100
(U) Current PBR/President's Budget	120.633	161.345	172.625
(U) Total Adjustments	-13.914	3.668	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.174	-2.332	
Congressional Increases		6.000	
Reprogrammings	-10.000		
SBIR/STTR Transfer	-3.740		

(U) **Significant Program Changes:**

Beginning in FY05, the Family of Interoperable Pictures (FIOP) level of effort funding was transferred to PE 0207443F, Project #655137. In addition, funds in PE 0207434F for FY06-07 were re-aligned to support JTRS network-centric efforts in PE 0207423F.

In FY07, Single Integrated Air Picture (SIAP) funding transferred to PE 0207451F.

Additional changes to this program element include:

    Development of a high-altitude, tactical airborne objective gateway system

    JICO Support System development testing, certification testing, and multi-service operational test & evaluation

    Link 16 network modifications for improved throughput and interservice interoperability



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5049 JINTACCS

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5049 JINTACCS	8.734	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		

In FY06, Project #655049 funding will be consolidated into Project #655050 since these efforts include the development and deployment of Tactical Data Links.

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

The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program is a Joint Staff-directed program that provides the sole Air Force (AF) activity responsible for ensuring the interoperability of AF Tactical Data Links (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. The requirements for the program are delineated in DoDD 4630.5, DoDD 4630.8, CJCSI 6212.01B, and AFI 33-108. The 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 includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing. Air Force platforms/systems participating in, and affected by, this program include, but are not limited to: Airborne Warning and Control System (AWACS); Modular Control Elements (MCE); Air Operations Centers (AOC); Joint Surveillance Target Attack Radar System (JSTARS); F-15 A/B/C/D/E; F-16 Block 30/40/50; F/A-22; A/OA-10; Joint Strike Fighter (JSF); Airborne Laser (ABL); B-1; B-2; B-52; F-117; RC-135; Regional/Sector Air Operations Centers (RAOC/SAOC), Command & Control Information Processing System (C2IPS); Space Based Infrared System (SBIRS); Air Support Operations Centers (ASOC); and Tactical Air Control Parties (TACPs), Theater Battle Management Core Systems (TBMCS), Contingency Automated Theater Automated Planning System (CTAPS), Combat Intelligence System (CIS), Air Defense System Integrator (ADSI), Distributed Common Ground System (DCGS), North American Aerospace Defense Command (NORAD)/United States Space Command (USSPACECOM) Warfighting Support System (N/UWSS), AWACS Digital Information Link, and Global Command and Control System (GCCS)-Air Force. 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 and Interoperable System Management and Requirements Transformation (iSMART) implementation.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program			
(U) Interoperability Certification Testing. Specific platforms will be determined based on Link 16 message implementation, software upgrade, and system modification	0.645		
(U) US Message Text Formats Management and Updates	1.603		
- Support Joint, Allied/Coalition meetings and working groups			
- Support technology maturation for joint standards and DoD policy			

Project 5049

R-1 Shopping List - Item No. 97-4 of 97-16

Exhibit R-2a (PE 0207434F)



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Exhibit R-2a, RDT&E Project Justification							DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment			PROJECT NUMBER AND TITLE 5049 JINTACCS		
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)	Tactical Data Link Management and Architecture Development.						5.176		
	- Support Tactical Data Link and VMF meetings and working groups								
	- Support implementation and interoperability engineering efforts with the F-16, B-52, B-1, B-2, F-117, and other weapon systems								
	- Support software systems engineering updates and interoperability 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								
(U)	Tactical Data Link Roadmap Requirements and Configuration Management.						1.310		
(U)	Total Cost						8.734	0.000	0.000
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
		<u>FY 2005</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>Cost to</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
(U)	AF RDT&E								
(U)	0207445F (Fighter TDL)	35.668							35.668
(U)	0207446F (Bomber TDL)	76.568							76.568
(U)	0207448F (C2ISR TDL)	24.420						Continuing	TBD
(U)	Other APPN								
(U)	Aircraft Procurement, AF (3010)								
(U)	0207434F (Link 16 Sup & Sus)	2.046						Continuing	TBD
(U)	0207445F (Fighter TDL)	95.934							95.934
(U)	0207446F (Bomber TDL)	44.245							44.245
(U)	O&M, AF (3400)								
(U)	0207434F (Link 16 Sup & Sus)	9.549						Continuing	TBD
(U)	0401839F (Airlift TDL)	0.596						Continuing	TBD
(U)	Other Procurement, AF (3080)								
(U)	0207434F (Link 16 Sup & Sus)	26.231						Continuing	TBD
(U)	<b><u>D. Acquisition Strategy</u></b>								
	As the Air Force lead agent for a jointly directed program, JINTACCS provides level of effort technical support for increasing interoperability of AF programs through message text and data link standards implementation.								
Project 5049		R-1 Shopping List - Item No. 97-5 of 97-16					Exhibit R-2a (PE 0207434F)		



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5049 JINTACCS

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
MITRE - Systems Engineering	SS/FFP	MITRE, Bedford MA		5.901	Dec-04					0.000	5.901	14.898
USMTF Standards Support	C/CPFF	B3H, Hampton VA		0.625	Dec-04					0.000	0.625	3.573
TDL Integration and Requirements	C/CPFF	Odyssey, Hampton VA		1.368	Dec-04					0.000	1.368	3.180
Subtotal Product Development			0.000	7.894		0.000		0.000		0.000	7.894	21.651
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AF Participating Test Unit (PTU)	MIPR	ACC/SC, Langley AFB VA		0.480	Jan-05					0.000	0.480	1.465
Subtotal Test & Evaluation			0.000	0.480		0.000		0.000		0.000	0.480	1.465
Remarks:												
(U) <u>Management</u>												
Program Office and Contractor Support	C/FFP	Various		0.360	Dec-04						0.360	1.084
Subtotal Management			0.000	0.360		0.000		0.000		0.000	0.360	1.084
Remarks:												
(U) Total Cost			0.000	8.734		0.000		0.000		0.000	8.734	24.200



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

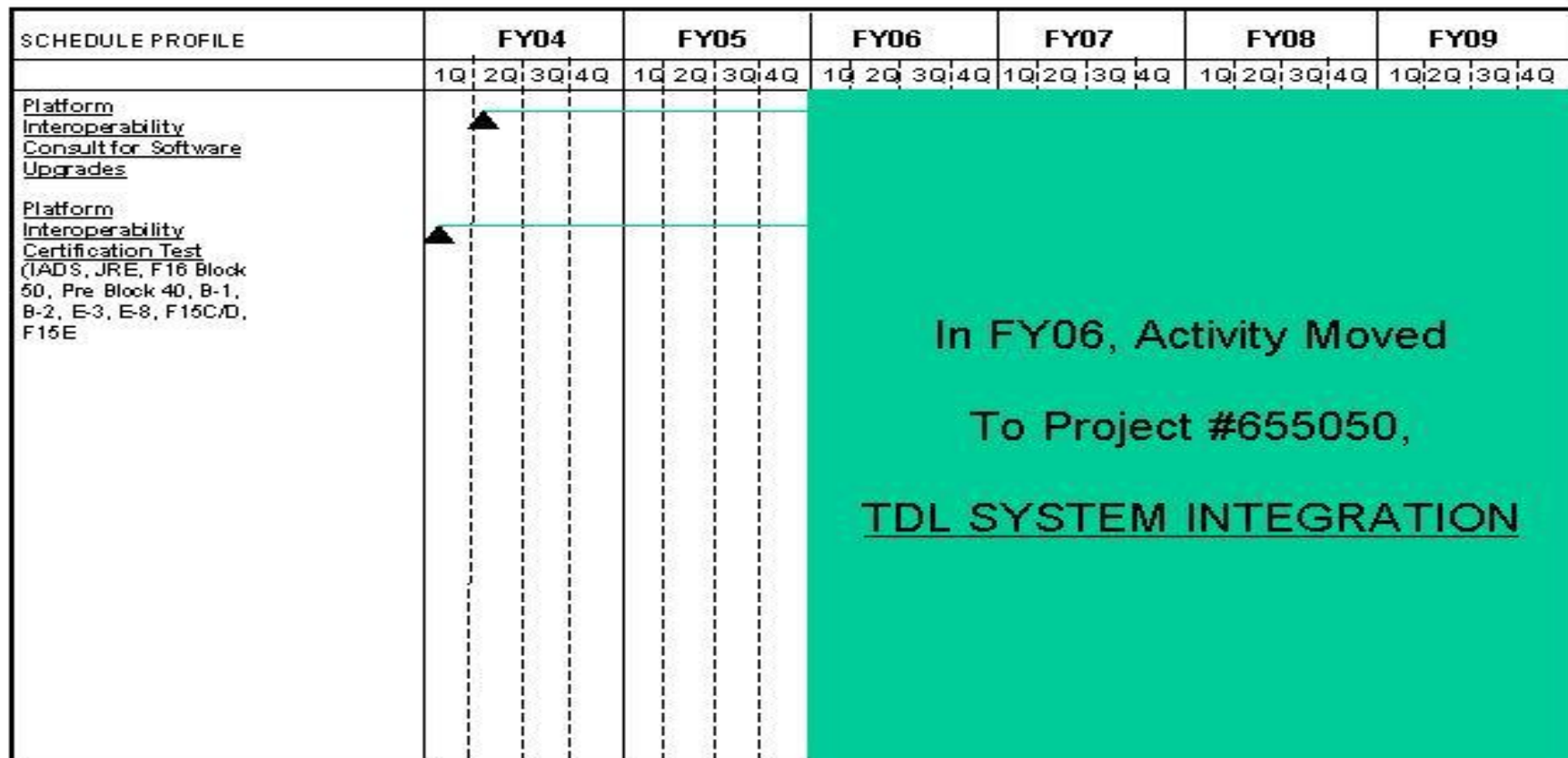
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5049 JINTACCS

**Legend**Contract Award  Development  Testing  Delivery 



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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5049 JINTACCS

(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Platform Interoperability Consultation for Software Upgrades

1-4Q

(U) Iceland Air Defense System Interoperability Tests

3Q

(U) Joint Range Extension Interoperability Tests

3Q

(U) F-16 Block 50 Interoperability Tests

1-2Q

(U) F-16 Pre-Block 40 Interoperability Tests

3-4Q

(U) B-1 Interoperability Tests

1-2Q

(U) B-2 Interoperability Tests

3-4Q

(U) E-3 AWACS Interoperability Tests

1-2Q

(U) E-8 JSTARS Interoperability Tests

3-4Q

(U) F-15C/D Interoperability Tests

1Q

(U) F-15E Interoperability Tests

2-3Q



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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**

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5050 TDL System Integration	111.899	161.345	172.625	142.449	152.320	154.994	156.665	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY06, funding for the Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program (currently residing in Project #655049) merged with Project #655050 resulting in the elimination of Project #655049.

In FY07 and out, funding for the Single Integrated Air Picture program (SIAP) (currently residing in PE 0207434F and PE 0207443F), will be moved to PE 0207451F.

(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 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) and Variable Message Format (VMF).

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/A-22, 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 Tactical Data Networks (TDN) Squadron (previously the TDL System Program Office) include, but are not limited to; enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development, Network Enhanced 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 integration of the Joint Interface Control Officer (JICO) - Support System (JSS) and TDL Gateways such as the Objective Gateway, the Joint Air Defense System Integrator (J-ADSI), 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).

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 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



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
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 activity is in Budget Activity 5 (Engineering, Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.					
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)	TDN MANAGEMENT AND INITIAL FIELDING:		15.840	21.275	24.089
	- Joint Interface Control Officer Support System (JSS): Finalizes risk reduction activities, down-selects to single development contractor, and provides development and test support of Engineering Development Models (EDM's).				
	- TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a datalink 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 OPS, and field installations. Develops Tactical Data Link architectures for implementation at USAF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports USAF and Joint TDL experiments.				
(U)	NETWORK CENTRIC TRANSFORMATION:		16.265	45.740	55.455
	- Network Centric Transformation activities include, but are not limited to: enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development, Network Enhanced Weapons (previously Weapons Data Link), Network Centric Capability Assessment, and Network Centric Transformation.				
	- 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				
(U)	GATEWAYS:		16.378	46.901	62.122
	- Efforts associated with Link 16 network management and network capability improvements--includes, but not limited to: Link 16 and other TDL Gateways and Interfaces, Near Term Gateways such as JRE, JTEP, TMPG, ADSI and Objective Gateway development.				
(U)	ROLL-ON BEYOND-LINE-OF-SIGHT ENHANCEMENT (ROBE):		8.344	2.897	0.657
	- Spiral 2 effort applied to the 40 ROBE-Spiral 1 equipped KC-135s (Group A and Group B kits). This 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.				
(U)	TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT:		7.277	17.927	19.723
	- JINTACCS Tactical Data Link Management, Architecture Development and Certification Testing.				
	- Implementation and interoperability scheduling with the F-16, B-52, B-1, B-2, F-117, and other weapon systems				
	- Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center/Control and				
Project 5050			R-1 Shopping List - Item No. 97-10 of 97-16		
			Exhibit R-2a (PE 0207434F)		



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Exhibit R-2a, RDT&E Project Justification							DATE February 2006			
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)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
	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 TDN Squadron on-line collaboration tool [Integrated Digital Environment (IDE)], coalition interoperability management, contractor support and MITRE support						10.609	9.805	10.579	
(U)	CONGRESSIONAL ADDS:						6.400	6.000		
	- Enhanced TDL and Data Display (previously Link-16 Alaska)									
	- Pocket J: A deployable Link 16 capability for temporary, austere, or remote locations.									
(U)	SINGLE INTEGRATED AIR PICTURE:						30.786	10.800		
	- AF system engineering and infrastructure cost to execute SIAP initiatives.									
(U)	Total Cost						111.899	161.345	172.625	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E									
(U)	0207445F (Fighter TDL)	35.668	119.965	113.388	81.084	38.626	34.714	0.000	Continuing	TBD
(U)	0207446F (Bomber TDL)	76.568	142.800	168.168	94.889	0.000	0.000	0.000	Continuing	TBD
(U)	0207448F (C2ISR TDL)	24.420	14.627	4.338	1.801	1.731	1.697	1.633		50.247
(U)	0401839F (Airlift TDL)	0.000	0.000	32.099	0.000	0.000	0.000	0.000		32.099
(U)	Other APPN									
(U)	Aircraft Procurement, AF (3010)									
(U)	0207423F (JTRS I&I)	0.000	0.000	0.000	19.472	26.521	66.948	42.346	Continuing	TBD
(U)	0207434F (Link 16 Sup & Sus)	2.046	2.996	2.783	0.000	9.598	9.846	9.962	Continuing	TBD
(U)	0207445F (Fighter TDL)	95.934	89.222	61.623	12.688	0.000	0.000	0.000		259.467
(U)	0207446F (Bomber TDL)	44.245	21.940	11.818	4.456	0.000	0.000	0.000		82.459
(U)	0401839F (Airlift TDL)	0.000	24.118	11.539	14.616	12.603	26.263	26.591	Continuing	TBD
(U)	O&M, AF (3400)									
(U)	0207434F (Link 16 Sup & Sus)	9.549	21.112	10.156	12.279	16.177	16.629	16.975	Continuing	TBD
(U)	0401839F (Airlift TDL)	0.596	2.731	5.708	11.783	16.499	17.178	17.271	Continuing	TBD
Project 5050		R-1 Shopping List - Item No. 97-11 of 97-16						Exhibit R-2a (PE 0207434F)		



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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

(U) Other Procurement, AF (3080)

(U) 0207434F (Link 16 Sup &amp; Sus)      26.231      42.462      30.740      12.777      8.435      8.508      8.612      Continuing      TBD

(U) **D. Acquisition Strategy**

The Air Force Tactical Data Networks 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 sole source and open competition contracts.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
-TDN Management and Initial Fielding (JSS, IFS)	Various	Various		15.840	Jun-05	21.275	Nov-05	24.089	Nov-06	Continuing	TBD	TBD
-Network Centric Transformation (CLIP, JAN-TE, NEW, NCCA, TSR, LET)	Various	Various		15.688	Mar-05	42.733	Dec-05	47.496	Dec-06	Continuing	TBD	TBD
-Gateways (OG, Global Hawk/MMP, JRE, JTEP, TPMG, ADSI, ROBE)	Various	Various		24.722	Dec-04	49.798	Dec-05	62.779	Dec-06	Continuing	TBD	TBD
-TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various	Various		7.277	Feb-05	17.927	Dec-05	19.723	Dec-06	Continuing	TBD	TBD
-TDL Acquisition Management (IDE NEXUS, Coalition Interoperability)	Various	Various		0.249	Nov-04	0.423	Nov-05	0.708	Nov-06	Continuing	TBD	TBD
-Single Integrated Air Picture (SIAP)	Various	Various		30.786	Jan-05	10.800	Dec-05	0.000		0.000	41.586	0.000
-* Enhanced TDL & Data Display (LAK)	C/CPFF	Pro-Logic, Inc., Manassas, VA		3.000	Apr-05	3.000	Feb-06			0.000	6.000	17.898
-* Pocket J	SS/TBD	Pro-Logic, Inc., Fairmont, WV		3.400	Feb-05	3.000	Feb-06			0.000	6.400	7.700
Subtotal Product Development			0.000	100.962		148.956		154.795		Continuing	TBD	TBD
Remarks:												
* Supports the Congressional Add - is a Small Business Set-Aside program award.												
(U) <u>Test &amp; Evaluation</u>												
-46th Test Squadron	MIPR	46th Test Squadron, Eglin AFB FL		0.577	Dec-04	3.007	Dec-05	7.959	Dec-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.577		3.007		7.959		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
-Program Office and Contractor Support	C/FFP	Various		10.360	Dec-04	9.382	Dec-05	9.871	Dec-06	Continuing	TBD	TBD
Subtotal Management			0.000	10.360		9.382		9.871		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	111.899		161.345		172.625		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

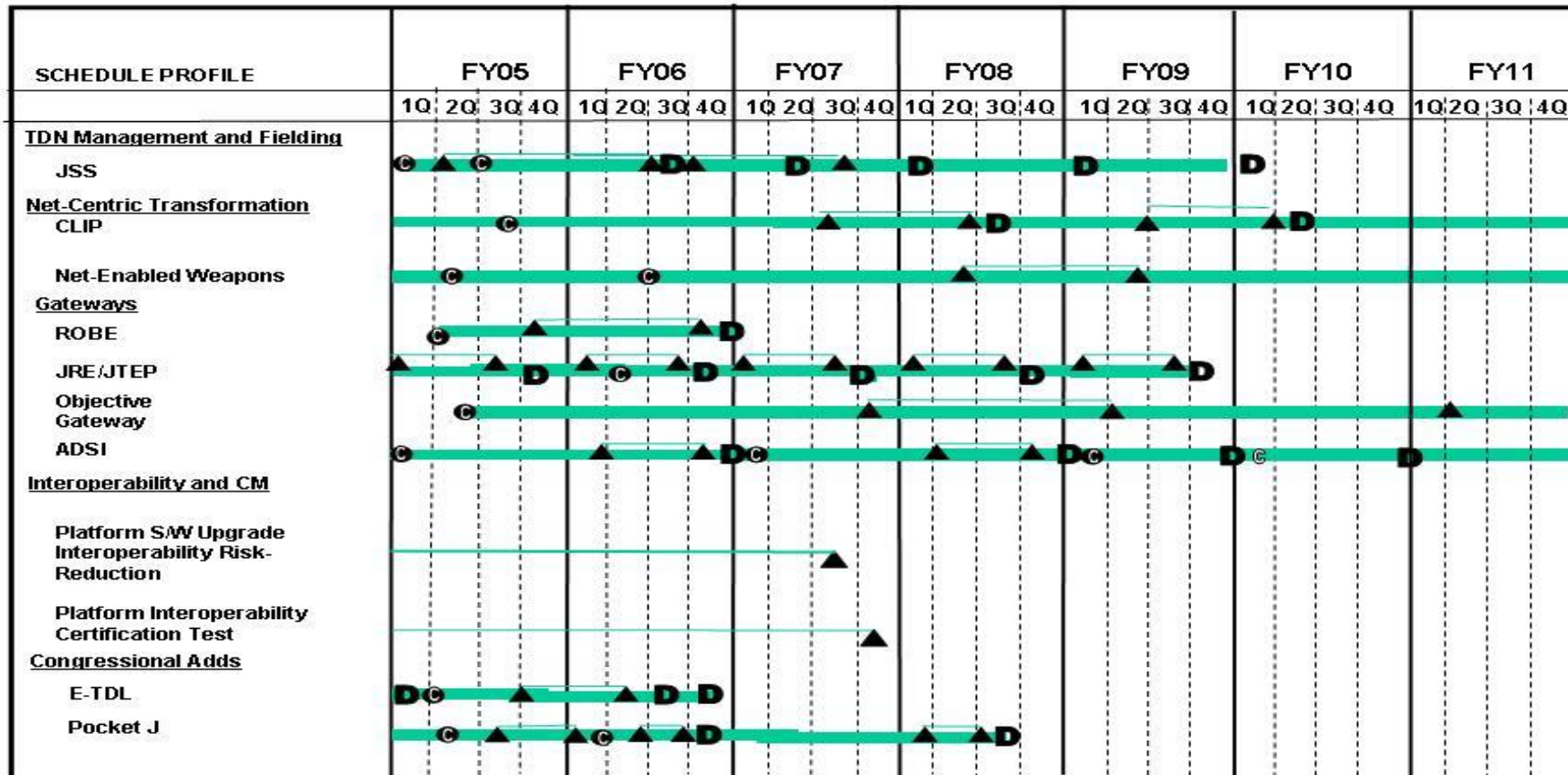
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5050 TDL System Integration

**Legend**

Contract Award   C   Development   ■   Testing   ▲   Delivery   D



## UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2006	
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		
(U) <u>Schedule Profile</u>	FY 2005	FY 2006	FY 2007	
(U) ADSI Contract Award	1Q			
(U) ADSI Development	1-4Q	1-4Q	1-4Q	
(U) ADSI Test & Certification		2-4Q		
(U) ADSI Product Delivery			1Q	
(U) ROBE Contract Award	2Q			
(U) ROBE Development	2-4Q	1-4Q		
(U) ROBE Test & Certification	4Q	1-4Q		
(U) ROBE Product Delivery			1Q	
(U) CLIP Contract Award	1Q			
(U) CLIP Development	1-4Q	1-4Q	1-4Q	
(U) CLIP Test & Certification	2-4Q	2-4Q	1-3Q	
(U) CLIP Product Delivery			4Q	
(U) E-TDL Contract Award	2Q			
(U) E-TDL Development	1-4Q			
(U) E-TDL Test & Certification	4Q			
(U) E-TDL Product Delivery	1Q			
(U) JSS Contract Award	3Q			
(U) JSS Development	1-4Q	1-4Q	1-4Q	
(U) JSS Test & Certification	1-4Q	1-4Q	1-4Q	
(U) JSS Product Delivery			2Q	
(U) JRE/JTEP Contract Award		2Q		
(U) JRE/JTEP Development	1-4Q	1-4Q	1-4Q	
(U) JRE/JTEP Test & Certification	1-3Q	2-4Q	1-3Q	
(U) JRE/JTEP Product Delivery	4Q	4Q	4Q	
(U) POCKET J Contract Award	2Q			
(U) POCKET J Development	1-4Q			
(U) POCKET J Test & Certification	3-4Q			
(U) Objective Gateway Contract Award	2Q			
(U) Objective Gateway Development	2-4Q	1-4Q	1-4Q	
(U) Objective Gateway Test & Certification		4Q		
(U) Net Enabled Weapons Contract Award	2Q			
(U) Net Enabled Weapons Development	2-4Q			
Project 5050	R-1 Shopping List - Item No. 97-15 of 97-16	Exhibit R-4a (PE 0207434F)		



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## Exhibit R-4a, RDT&amp;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) Net Enabled Weapons Test &amp; Certification

1Q

(U) Net Enabled Weapons Product Delivery

2Q



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## UNCLASSIFIED

PE NUMBER: 0207443F

PE TITLE: FAMILY OF INTEROP OPERATIONAL PIC (FIOP)

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)						
Cost (\$ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost		43.440	28.880	0.000	0.000	0.000	42.822	43.568	Continuing	TBD
5137	Family of Interoperable Operational Pictures (FIOP)	43.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	46.607
5187	Single Integrated Air Picture (SIAP)	0.000	28.880	0.000	0.000	0.000	42.822	43.568	Continuing	TBD
In FY06, Project #655137, 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.										
(U) <b><u>A. Mission Description and Budget Item Justification</u></b>										
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 (JBFSa)										
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)										
Meterology 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.										

R-1 Shopping List - Item No. 98-2 of 98-13

Exhibit R-2 (PE 0207443F)

R-1 Shopping List - Item No. 98-2 of 98-13

Exhibit R-2 (PE 0207443F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

## PE NUMBER AND TITLE

**0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)**

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	46.607	29.296	20.450
(U) Current PBR/President's Budget	43.440	28.880	0.000
(U) Total Adjustments	-3.167	-0.416	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.416	
Congressional Increases			
Reprogrammings	-1.858		
SBIR/STTR Transfer	-1.309		

(U) **Significant Program Changes:**

In FY06, Project #655137, 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.



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207443F FAMILY OF INTEROP  
OPERATIONAL PIC (FIOP)

PROJECT NUMBER AND TITLE

5137 Family of Interoperable  
Operational Pictures (FIOP)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5137 Family of Interoperable Operational Pictures (FIOP)	43.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	46.607
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2006, Project #655137, Family of Interoperable Operational Pictures was terminated. 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 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.

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

FIOP was comprised of the following six integrated product teams. They are of varying size, scope and longevity.

(1) Joint Blue Force Situational Awareness (JBFSa) - Many DoD systems provide data regarding friendly forces. There is no single system or mission application that provides a totally integrated (i.e., all blue force data) set of data to the warfighter. This task will perform the systems engineering, architecture development, and integration activities leading to a secure, web-based blue force data dissemination network service. This task is being led by the Army and is being done in coordination with the Blue Force Tracking and Single Integrated Ground Picture programs and the Joint Blue Force Situational Awareness Advanced Concept Technology Demonstration.

(2) Situational Awareness Data Interoperability - This task will allow the bidirectional sharing of data with our coalition partners through the development of a Common Operational Environment (COE)-compliant, web-based network gateway mission application and development of an Interface Control Document.

(3) Tactical Data Link Integration -Improves the integration of the multi-Tactical Data Link (TADIL) networks of the Joint Data Network (JDN) and the Global Command and Control Systems (GCCS) Family of Systems (FoS) of the Joint Planning Network (JPN). The evolving primary mechanism for supporting this type of integration is the Multi-TADIL Capability segment, which provides the ability to establish two-way interfaces between GCCS FoS and Link 11/16 (via the Air Defense Systems Integrator). The objective of this effort is to expand and strengthen this integration, with a focus on near-term delivery of warfighting capability, but is simultaneously designed to support a longer range transition to architectures that converge the JDN and JPN environments and evolve the GCCS FoS to Joint Command and Control and finally the Link processors to a converged implementation.

(4) Precision Fires Support - Ground Fires systems require accurate target coordinates. This task will provide web-based Global Positioning Systems enhanced target coordinates to those systems. This is a critical element of the DoD's efforts to reduce fratricide while increasing combat effectiveness.

(5) Network Based Services - For several FIOP tasks, an implicit requirement is that the network infrastructure can support the information being promulgated in a warfighting environment. The collective set of infrastructure components that can provide the network based services support can be referred to as the common integrated infrastructure (CII). This task includes support for the development of those CII components that will be made part of the Command and Control (C2) Enterprise and enable the use of the web-based network services that were developed for the C2 Community of Interest. The CII provides smart adaptive services that



## Exhibit R-2a, RDT&amp;E Project Justification

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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

5137 Family of Interoperable  
Operational Pictures (FIOP)

allow warfighters to rapidly access, manipulate and display trusted data in a changing environment.

(6) Web Enabled Execution Management - This task provides new, web-based tools to Operations Center personnel that are used during the execution of the battle. These tools are comprised of mission managers and task coordination managers and use the standard DoD COE set of mission applications and segments. These tools will provide greater horizontal and vertical integration of the Joint Forces Commander's decisions.

This activity is in Budget Activity 5 (System Development and Demonstration) because it supports development, integration solutions, fielding, operational support activities, and special projects.

(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)	No Activity			
(U)	Web Enabled Execution Management Spirals 4 & 5	15.660		
(U)	Situational Awareness Data Interoperability	1.410		
(U)	Network Based Services	5.047		
(U)	Precision Fires Support	4.920		
(U)	Joint Blue Force Situational Awareness	12.693		
(U)	Tactical Data Link Integration	3.710		
(U)	Total Cost	43.440	0.000	0.000

(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) AF RDT&E

(U) **D. Acquisition Strategy**

JROC-directed activity to spiral develop, integrate, and sustain web-enabled COP capabilities that are interoperable with existing Service systems by identifying execution-level requirements and candidate solutions which will be tested and then migrated to Service Systems of Record for sustainment using an acquisition strategy normally composed of pre-competed existing contracts.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0207443F FAMILY OF INTEROP  
OPERATIONAL PIC (FIOP)

## PROJECT NUMBER AND TITLE

5137 Family of Interoperable  
Operational Pictures (FIOP)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Web Enabled Execution Management</u>	Various	Various		15.660	Dec-04			0.000			15.660	14.000
Subtotal Web Enabled Execution Management			0.000	15.660		0.000		0.000		0.000	15.660	14.000
Remarks:	The WEEMC effort has been planned, programmed and budgeted in prior years in PE0207438F. This is not a New Start											
(U) <u>Tactical Data Link Integration</u>	MIPR	Various contractors managed by SPAWAR PM-157, San Diego, CA		3.710	Dec-04	0.000		0.000			3.710	3.710
Subtotal Tactical Data Link Integration			0.000	3.710		0.000		0.000		0.000	3.710	3.710
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.											
(U) <u>Situational Awareness Data Interoperability</u>	MIPR	Various contractors managed by CECOM PEO/C3T		1.410	Feb-05			0.000			1.410	1,410.000
Subtotal Situational Awareness Data Interoperability			0.000	1.410		0.000		0.000		0.000	1.410	1,410.000
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.											
(U) <u>Network Based Services</u>	Various	Various contractors managed by HQ ESC/NI-2, Hanscom AFB, MA		5.047	Jan-05			0.000			5.047	7.047
Subtotal Network Based Services			0.000	5.047		0.000		0.000		0.000	5.047	7.047
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.											
(U) <u>Joint Blue Force Situational Awareness</u>	MIPR	Various contractors managed by HQ Dept of Army/G8, Washington DC		12.693	Mar-05						12.693	13.860

Project 5137

R-1 Shopping List - Item No. 98-6 of 98-13

Exhibit R-3 (PE 0207443F)



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Exhibit R-3, RDT&E Project Cost Analysis						DATE	
						February 2006	
BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
05 System Development and Demonstration (SDD)				0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)		5137 Family of Interoperable Operational Pictures (FIOP)	
Subtotal Joint Blue Force Situational Awareness	0.000	12.693	0.000	0.000	0.000	12.693	13.860
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0603850F. This is not a new start.						
(U) <u>Precision Fires Support</u>							
	MIPR	Various contractors managed by USMC Systems Command, Quantico, VA	4.920	Jan-05		4.920	4.920
Subtotal Precision Fires Support	0.000	4.920	0.000	0.000	0.000	4.920	4.920
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.						
(U) <u>Red Force Picture Distribution</u>							
Subtotal Red Force Picture Distribution	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) <u>Targeting Interoperability</u>							
Subtotal Targeting Interoperability	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) <u>Ground Moving Target Indicators</u>							
Subtotal Ground Moving Target Indicators	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) <u>Meteorology and Oceanographic</u>							
Subtotal Meteorology and Oceanographic	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	0.000	43.440	0.000	0.000	0.000	43.440	1,453.537



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

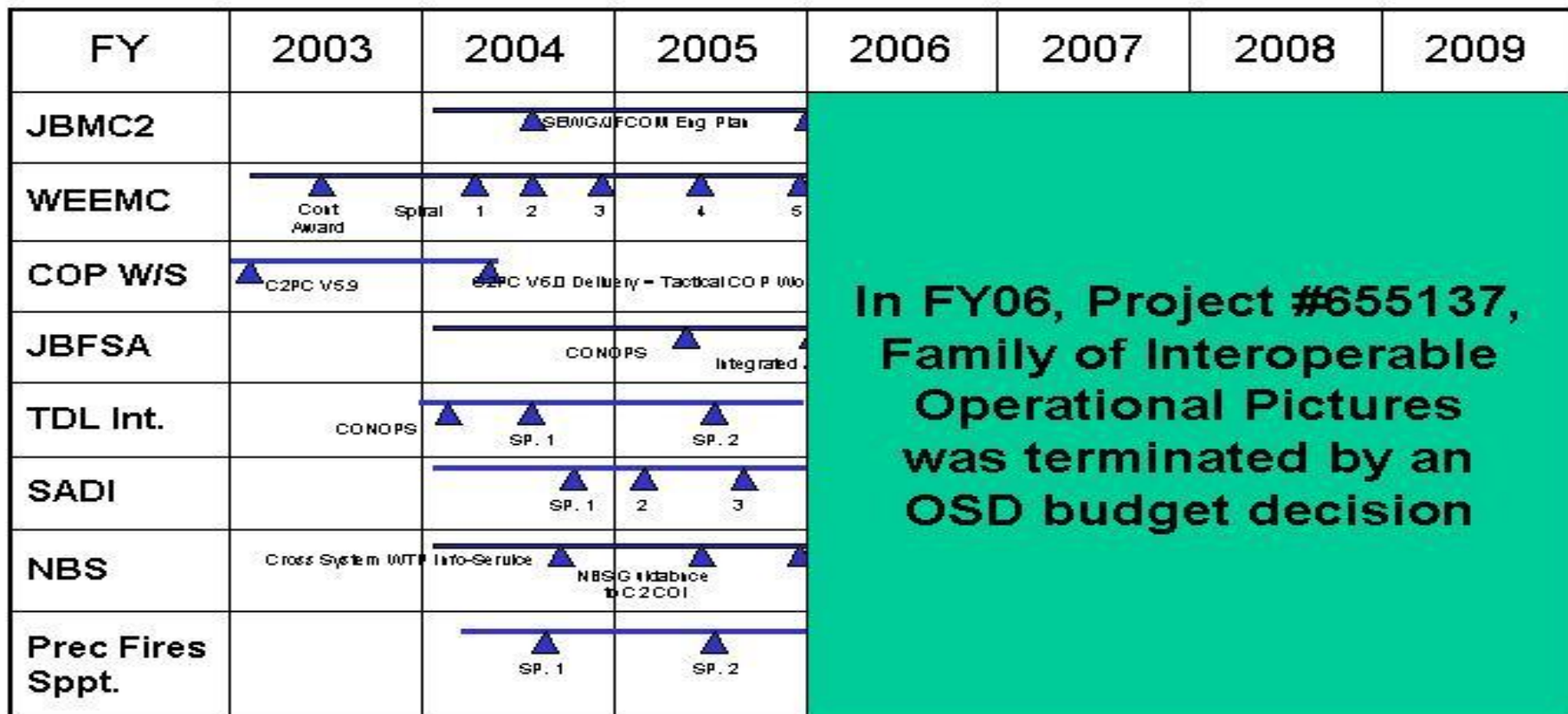
PE NUMBER AND TITLE

0207443F FAMILY OF INTEROP  
OPERATIONAL PIC (FIOP)

PROJECT NUMBER AND TITLE

5137 Family of Interoperable  
Operational Pictures (FIOP)

## FIOP Milestone Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

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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

**5137 Family of Interoperable  
Operational Pictures (FIOP)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>			
(U) WEEMC Spiral 4 Delivery	2Q		
(U) WEEMC Spiral 5 Delivery	4Q		
(U) JBMC2 - FIOP Sys. Engineering Working Group (SEWG) and JFCOM Initial Engineering Plan Completed--Updates Follow	2Q		
(U) JBMC2 - Semi Annual Architectural Updates	1&3Q		
(U) JBFSA - CONOPS Complete	2Q		
(U) JBFSA - 1st iteration of Integrated and Operational Architectures feeding into Integrated Capability Delivery	4Q		
(U) TDL Integration - Spiral 2 Delivery	3Q		
(U) SADI - Spiral 2	2Q		
(U) SADI - Spiral 3	3Q		
(U) NBS - C2 Community of Interest Guidance published	2Q		
(U) Precision Fires Suppt. - Spiral 2	3Q		



## Exhibit R-2a, RDT&amp;E Project Justification

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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)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5187 Single Integrated Air Picture (SIAP)	0.000	28.880	0.000	0.000	0.000	42.822	43.568	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Project #655187, Single Integrated Air Picture (SIAP) FY07 funding was transferred to PE 0207451F.

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

The implementation of the SIAP Block 0 (zero) consists of the implementation of three Interface Change Proposals (ICPs) [Correlation/Decorrelation, ID Taxonomy, and ID Conflict Resolution] across ten AF weapons systems. The Block 0 schedule for implementation has various completion dates across the ten weapons systems with all being completed in 2008.

The Model Driven Architecture (MDA) approach will provide enhanced interoperability by implementing Joint common Battle Management Command and Control (BMC2) functionality in weapons systems, thus enabling more accurate situational awareness, and reduced fratricide. The SIAP funding in PE 0207443F integrates the SIAP functionality into initial Air Force weapons system (e.g., E-3 AWACS, Battle Control System [BCS], RC-135V/W RIVET JOINT).

The Air Force is applying expertise in the various AF weapons System Program Offices (SPOs) to assist with defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems. This effort funds AF specific, SIAP-related engineering efforts and the independent verification/validation efforts for AF weapon system-specific models used in SIAP integration. Also, the Air Force has staff working on site with the Joint SIAP Systems Engineering Office (JSSEO) to help define and develop the functional content of the SIAP PIM scheduled for delivery 2005. BCS will be integrating on Air Force platforms September 2007.

This activity is in Budget Activity 5 (System Development and Demonstration) because it supports development, integration solutions, fielding, operational support activities, and special projects.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) BLOCK 0		6.200	
(U) MDA Integrating and Implementation		22.680	
(U) Total Cost	0.000	28.880	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E									
(U) 0207434F Link 16 Support & Sustainment	32.886	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.

Project 5187

R-1 Shopping List - Item No. 98-10 of 98-13

Exhibit R-2a (PE 0207443F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;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)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</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		Nov-06	Continuing	TBD	
MDA Integration and Implementation	TBD	TBD				14.180	Nov-05		Nov-06	Continuing	TBD	
Subtotal Product Development			0.000	0.000		23.880		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ESC	C/FFP	Titan Corp, Odyssey Consulting Group, BTAS, Inc, MITRE				5.000	Oct-05		Oct-06	Continuing	TBD	
Subtotal Support			0.000	0.000		5.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
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)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		28.880		0.000		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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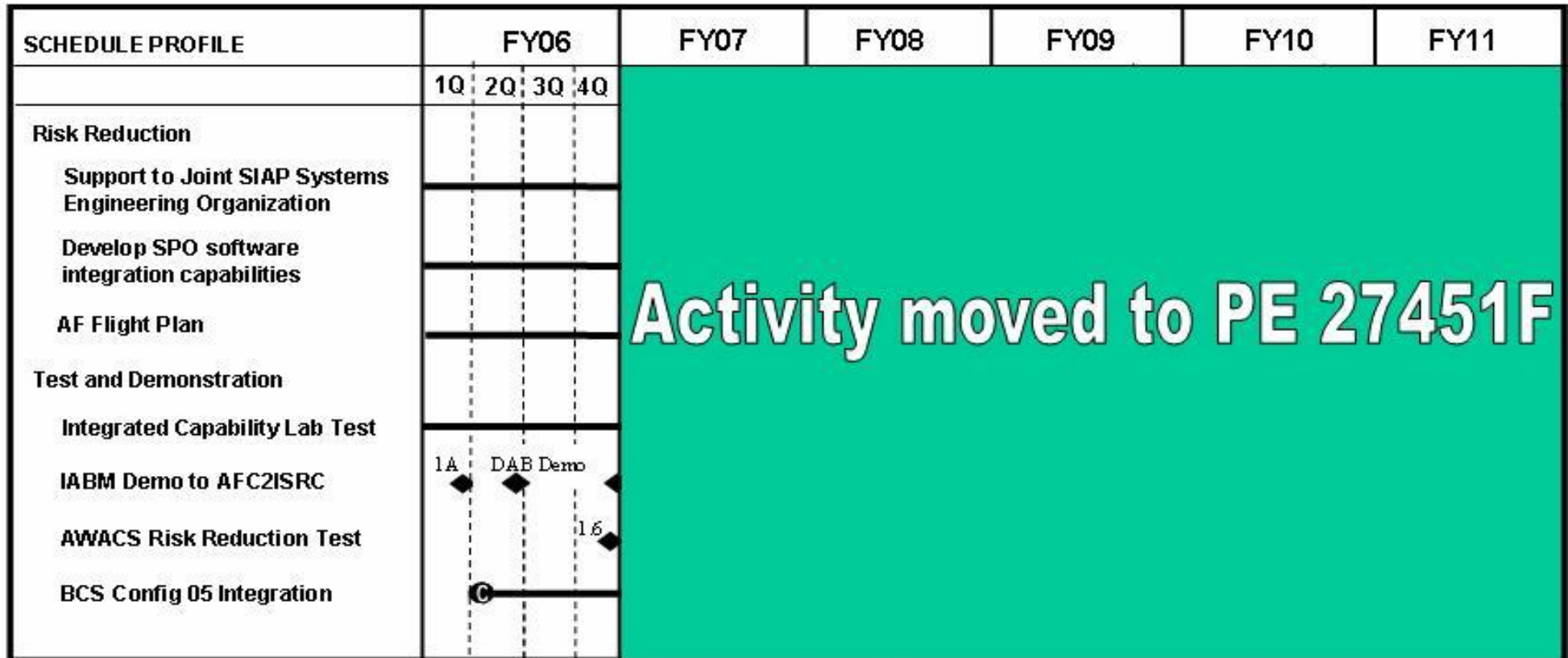
BUDGET ACTIVITY

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)**Legend**

Contract Award ● Development — End Date ◆



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

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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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Support to Joint SIAP Systems Engineering Support Office

1-4Q

1-4Q

(U) Develop SPO software integration capabilities

1-4Q

1-4Q

(U) AF SIAP Flight Plan

1-4Q

1-4Q

(U) Integrated Capability Lab Test

1-4Q

1-4Q

(U) IABM Demo to Air Force C2ISR Center

1-3Q

(U) E-10/SIAP Prototype Lab Demo

4Q

1-3Q

(U) AWACS Risk Reduction Test

1-4Q

1-4Q

(U) BCS Config 05 Integration

4Q

1-3Q



## UNCLASSIFIED

PE NUMBER: 0207450F  
PE TITLE: E-10 Squadrons

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207450F E-10 Squadrons					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	390.957	391.006	390.896	593.319	453.212	372.668	142.421	Continuing	TBD
5131 Airframe	198.394	246.663	205.492	424.185	328.803	275.534	123.127	Continuing	TBD
5132 Sensors	192.563	144.343	185.404	169.134	124.409	97.134	19.294	Continuing	TBD

(U) 1. In FY 2006, this PE was renamed E-10 Squadrons (formerly Multi-sensor Command and Control Aircraft [MC2A]). The name was changed to directly associate the PE title with the E-10A, the approved Mission Design Series (MDS) designation for the MC2A.

(U) 2. In FY 2006, Project Number 5131, MC2A Airframe, was changed to Airframe since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.

(U) 3. In FY 2006, Project Number 5132, MC2A Sensors, was changed to Sensors since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.

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

The E-10 is 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 will employ 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 will interface with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 will enable the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result is 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, will deliver 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 will deliver 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 are envisioned to incorporate sensor fusion, advanced battle management functions, UAV control, space radar integration and laser communications, while future E-10 increments are envisioned to incorporate advanced sensors for air surveillance operations.

The MP-RTIP program will also provide a radar for a robust Global Hawk reconnaissance capability. It also continues 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 the Pre-SDD, or Technology Development, phase with the testbed aircraft supporting flight test for the MP-RTIP SDD program.

R-1 Shopping List - Item No. 99-1 of 99-13

Exhibit R-2 (PE 0207450F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	419.006	397.011	389.245
(U) Current PBR/President's Budget	390.957	391.006	390.896
(U) Total Adjustments	-28.049	-6.005	
(U) Congressional Program Reductions	-0.541	-0.348	
Congressional Rescissions		-5.657	
Congressional Increases			
Reprogrammings	-15.979		
SBIR/STTR Transfer	-11.529		

(U) **Significant Program Changes:**

(1) FY 2005 Reprogrammings include \$6.056M for Omnibus as well as \$9.923M for higher Department priorities.

(2) The current E-10 program has been restructured as a Technology Development (pre-SDD) program anticipating a Milestone B decision in FY11 followed by a weapon system SDD phase and subsequent production phase. There has been no change to the current RDT&E effort leading to a Milestone B. Future programmatic and funding decisions are under Department consideration.



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>								DATE <b>February 2006</b>	
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5131 Airframe</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5131 Airframe	198.394	246.663	205.492	424.185	328.803	275.534	123.127	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	1		

(U) 1. In FY 2006, this PE was renamed E-10 Squadrons (formerly Multi-sensor Command and Control Aircraft [MC2A]). The name was change to directly associate the PE title with the E-10A, the approved Mission Design Series (MDS) designation for the MC2A.

(U) 2. In FY 2006, Project Number 5131, MC2A Airframe, was changed to Airframe since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.

(U) 3. FYDP RDT&E Article Deliveries:  
FY 2011: 1 E-10A Testbed Aircraft (Commercial 767-400ER delivered in FY 2008 for modification to testbed configuration)

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

This project is 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 is 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 will employ 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 will interface with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 will enable the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result is 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, will deliver 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 will deliver 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 are envisioned to incorporate sensor fusion, advanced battle management functions, UAV control, space radar integration and laser communications, while future E-10 increments are envisioned to incorporate advanced sensors for air surveillance operations.

The E-10 technology development program's primary objectives are 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. After successfully completing the technology development phase, the program anticipates a Milestone B in FY11 followed by a System Development and Demonstration (SDD) phase and a Production phase.

Funds in this project will be 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, develop, and modify the "green"commercial 767-400ER platform to provide the technology testbed, (3)



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0207450F E-10 Squadrons

## PROJECT NUMBER AND TITLE

5131 Airframe

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 for the E-10A, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities.

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>B. Accomplishments/Planned Program (\$ in Millions)</b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)	Continue 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	150.935	157.950	146.036
(U)	Continue incremental funding of a 767-400ER testbed	10.000	30.000	25.000
(U)	Purchase MP-RTIP Lab/Test Hardware (Development Unit) materials	14.361	23.639	0.000
(U)	Continue systems engineering and design activities	20.374	31.295	29.238
(U)	Continue 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))	1.415	1.008	2.468
(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.	0.189	0.520	0.540
(U)	Continue program office operations effort	1.120	2.251	2.210
(U)	Total Cost	198.394	246.663	205.492

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207450F Project 5132 (Sensors)	192.563	144.343	185.404	169.134	124.409	97.134	19.294	Continuing	TBD

(U) **D. Acquisition Strategy**

OSD directed a restructure of the E-10A program in FY06. The overall acquisition strategy is based upon evolutionary acquisition. The E-10A Increment 1 capability will deliver the core capability to perform focused AMTI for CMD and GMTI/SAR for surface surveillance, including data processing and advanced communications links. Future spirals will be incorporated as funding and technology allow.



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## Exhibit R-2a, RDT&amp;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**

The proposed acquisition strategy focuses 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 will allow entry into a low-risk SDD phase for the E-10 Weapon System. Follow on funding for SDD and production is under Department consideration.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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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>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>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		150.935	Oct-04	157.950	Dec-05	146.036	Oct-06	Continuing	TBD	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA		10.000	Oct-04	30.000	Oct-05	25.000	Oct-06	Continuing	TBD	TBD
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA		14.361	Feb-05	23.639	Jan-06	0.000	Nov-06	Continuing	TBD	TBD
Systems Engineering	Various	Various		11.152	Oct-04	22.327	Nov-05	19.616	Oct-06	Continuing	TBD	TBD
Future Studies/Spiral Development	Various	Various		0.189	Jun-05	0.520	Jan-06	0.540	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	186.637		234.436		191.192		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC	AF Form 616	Various		0.155	Dec-04	0.000	Dec-05	0.837	Dec-06	Continuing	TBD	TBD
Joint Test Force (JTF)	Various	Various		0.985	Dec-04	0.721	Dec-05	0.938	Dec-06	Continuing	TBD	TBD
Operator-In-The-Loop (OITL)	MIPR	Hanscom AFB, MA		0.217	Apr-05	0.228	Jan-06	0.574	Dec-06	Continuing	TBD	TBD
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA		0.058	Jan-05	0.059	Jan-06	0.119	Dec-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	1.415		1.008		2.468		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Office Support	Various	Various		1.120	Oct-04	2.251	Dec-05	2.210	Oct-06	Continuing	TBD	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA		9.222	Oct-04	8.968	Nov-05	9.622	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	10.342		11.219		11.832		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	198.394		246.663		205.492		Continuing	TBD	TBD
Remarks: FY2003 and FY2004 reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe).												



## Exhibit R-4, RDT&amp;E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

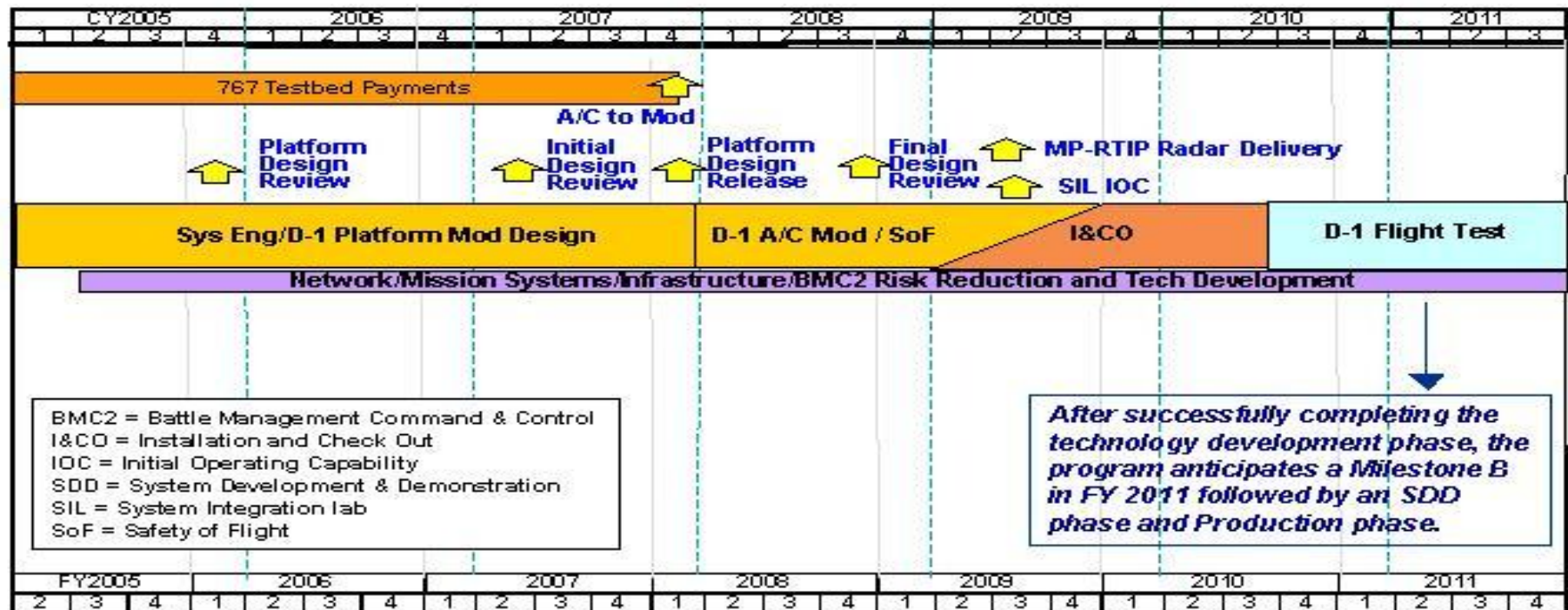
PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

# E-10A Program Pre-SDD – Technology Development





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;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) Schedule ProfileFY 2005FY 2006FY 2007

(U) System Engineering/D-1 Platform Modification Design

1-4Q

1-4Q

1-4Q

(U) Network/Mission Systems/Infrastructure/BMC2 Risk Reduction and Technology Development

3-4Q

1-4Q

1-4Q

(U) Platform Design Review

1Q

(U) Testbed Initial Design Review (IDR)

2Q



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## Exhibit R-2a, RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5132 Sensors	192.563	144.343	185.404	169.134	124.409	97.134	19.294	Continuing	TBD
Quantity of RDT&E Articles	0	1	1	1	1	1	0		

(U) 1. In FY 2006, this PE was renamed E-10 Squadrons (formerly Multi-sensor Command and Control Aircraft [MC2A]). The name was changed to directly associate the PE title with the E-10A, the approved Mission Design Series (MDS) designation for MC2A.

(U) 2. In FY 2006, Project 5132, MC2A Sensors, was changed to Sensors since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.

(U) 3. 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 2008: 1 GH DU radar for radar lab mode checkout and troubleshooting

FY 2009: 1 Wide Area Surveillance (WAS) DU radar for System Integration Lab (SIL), concurrent mode development, testbed/flight test

FY 2010: 1 WAS DU radar for SIL

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

This project is 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) radar, a modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radar, 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. MP-RTIP will deliver a "large sensor" variant for the E-10A aircraft, and a "small sensor" variant for the Global Hawk.

Funds in this project will be used for the development, fabrication, and test of the MP-RTIP family of scaleable radars on the various platforms (E-10A and Global Hawk). 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue MP-RTIP design and development of radars for integration on the E-10A and Global Hawk target platforms	190.933	141.429	183.473
(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	0.191	0.500	0.350



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## Exhibit R-2a, RDT&amp;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

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

CONOPS.

(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification &amp; Validation [IV&amp;V])

1.164

2.122

1.285

(U) Continue program office operations

0.275

0.292

0.296

(U) Total Cost

192.563

144.343

185.404

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) AF RDT&amp;E

(U) PE 0207450F Project 5131 (E-10 Airframe)

198.394

246.663

205.492

424.185

328.803

275.534

123.127

Continuing

TBD

(U) PE0305220F Project 5144

(Global Hawk MP-RTIP Sensor)

33.200

17.600

7.684

0.000

0.000

0.000

0.000

Continuing

TBD

(U) **D. Acquisition Strategy**

The MP-RTIP program supports the evolutionary acquisition of the E-10A and Global Hawk by providing sensors for Increment 1 of the E-10A and Spiral 4 of the Global Hawk. The MP-RTIP program currently plans to provide 2 WAS and 3 GH RDT&E sensors. The production funds within the respective Global Hawk and E-10A programs will fund production MP-RTIP sensors for their respective operational platforms.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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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

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop-Gru mman Corporation; El Segundo, CA		186.810	Nov-04	137.586	Jan-06	179.881	Nov-06	Continuing	TBD	TBD
Future Studies/Spiral Development	Various	TBD		0.191	Jun-05	0.500	Jan-06	0.350	Nov-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	187.001		138.086		180.231		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> JTF Support	SS/T&M	Titan Systems Corporation; Melbourne, FL		0.614	Dec-04	1.237	Jan-06	0.707	Dec-06	Continuing	TBD	TBD
Test Support (AFOTEC, IV&V)	MIPR	Various		0.550	Jul-05	0.885	Jan-06	0.578	Oct-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	1.164		2.122		1.285		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Program Office Support	Various	Various		0.275	Oct-04	0.292	Jan-06	0.296	Oct-06	Continuing	TBD	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Hanscom AFB, MA		4.123	Oct-04	3.843	Dec-05	3.592	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	4.398		4.135		3.888		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	192.563		144.343		185.404		Continuing	TBD	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&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

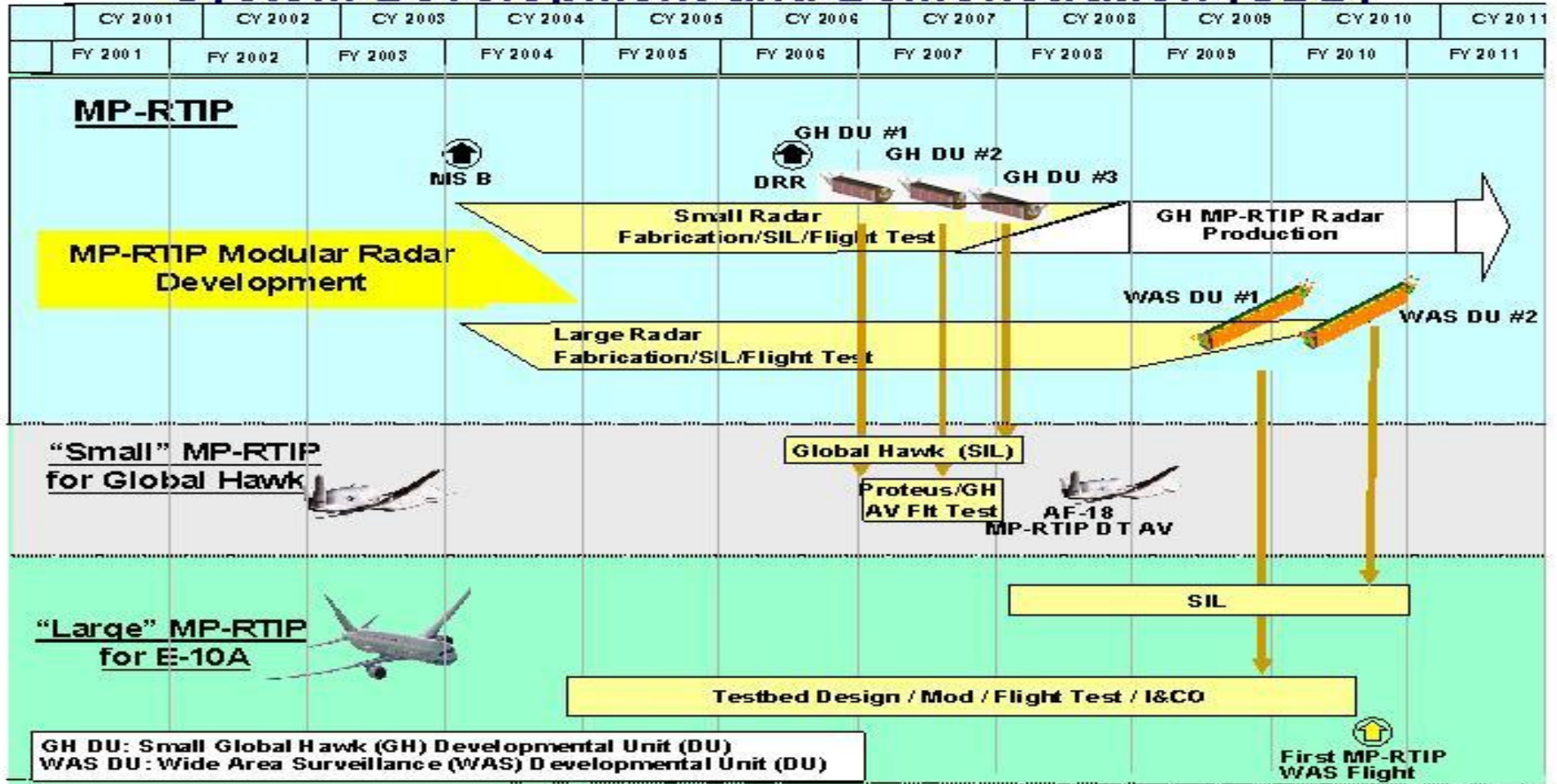
PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5132 Sensors

## MP-RTIP Program System Development and Demonstration (SDD)





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5132 Sensors

(U) <u>Schedule Profile</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) SMALL RADAR (GLOBAL HAWK) DEVELOPMENT	1-4Q	1-4Q	1-4Q
(U) GLOBAL HAWK (GH) DEVELOPMENT UNIT (DU) #1 BUILD	1-4Q	1-4Q	
(U) GH DU #2 BUILD	3-4Q	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
(U) GH DU # 2 FLIGHT TEST (ON PROTEUS SURROGATE)			2-4Q
(U) LARGE RADAR (WAS) DEVELOPMENT	1-4Q	1-4Q	1-4Q
(U) WAS DU #1 BUILD		2-4Q	1-4Q
(U) DESIGN READINESS REVIEW		3Q	



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## UNCLASSIFIED

PE NUMBER: 0207451F

PE TITLE: Single Integrated Air Picture (SIAP)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0207451F Single Integrated Air Picture (SIAP)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	40.124	13.162	0.102	0.000	0.000	0.000	0.000
5232 Single Integrated Air Picture (SIAP)	0.000	0.000	40.124	13.162	0.102	0.000	0.000	0.000	0.000

In FY07, this is a new PE. All Single Integrated Air Picture (SIAP) funds from PE 0207443F Project #655187 and PE 0207434F Project #655050 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 Block 0 (zero) consists of implementing four Interface Change Proposals (ICPs) [Correlation/Decorrelation, ID Taxonomy, ID Conflict Resolution, and Strength Track Reporting] across specific AF Intelligence, Surveillance, and Reconnaissance (ISR) weapons systems. The Block 0 schedule for implementation has various completion dates depending upon weapon system.
- The next phase of SIAP consists of the development and implementation of a software Model Driven Architecture (MDA). 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. The SIAP funding in PE 0207451F develops, tests, and integrates the SIAP functionality into initial Air Force weapon systems to include but not limited to the E-3 AWACS, Battle Control System, and RC-135V/W Rivet Joint.
- 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 and the independent verification/validation efforts for AF weapon system-specific models used in SIAP integration. Also, the Air Force has staff that works directly with the Joint SIAP Systems Engineering Office (JSSEO) 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&amp;E Budget Item Justification

DATE

February 2006

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	40.124
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions		0.000	
Congressional Rescissions		0.000	
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 #655187 and PE 0207434F Project #655050 were transferred to consolidate Air Force SIAP funds.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5232 Single Integrated Air Picture (SIAP)	0.000	0.000	40.124	13.162	0.102	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY07 this is a new PE. All Single Integrated Air Picture (funds) from PE 0207443F Project #655187 and PE 0207434F Project #655050 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.

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- 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 and the independent verification/validation efforts for AF weapon system-specific models used in SIAP integration. Also, the Air Force has staff that works directly with the Joint SIAP Systems Engineering Office (JSSEO) 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MDA PSM Development			8.968
(U) MDA Integration and Implementation			15.546
(U) MDA Demonstration			2.500
(U) Integration Resource Center			3.500
(U) MDA Verification and Validation			2.703

Project 5232

R-1 Shopping List - Item No. 100-4 of 100-8

Exhibit R-2a (PE 0207451F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2005FY 2006FY 2007

(U) Engineering Support

6.907

(U) Total Cost

0.000

0.000

40.124

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) RDT&amp;E

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

(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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Integration Resource Center	CPFF	BAE Systems Inc, Arlington VA						3.500	Nov-06	Continuing	TBD	TBD
MDA PSM Development	CPIF	Boeing Co., Seattle WA						8.968	Nov-06	Continuing	TBD	TBD
MDA Integration and Implementation	CPIF	Thales-Raythe on Systems, Fullerton CA						15.546	Nov-06	Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	0.000		0.000		28.014		Continuing	TBD	TBD
(U) <u>Support</u> ESC Engineering Support	CP/FFFP	Titan Corp, Odyssey Consulting Group, BTAS Inc, MITRE						6.907	Oct-06	Continuing	TBD	TBD
Subtotal Support Remarks:			0.000	0.000		0.000		6.907		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u> MDA Demonstration	TBD	TBD						2.500	Jan-07	Continuing	TBD	TBD
MDA Verification and Validation	TBD	TBD						2.703	Jan-07	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		5.203		Continuing	TBD	TBD
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.000		0.000		40.124		Continuing	TBD	TBD



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

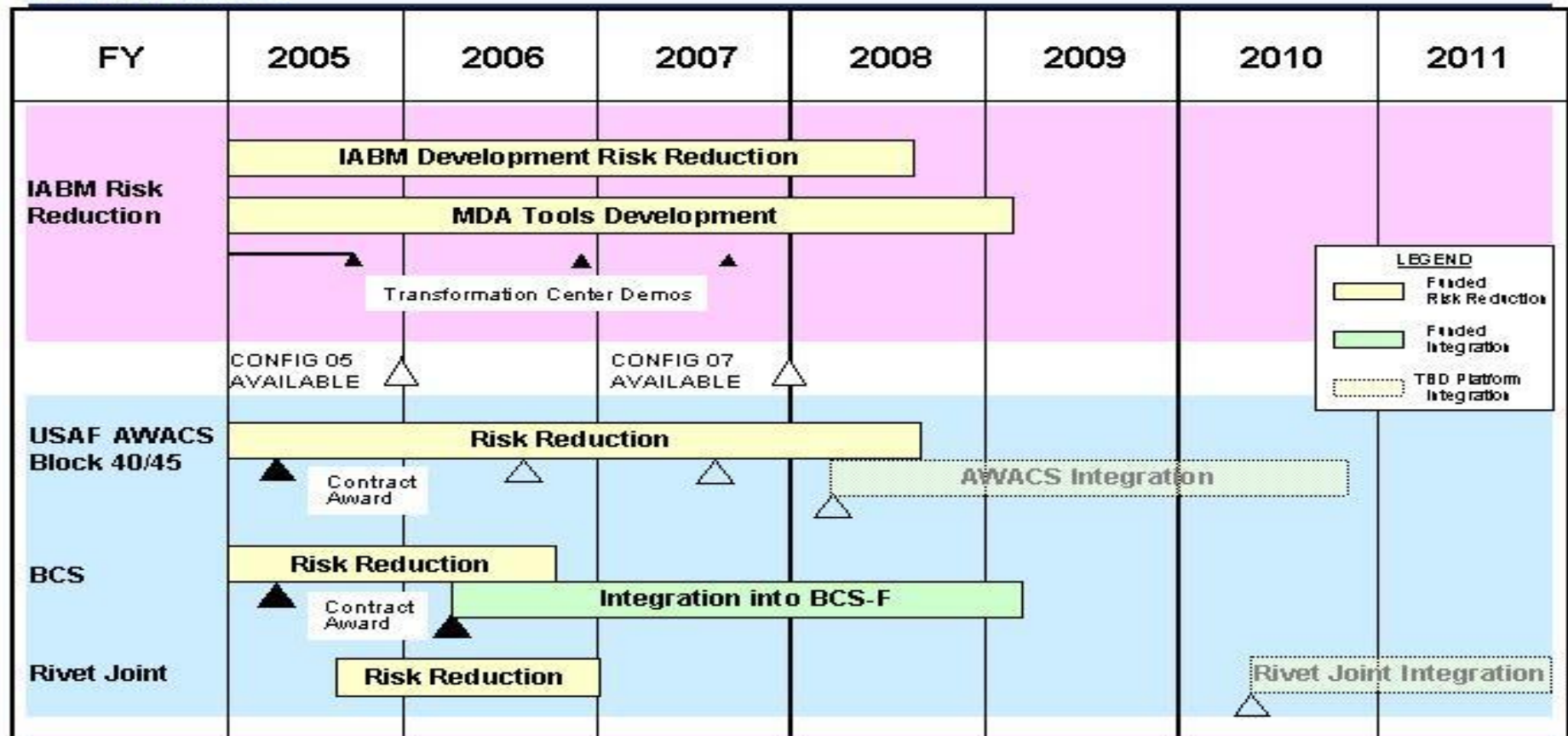
0207451F Single Integrated Air  
Picture (SIAP)

PROJECT NUMBER AND TITLE

5232 Single Integrated Air Picture  
(SIAP)

U.S. AIR FORCE

# Single Integrated Air Picture (SIAP) Schedule



As of 12 January 06



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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 ProfileFY 2005FY 2006FY 2007

(U) MDA Tools Development (Software Integration Tools)

1-4Q

1-4Q

1-4Q

(U) Transformation Center Demo

3Q

4Q

3Q

(U) IABM Config 05 Release

4Q

(U) AWACS Risk Reduction

1-4Q

1-4Q

1-4Q

(U) BCS Risk Reduction

1-4Q

1-3Q

(U) BCS IABM Integration

2-4Q

1-4Q

(U) Rivet Joint Risk Reduction

3-4Q

1-4Q



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## UNCLASSIFIED

PE NUMBER: 0207701F

PE TITLE: Full Combat Mission Training

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

## 0207701F Full Combat Mission Training

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.756	26.046	32.243	35.768	15.340	19.038	22.631	Continuing	TBD
4673 Distributed Mission Training (DMT)	0.000	19.310	24.412	29.138	9.240	12.844	16.399	Continuing	TBD
5012 Full Combat Mission Training	9.756	6.736	7.831	6.630	6.100	6.194	6.232	Continuing	TBD

(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 C2 and ISR systems.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	5.894	26.423	20.432
(U) Current PBR/President's Budget	9.756	26.046	32.243
(U) Total Adjustments	3.862	-0.377	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.103	-0.377	
Congressional Increases	4.900		
Reprogrammings	-0.800		
SBIR/STTR Transfer	-0.135		

(U) **Significant Program Changes:**

## FY 05 Funding:

- Increased by Congressional Add for ANG F-16 Block 30 MTCs
- Decreased by Congressional Rescissions, SBIR, And below threshold reprogramming

## FY 06 Funding

- Decreased by Congressional Reduction

## FY 07 Funding

- AF increase to fully fund F-22 integration and required Multi-Level Security efforts



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## 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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4673 Distributed Mission Training (DMT)	0.000	19.310	24.412	29.138	9.240	12.844	16.399	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(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 C2 and 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues	0.000	0.110	6.791
(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])		0.400	1.321
(U) Research and development to provide for the DMO integration of F-22 high-fidelity flight trainers.		18.800	16.300
(U) Total Cost	0.000	19.310	24.412

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 0207701, Full Combat Mission Training, Aircraft Procurement, AF	0.000	0.000	10.598	80.632	37.520	19.038	33.245	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, other Procurement, AF	0.000	0.000	0.000	8.305	0.000	4.631	4.615	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



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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>	PROJECT NUMBER AND TITLE <b>4673 Distributed Mission Training (DMT)</b>
<p>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 where current quantities are inadequate to meet training requirements</p>		
<p>Project 4673</p>		



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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)

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Training System Product Group		Training Systems Product Group, AFMC, Wright Patterson AFB, OH		0.000		0.510		8.112		Continuing	TBD	
F-22 System Program Office		F-22 System Program Office, AFMC, Wright Patterson AFB, OH				18.800		16.300		Continuing	TBD	
Subtotal Product Development Remarks:			0.000	0.000		19.310		24.412		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
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation Remarks:			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
(U) Total Cost			0.000	0.000		19.310		24.412		Continuing	TBD	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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)(U) Schedule ProfileFY 2005FY 2006FY 2007

(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



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>			PROJECT NUMBER AND TITLE <b>5012 Full Combat Mission Training</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5012 Full Combat Mission Training	9.756	6.736	7.831	6.630	6.100	6.194	6.232	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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. In addition FCMT provides Mission Essential Competency studies and contract administration for new systems that support the initial CAF DMO capability</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>							<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development, demonstration and insertion of multi-level security capability									
(U) Continue development, demonstration, studies and insertion of DMO related technologies and proficiency based continuation training strategies. Includes but not limited to common databases, improved image generation fidelity, enhanced Brief/Debrief capabilities, Mission Essential Competencies, multi-level security							0.328	1.530	2.536
(U) RDT&E for the development of a F-16 DMO capable trainer for the Air National Guard (FY 05 Congressional Add)							4.900		
(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							0.801	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							0.801	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							0.800	1.000	1.000
(U) Continue Program office support							2.126	2.206	2.295
(U) Total Cost							9.756	6.736	7.831
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0207701, Full Combat Mission Training, O & M, AF	117.377	181.891	197.966	220.441	211.343	218.261	219.994	Continuing	TBD
(U) <b><u>D. Acquisition Strategy</u></b>									
Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business case									



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>	PROJECT NUMBER AND TITLE <b>5012 Full Combat Mission Training</b>
<p>considerations 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 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</p>		
Project 5012	R-1 Shopping List - Item No. 101-9 of 101-12	Exhibit R-2a (PE 0207701F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</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) <u>Product Development</u> - ASC, Training Products Systems Group - AFRL Human Effectiveness Directorate, Warfighter Training Division		- Training Systems Product Group, AFMC, Wright Patterson AFB, OH - AFRL/HEA, Mesa, AZ		5.228		1.530		2.536		Continuing	TBD	
Subtotal Product Development Remarks:			0.000	5.228		1.530		2.536		Continuing	TBD	0.000
(U) <u>Support</u> - Air Force Research Lab Human Effectiveness Directorate		AFRL/HEA, Mesa, AZ 505 DWG, Kirtland AFB, NM		2.402		3.000		3.000		Continuing	TBD	
Subtotal Support Remarks:			0.000	2.402		3.000		3.000		Continuing	TBD	0.000
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Program Office Support		Training Systems Product Group, AFMC, Wright Patterson AFB, OH		2.126		2.206		2.295		Continuing	TBD	
Subtotal Management Remarks:			0.000	2.126		2.206		2.295		Continuing	TBD	0.000
(U)												
Subtotal Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	9.756		6.736		7.831		Continuing	TBD	0.000

Project 5012

R-1 Shopping List - Item No. 101-10 of 101-12

Exhibit R-3 (PE 0207701F)



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

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

## Exhibit R-4: BPAC 5012 Full Combat 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
AWACS Tinker #2	▲																							
F-16: 2 Ship, Mt Home		▲																						
F-16: 4 Ship, Spangdahlem			▲																					
F-15C: 4 Ship, Kadena							▲																	
F-16: 4 Ship, Misawa							▲																	
AWACS, Kadena							▲																	
AWACS: Tinker #3								▲																
F-15C Lakenheath										▲														
F-15E Mt. Home												▲												
F-15E Seymour Johnson														▲										
F-15E Lakenheath																▲								
F-15E TBD																								



Start of Service



Scheduled Start of Service; Letter of Intent issued to Contractor



Scheduled Start of Service; Letter of Intent not yet issued to Contractor

**Note:** A number of factors including contract issues, facility availability, multiple level security and others preclude the development of a firm schedule for Start of Service of additional sites beyond FY 07.



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) F-15C Operations begin: Kadena

3Q

(U) F-16 4-ship operations begin: Misawa

3Q

(U) AWACS operations begin: Kadena

3Q

(U) AWACS Operations begin: Tinker #3

4Q

(U) F-15C 2-ship operations begin: Lakenheath

2Q

(U) F-15E 2-ship operations begin: Mt. Home

4Q

(U) F-15E 2-ship operations begin: Seymour Johnson

2Q

(U) F-15E 2-ship operations begin: Lakenheath

4Q

(U) F-15E 2-ship operations begin: TBD

4Q



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## UNCLASSIFIED

PE NUMBER: 0305176F

PE TITLE: Combat Survivor Evader Locator

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0305176F Combat Survivor Evader Locator

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	17.250	0.000	0.000	0.000	0.000	0.000	0.000	130.341
4522 CSAR EMD	0.000	17.250	0.000	0.000	0.000	0.000	0.000	0.000	130.341

FY06 Funding is congressionally directed new start.

(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 survivor 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 approved in February 2000. Block 1 meets threshold requirements. Congressional reprogramming in FY06 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	17.250	0.000
(U) Total Adjustments	0.000	17.250	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.250	
Congressional Increases		17.500	
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY06 funding congressionally directed new start for TAC/TAG			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4522 CSAR EMD	0.000	17.250	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		

(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 survivor 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 approved in February 2000. Block 1 meets threshold requirements. Congressional reprogramming in FY06 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) CSEL Engineering and Manufacturing Development		14.557	
(U) Government Test and Operational Assessment		1.948	
(U) Other Government Support		0.745	
(U) Total Cost	0.000	17.250	0.000

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 35176F, Other Procurement, Air Force - WSC 837170 (Budget Activity 3)	13.871	7.109	27.225	27.018	27.244	27.894	28.324	0.000	158.685

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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Boeing	CPAF	Anaheim, CA	87.623			14.557	Mar-06			0.000	102.180	
SMC (COBRA)	Multiple	Multiple	4.000							0.000	4.000	
Subtotal Product Development			91.623	0.000		14.557		0.000		0.000	106.180	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	Mar-06			0.000	3.153	
FFRDC (MITRE/Aerospace)	CPAF	Multiple	6.488			0.295	Mar-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	Apr-06			0.000	1.101	
Subtotal Support			15.158	0.000		0.745		0.000		0.000	15.903	0.000
Remarks:												
(U) <u>Test &amp; 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	Jun-06				1.346	
SMC Test Support	CPAF	Los Angeles AFB, CA	0.000			0.452	Mar-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. Huachuca, AZ	2.284							0.000	2.284	
JITC	MIPR	Multiple	1.040			0.150	Mar-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	

Project 4522

R-1 Shopping List - Item No. 102-4 of 102-7

Exhibit R-3 (PE 0305176F)



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0305176F Combat Survivor Evader  
Locator

PROJECT NUMBER AND TITLE

4522 CSAR EMD

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	0.000	1.948	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
Remarks:									
(U) Total Cost			113.091	0.000	17.250	0.000	0.000	130.341	0.000



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

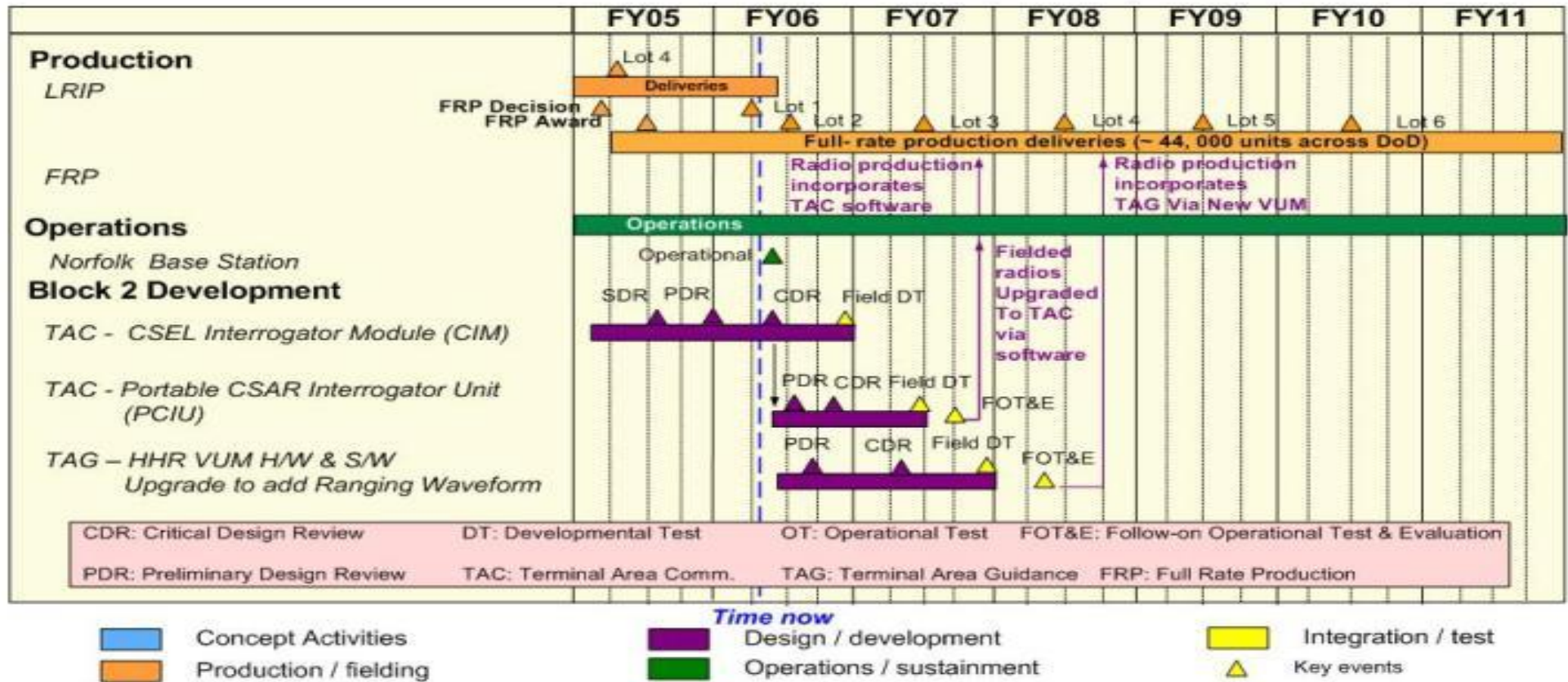
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0305176F Combat Survivor Evader  
Locator

PROJECT NUMBER AND TITLE

4522 CSAR EMD





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2006

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) Schedule ProfileFY 2005FY 2006FY 2007

(U) Full Rate Production Decision

1Q

(U) Full Rate Production Award

2Q

(U) LRIP Lot 4 Delivery Completion

1Q

(U) TAC CSEL Interrogator Module PDR

4Q

(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&amp;E

4Q



## UNCLASSIFIED

PE NUMBER: 0401318F  
PE TITLE: CV-22

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0401318F CV-22</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	14.175	39.955	26.601	56.972	58.315	58.317	79.268	Continuing	TBD																																				
4103 CV-22	14.175	39.955	26.601	56.972	58.315	58.317	79.268	Continuing	TBD																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas, not currently provided by existing aircraft. The CV-22 Block B/10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures to the V-22 Block B aircraft.</p> <p>USSOCOM and USAF jointly fund Block 10 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds the design, integration, testing and certification of Block 10 Communication Navigation Surveillance/ Air Traffic Management (CNS/ATM) capability for compliance with the CNS/ATM Capstone Requirements Document for worldwide deployment. USAF also funds the integration of Air Force and Navy maintenance information systems used with the V-22, contractor logistics support for operational testing, Block B/10 correction of deficiencies, and CV-22 unique implementation and testing of V-22 Block B and Block C changes.</p> <p>USAF Block 20 funding is required to design, integrate, and test improvements to enhance the CV-22 ability to execute the SOF mission as well as comply with OSD mandated interoperability requirements. FY06 risk reduction studies will refine requirements and specifications for Block 20 development to be initiated in FY07.</p>																																													
<p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">16.439</td> <td style="text-align: center;">39.532</td> <td style="text-align: center;">6.635</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: center;">14.175</td> <td style="text-align: center;">39.955</td> <td style="text-align: center;">26.601</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: center;">-2.264</td> <td style="text-align: center;">0.423</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: center;">-0.156</td> <td style="text-align: center;">-0.577</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td style="text-align: center;">1.000</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: center;">-1.650</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: center;">-0.458</td> <td></td> <td></td> </tr> </tbody> </table>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	16.439	39.532	6.635	(U) Current PBR/President's Budget	14.175	39.955	26.601	(U) Total Adjustments	-2.264	0.423		(U) Congressional Program Reductions				Congressional Rescissions	-0.156	-0.577		Congressional Increases		1.000		Reprogrammings	-1.650			SBIR/STTR Transfer	-0.458		
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Reprogrammings	-1.650																																												
SBIR/STTR Transfer	-0.458																																												
<p>(U) <b><u>Significant Program Changes:</u></b></p> <ul style="list-style-type: none"> <li>- FY06 Defense Appropriation added \$1M to research nanocrystalline diamond coatings for potential radome anti-icing and surface erosion protection</li> <li>- PB07 increase fully funds Block B/10 operational testing, correction of deficiencies and initiation of Block 20 development</li> </ul>																																													



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4103 CV-22	14.175	39.955	26.601	56.972	58.315	58.317	79.268	Continuing	TBD
Quantity of RDT&E Articles	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. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas, not currently provided by existing aircraft. The CV-22 Block B/10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures to the V-22 Block B aircraft.

USSOCOM and USAF jointly fund Block 10 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds the design, integration, testing and certification of Block 10 Communication Navigation Surveillance/ Air Traffic Management (CNS/ATM) capability for compliance with the CNS/ATM Capstone Requirements Document for worldwide deployment. USAF also funds the integration of Air Force and Navy maintenance information systems used with the V-22, contractor logistics support for operational testing, Block B/10 correction of deficiencies, and CV-22 unique implementation and testing of V-22 Block B and Block C changes.

USAF Block 20 funding is required to design, integrate, and test improvements to enhance the CV-22 ability to execute the SOF mission as well as comply with OSD mandated interoperability requirements. FY06 risk reduction studies will refine requirements and specifications for Block 20 development to be initiated in FY07.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishment/Planned Program			
(U) Continue USN/USAF maintenance information system integration (Block 10)	2.580	3.907	0.790
(U) Continue development, integration and testing of CNS/ATM (Block 10)	0.344	14.789	1.140
(U) Support for Block B/10 operational test and evaluation	11.251	15.221	11.370
(U) Accomplish Block B/10 correction of deficiencies			4.971
(U) Accomplish CV-22 Unique Implementation and Testing of V-22 Block B and Block C Changes			3.120
(U) Accomplish Block 20 Risk Reduction Studies / Initiate Block 20 Development		5.038	5.210
(U) Research Nanocrystalline Diamond Coatings for Radome Anti-icing and Surface Erosion Protection (Congressional Adjustment)		1.000	
(U) Total Cost	14.175	39.955	26.601



## Exhibit R-2a, RDT&amp;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) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) 3010 BP10/11/16/AP, PE 0401318F	339.803	268.165	279.525	573.217	470.970	501.451	415.629	1,341.909	4,190.669

Total Cost number does not include 407.614M procurement funding prior to FY05.

(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.



## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2006

## 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</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Development of 2 PRTVs (Block 10)	SS, CPIF	Bell-Boeing	185.422							0.000	185.422	
Integration of USN/USAF Maintenance Information Systems (Block 10)	MIPR	Multiple	5.417	2.580	Dec-04	3.907	Feb-06	0.790	Dec-06	0.000	12.694	
Development CNS/ATM (Block 10)	SS, CPAF	Bell-Boeing	21.801			7.000	Feb-06		Oct-06	0.000	28.801	
Block 10 Development Technical Support	MIPR	Multiple	0.310	0.344	Dec-04	2.868	Feb-06	1.140	Dec-06	Continuing	TBD	
Block B/10 Correction of Deficiencies	TBD	Bell-Boeing						4.971	Dec-06	Continuing	TBD	4.971
Block 20 Risk Reduction Study	SS, CPFF	Bell-Boeing				3.635	Apr-06			0.000	3.635	3.635
Block 20 Development and Integration	TBD	Bell-Boeing						5.210	Mar-07	Continuing	TBD	5.210
Block 20 Development Technical Support	MIPR	Multiple				1.403	Feb-06			Continuing	TBD	1.403
CV-22 Incorporation of V-22 Blk B&C Changes	TBD	Bell-Boeing						3.120	Dec-06	Continuing	TBD	3.120
Research Nanocrystalline Diamond Coatings for Radome Applications (Congressional Add)	TBD	TBD				1.000	Apr-06			0.000	1.000	1.000
Subtotal Product Development			212.950	2.924		19.813		15.231		Continuing	TBD	19.339
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Block 10 Flight Test Technical Support	SS, CPAF	Bell-Boeing				4.380	Apr-06			0.000	4.380	4.380
Block 10 Flight Test Maintenance Support	SS, CPFF	DynCorp				0.541	Feb-06			0.000	0.541	
Block B/10 Operational Test Logistics Support	SS, CPAF	Bell-Boeing	1.648	7.471	Dec-04	11.973	Feb-06	8.979	Dec-06	Continuing	TBD	
Block B/10 Operational Test Logistics Support	SS, CPFF	Rolls Royce		0.381	Oct-04	1.260	Feb-06	0.945	Oct-06	Continuing	TBD	
Block B/10 Operational Test Logistics Support	MIPR	Multiple	0.140	3.399	Dec-04	1.988	Feb-06	1.446	Dec-06	Continuing	TBD	
Subtotal Test & Evaluation			1.788	11.251		20.142		11.370		Continuing	TBD	4.380
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			214.738	14.175		39.955		26.601		Continuing	TBD	23.719



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

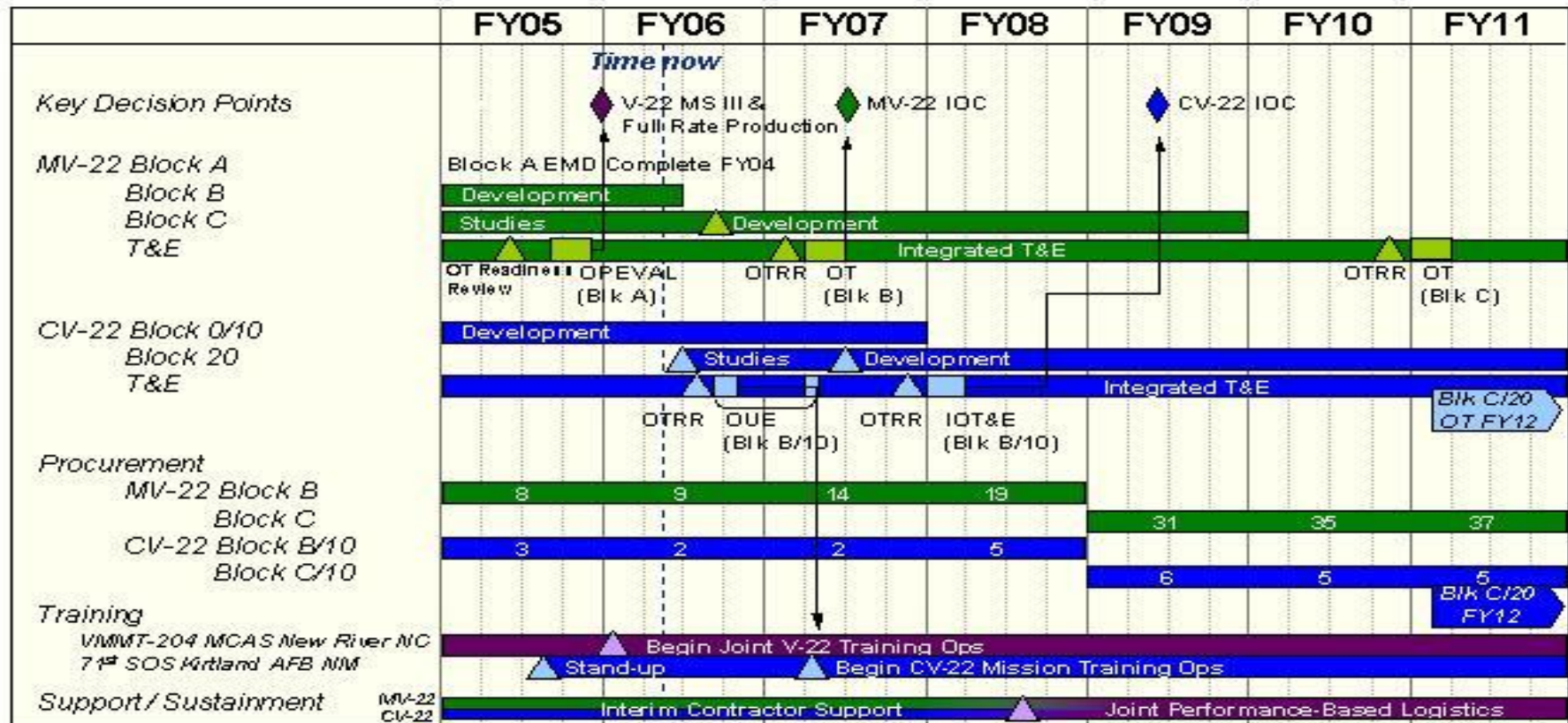
PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

# CV-22 Osprey Schedule





## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

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>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>			
(U) Block 10 Production Representative Test Vehicle deliveries (two aircraft)	4Q	1Q	
(U) Block 10 CNS/ATM/TCAS development cotrtract (incremental funding)	1Q	2Q	1-2Q
(U) Block 10 Navy/Air Force maintenance information system development contract (incremental funding)	1Q	2Q	1-2Q
(U) Block 10 Flight Test Technical Support contracts		2-3Q	
(U) Block 10 Operational Test Support contracts	1Q	2Q	1-2Q
(U) Block 10 Operational Utility Evaluation		3-4Q	
(U) Block 10 Operational Utility Evaluation (Cold Weather Portion)			2Q
(U) Block 20 Study contract		3Q	
(U) Block 20 Development contract			2-3Q



## UNCLASSIFIED

PE NUMBER: 0604256F

PE TITLE: Threat Simulator Development

## Exhibit R-2, RDT&amp;E Budget Item Justification

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## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0604256F Threat Simulator Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	32.975	32.083	38.131	37.915	37.998	38.561	38.921	Continuing	TBD
2907 Electronic Combat Intel Support	1.847	1.810	2.112	2.154	2.186	2.231	2.267	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	23.985	23.002	28.522	28.023	28.040	28.625	28.889	Continuing	TBD
7500 Foreign Materiel Acquisition/Exploitation	7.143	7.271	7.497	7.738	7.772	7.705	7.765	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 operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvements, and development and improvement of open air threat simulators for flight testing. 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&amp;E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator Development

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	34.517	32.546	37.551
(U) Current PBR/President's Budget	32.975	32.083	38.131
(U) Total Adjustments	-1.542	-0.463	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.331	-0.463	
Congressional Increases			
Reprogrammings	-0.471		
SBIR/STTR Transfer	-0.740		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>			PROJECT NUMBER AND TITLE <b>2907 Electronic Combat Intel Support</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2907 Electronic Combat Intel Support	1.847	1.810	2.112	2.154	2.186	2.231	2.267	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&amp;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).</p> <p>Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&amp;D) effort for Improvement and Modernization of T&amp;E capabilities at Air Force Test Centers.</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.						1.099	1.084	1.343	
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.						0.723	0.708	0.689	
(U) Funds classified operational assessments for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.						0.025	0.018	0.080	
(U) Total Cost						1.847	1.810	2.112	
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
None									
(U) <b><u>D. Acquisition Strategy</u></b>									
Not applicable.									



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator  
Development

PROJECT NUMBER AND TITLE

3321 Electronic Warfare Ground Test  
Resources

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3321 Electronic Warfare Ground Test Resources	23.985	23.002	28.522	28.023	28.040	28.625	28.889	Continuing	TBD
Quantity of RDT&E Articles	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 EW T&E M&S program leads correlation, verification and validation (V&V) activities of integrated simulations of validated models across the EW test facilities using the Silver Bullet measurement capability. The Electronic Warfare Test Analysis Tools & Methodologies (EWTATM) project will leverage advances made by EW T&E M&S to standardize test methodologies and provide 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-automatic 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) capitalizes on the capabilities developed by Electronic Combat Integrated Test (ECIT) and 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).

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)**FY 2005FY 2006FY 2007

(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.

1.064

1.084

1.070

(U) EW T&E M&S. Develop and deploy the V&V process for scalable integration with simulations to support

2.496



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
developmental and operational testing and training. Develop simulation based EW T&E tools and methodologies in support of EW test engineer's implementation of the EW Test Process. Integrate and correlate the process between EW T&E and training facilities supported by Silver Bullet.					
(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.			2.281	1.578	2.660
(U) AFEWES. Operation in support of DoD and non-DoD test customers to include upgrades to the IR and RF test capability, development of an IR Missile Warning System Pointer-Tracker evaluation capability, and V&V effort 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 Joint Research and Assessment Center (JRAAC) semi-active radar simulation and other test facilities with AFEWES threat suite. Development of IR background scene environment.			4.672	6.242	8.157
(U) DIADS. Providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the Integrated Air Defense System scenario and C2 player library with current intelligence data. Continue integrating DIADS with other Avionics Test & Integration Complex (ATIC) components, including Joint Communication Simulator (JCS), Combat Electromagnetic Environment Simulator (CEESIM), Advanced Radar Environment Simulator (ARES), and AWMS. Perform parametric validation comparisons and OAR side-by-side correlation with DIADS C2 player library. Upgrade model to match new & improved air defense functions of potential threat systems and maintain model currency. Maintain external interfaces using high level architecture (HLA) and Distributed Interactive Simulation (DIS) capability to support exercises and current and future users: F-22A, F-35, Virtual Strike Warfare Environment, Simulation and Analysis Facility (SIMAF), F-117, UCAV/UCAS, and others. Complete initial development of interfaces to Blue C4ISR models such as Distributed Mission Operations Center (DMOC) Rivet Joint, AWACS, and Joint STARS simulations.			2.948		
(U) ITIP. Integration of ATIC RF and IR stimulators to replicate an EW battlespace to support testing of advanced weapon systems such as the F-22A, F-35, JUCAS, and Compass Call. Includes upgrades of existing stimulators: Advanced Radar Environment Simulator (ARES), IR Sensor Stimulator (IRSS), RF Threat Simulators, and Communication, Navigation, Intelligence (CNI) simulator and integration of those upgrades into the electronic battlespace. Newly integrated capabilities are ARES free space and direct injection radar target generation, EW simulator direct injection, IR/UV missile warning stimulators, and improvements to test control, real-time data displays, scenario development, data reduction, and analysis functions. Integration with DIADS.			7.257	7.340	8.300
(U) AWMS. Integrating EW capabilities into flight simulator modernization reconfigurable cockpits 1 and 2. Requirements study and site preparation of phase 2 of site preparation for high fidelity simulators 3 and 4.			3.267	1.437	2.045
Project 3321		R-1 Shopping List - Item No. 104-5 of 104-7	Exhibit R-2a (PE 0604256F)		



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>							DATE <b>February 2006</b>	
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0604256F Threat Simulator Development</b>			<b>PROJECT NUMBER AND TITLE</b> <b>3321 Electronic Warfare Ground Test Resources</b>	

<p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <p>Construction and integration of second helmet mounted display. Design aircraft specific cockpit console set.</p> <p>(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 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.</p> <p>(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 MOPs. As these tools are developed, the results will be incorporated in the Test Methodology Reference.</p> <p>(U) Total Cost</p>	FY 2005	FY 2006	FY 2007
		3.855	4.750
		1.466	1.540
	23.985	23.002	28.522

<p>(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b></p>	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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.

(U) **D. Acquisition Strategy**  
Contracts funded from this program are predominately awarded on the basis of full and open competition.



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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator  
Development

PROJECT NUMBER AND TITLE

7500 Foreign Materiel  
Acquisition/Exploitation

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
7500 Foreign Materiel Acquisition/Exploitation	7.143	7.271	7.497	7.738	7.772	7.705	7.765	Continuing	TBD
Quantity of RDT&E Articles	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)**FY 2005FY 2006FY 2007

(U) Accomplishments/Planned Program:

(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.

4.226

3.318

3.519

(U) Funds the exploitation of acquired Foreign Materiel IAW prioritized lists and specific exploitation plans.

1.827

3.047

3.169

(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.

1.090

0.906

0.809

(U) Total Cost

7.143

7.271

7.497

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) Other APPN

None.

(U) **D. Acquisition Strategy**

Not applicable.



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## UNCLASSIFIED

PE NUMBER: 0604759F

PE TITLE: Major T&amp;E Investment

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0604759F Major T&amp;E Investment

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	58.628	64.014	58.506	56.912	60.168	62.901	63.887	Continuing	TBD
4597 Air Force Test Investments	58.628	64.014	58.506	56.912	60.168	62.901	63.887	Continuing	TBD

In FY 2007, 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), formerly the Test Technology Development (TTD) 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. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects.

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. 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



Exhibit R-2, RDT&E Budget Item Justification		DATE
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06 RDT&E Management Support	0604759F Major T&E Investment	
<p>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 that will be integrated into the Guided Weapon Evaluation Facility (GWEF). Climatic Lab Upgrades will provide upgrades to instrumentation and climatic simulation equipment. Test Control &amp; Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Advanced GPS/Hybrid Simulation (AGHS) capability developed at Holloman AFB, will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. 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&amp;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 &amp; Simulation, Command &amp; Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.</p> <p>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 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 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&amp;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.</p> <p>AFFTC, located at Edwards AFB, CA, conducts and supports DT&amp;E and OT&amp;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&amp;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&amp;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</p>		

R-1 Shopping List - Item No. 105-3 of 105-12

Exhibit R-2 (PE 0604759F)



## Exhibit R-2, RDT&amp;E Budget Item Justification

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## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0604759F Major T&amp;E Investment

kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) 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 (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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	63.965	55.339	58.304
(U) Current PBR/President's Budget	58.628	64.014	58.506
(U) Total Adjustments	-5.337	8.675	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.049	-0.925	
Congressional Increases	0.000	9.600	
Reprogrammings	-3.905		
SBIR/STTR Transfer	-1.383		

(U) **Significant Program Changes:**

Congressional Action, FY06 plus up of \$9.600: 3 Data Sensor System, \$2.400; Instrumentation Loading, Integration, Analysis, and Documentation (ILIAD) & ETDMS Flight Test Data Management, \$2.000; FPS-16 Radar Mobilization and Upgrade, \$1.000; Holloman High Speed Test Track Upgrade, \$4.200.



## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604759F Major T&amp;E Investment

PROJECT NUMBER AND TITLE

4597 Air Force Test Investments

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4597 Air Force Test Investments	58.628	64.014	58.506	56.912	60.168	62.901	63.887	Continuing	TBD
Quantity of RDT&E Articles	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), formerly the Test Technology Development (TTD) 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. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects.

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2006</b>
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759F Major T&amp;E Investment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4597 Air Force Test Investments</b>
<p>infrastructure to handle higher data rates. Advanced GPS/Hybrid Simulation (AGHS) capability developed at Holloman AFB, will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. 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&amp;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 &amp; Simulation, Command &amp; Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.</p> <p>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 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 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 STOVLE 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&amp;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.</p> <p>AFFTC, located at Edwards AFB, CA, conducts and supports DT&amp;E and OT&amp;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&amp;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&amp;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) 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</p>		



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
<p>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.</p> <p>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&amp;E Space and Missile Operations Program. Next Generation Satellite Telemetry, Tracking, &amp; Control (Nxt Gen Sat TT&amp;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&amp;C also replaces obsolete data recording and data trending systems.</p> <p>This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&amp;D) effort for Improvement and Modernization of T&amp;E capabilities at Air Force Test Centers.</p>					
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
(U)	46 Test Wing, Air Armament Center				
(U)	Advanced GPS Hybrid Simulation (AGHS): Develops new GPS simulator with hybrid capability for both conventional Radio Frequency (RF) GPS receivers and new Digital Receiver Modules (DRM). Procures, receives, and installs hardware and software required to simulate the new GPS signal structure. Performs verification and validation efforts on a new simulator.		1.236		
(U)	Armament and Munitions Digital Modeling and Simulation (AMD M&S): Develops and coordinates Modeling and Simulation Master Plan and Modeling and Simulation activities.		1.697	3.831	3.536
(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.		2.248	3.036	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 Opical/Infra Red, RF/MMW, and GPS seeker/sensors.		4.750	3.921	
(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.		1.900	2.941	1.469
(U)	C4I Advanced Simulation and Test Environment (CASTE): Acquires equipment, instrumentation, hardware, software, and connectivity for C4I testing.		1.895	2.451	0.881
(U)	OPFACs for Link 16 Weapon-Platform Integration (formerly Link-16 Support): Acquires platform simulators and		2.173	1.962	
Project 4597		R-1 Shopping List - Item No. 105-7 of 105-12		Exhibit R-2a (PE 0604759F)	



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
related datalink equipment.					
(U) Climatic Lab Upgrade: Upgrades instrumentation systems, climatic simulation equipment and facility equipment for environmental testing.			0.955		
(U) Over Water Impact Scoring System (OWISS): Develops the capability necessary to test long-range precision strike munitions in an overwater environment.				4.810	5.832
(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
(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
(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
(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
(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)				4.200	
(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)			2.100	2.400	
(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 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-22, C-17, C-130J, C-130 AMP, F-16, B-1, B-52, B-2, J-UCAS. (FY05/06 Congressional Insert)			2.000	2.000	
(U) FPS-16 Radar Mobilization and Upgrade: Upgrades the radar with fully digital electronics, increasing reliability,				1.000	
Project 4597		R-1 Shopping List - Item No. 105-8 of 105-12		Exhibit R-2a (PE 0604759F)	



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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)					
(U) Air Force Flight Test Center					
(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-22 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.			2.877	0.443	
(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 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.			3.314	3.748	
(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). Integrates the second iteration of the MAGIR I into next generation software receiver GPS			1.238	0.982	5.143
Project 4597		R-1 Shopping List - Item No. 105-9 of 105-12	Exhibit R-2a (PE 0604759F)		



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.					
(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.			3.484	3.056	
(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.			1.745	2.435	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.			3.283	0.584	0.200
(U) Instrumentation Loading, Integration, Analysis, and Decommutation (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 checkout, troubleshooting, and analysis. (FY05 Congressional Insert)			1.500		
(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
(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
Project 4597		R-1 Shopping List - Item No. 105-10 of 105-12	Exhibit R-2a (PE 0604759F)		



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Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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.			2.371	3.328	
(U) Enhanced Turbine Engine Installation and Productivity (ETEIP) (formerly JSF STOVLE Engine Test Cells Upgrade): Designs, procures, and fabricates efforts for sea level (SL3) upgrades for JSF, F-22, 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.			1.828	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.			2.617	3.285	2.523
(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.			11.988	9.929	10.156
(U) VKF Plant Modernization: Provides pressurized air support for hypersonic wind tunnel and turbine engine test requirements.					3.385
(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
(U) T&E Board of Directors Support: Coordinates tri-service investment efforts. Coordinates joint Reliance documents.			0.126	0.150	0.150
(U) Technology Insertion & Risk Reduction (TIRR): Enhanced Time Space Position Information (ETSPI) subproject develops a low-cost miniature instrumentation package that provides accurate position, pitch and heading, in real-time, on air-to-ground weapons throughout its flight path. Joint Tactical Radio System (JTRS) project started and planned to work into a CTEIP follow-on.			1.303	0.500	0.702
(U) Total Cost			58.628	64.014	58.506



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06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604759F Major T&amp;E Investment

PROJECT NUMBER AND TITLE

4597 Air Force Test Investments

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

<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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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## UNCLASSIFIED

PE NUMBER: 0605101F  
PE TITLE: RAND Project Air Force

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006	
BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605101F RAND Project Air Force					
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	30.609	27.139	25.211	24.716	23.926	24.000	23.610	Continuing	TBD
1110 Project Air Force	30.609	27.139	25.211	24.716	23.926	24.000	23.610	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 FY04 research program investigated a range of transformation issues with both a long-term perspective and a focus on immediate concerns such as the Global War on Terrorism (GWOT). Strategy research investigated regional stability and threats, joint expeditionary operations, and counter-terrorism. Force development analysis emphasized innovative and transformational operational concepts, and the force structures and capabilities to realize these. Manpower studies included defining the personnel mix and their appropriate training, development, and utilization in order to effectively meet future requirements and operations tempo; and analysis of senior leader development and utilization. Resources research focused on maturing agile combat support and force sustainment concepts to efficiently support global joint operations, and assessed the cost and viability of current and possible future force elements. Integrative research continued to examine the survivability of aerospace capabilities while operating in severe threat environments and analyzed options for recapitalizing the aging aerial refueling aircraft fleet.

(U) The FY05 research program has been developed to emphasize strategic and transformational options for the future force structure and capabilities. Topics range from the GWOT and stability operations, to developing our total force, to force structure recapitalization. Strategy research will investigate regional stability and threats, managing the current security environment, and counter-terrorism. Aerospace force development analysis will emphasize innovative and transformational operational concepts, and the force structures and capabilities to best execute joint operations; and the implications of reliance on space-based capabilities. Manpower studies will include developing and managing elements of the force from enlisted personnel through executives, assessing training approaches and their impacts on readiness, and defining future needs for pilot training aircraft. Resources research will include programming methods focused on resulting capabilities, efficient



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>		<b>DATE</b> <b>February 2006</b>
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605101F RAND Project Air Force</b>	
<p>combat support, supportability of unmanned aerial vehicles and options for providing this support; maintenance of low-observable aircraft; contracting approaches to support contingency operations; weapon system costing; and the transformation of the Air National Guard combat support functions. Integrative research will assess the survivability of aerospace capabilities that are required to persist in denied airspace; examine issues related to force structure aging and eventual recapitalization; and complete the requested aerial refueling aircraft analysis of alternatives. These studies will continue to take into consideration the GWOT, including engagements in Afghanistan, Iraq, and elsewhere.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p>		



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0605101F RAND Project Air Force

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	24.970	27.139	25.211
(U) Current PBR/President's Budget	30.609	27.139	25.211
(U) Total Adjustments	5.639	0.000	
(U) Congressional Program Reductions	-0.238		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	5.877		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			



## Exhibit R-2a, RDT&amp;E Project Justification

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06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0605101F RAND Project Air Force

## PROJECT NUMBER AND TITLE

1110 Project Air Force

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1110 Project Air Force	30.609	27.139	25.211	24.716	23.926	24.000	23.610	Continuing	TBD
Quantity of RDT&E Articles	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.

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(U) The FY05 research program has been developed to emphasize strategic and transformational options for the future force structure and capabilities. Topics range from the GWOT and stability operations, to developing our total force, to force structure recapitalization. Strategy research will investigate regional stability and threats, managing the current security environment, and counter-terrorism. Aerospace force development analysis will emphasize innovative and transformational operational concepts, and the force structures and capabilities to best execute joint operations; and the implications of reliance on space-based capabilities. Manpower studies will include developing and managing elements of the force from enlisted personnel through executives, assessing training approaches and their impacts on readiness, and defining future needs for pilot training aircraft. Resources research will include programming methods focused on resulting capabilities, efficient combat support, supportability of unmanned aerial vehicles and options for providing this support; maintenance of low-observable aircraft; contracting approaches to



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## PE NUMBER AND TITLE

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## PROJECT NUMBER AND TITLE

1110 Project Air Force

support contingency operations; weapon system costing; and the transformation of the Air National Guard combat support functions. Integrative research will assess the survivability of aerospace capabilities that are required to persist in denied airspace; examine issues related to force structure aging and eventual recapitalization; and complete the requested aerial refueling aircraft analysis of alternatives. These studies will continue to take into consideration the GWOT, including engagements in Afghanistan, Iraq, and elsewhere.

(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. 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><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
(U) Strategy and Doctrine	6.705	6.016	5.982
(U) Aerospace Force Development	6.762	6.590	5.927
(U) Manpower, Personnel, and Training	6.767	6.530	5.877
(U) Resource Management	6.122	5.805	5.129
(U) Integrative Research/Direct Support	4.253	2.198	2.296
(U) Total Cost	30.609	27.139	25.211



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

<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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 will be conducted in FY05. Pending a favorable decision to continue the AF's efforts with RAND Project AIR FORCE, a follow-on (FY06-FY10) Cost Plus / Fixed Fee contract will be awarded in Oct 05.



## UNCLASSIFIED

PE NUMBER: 0605306F

PE TITLE: Ranch Hand II Epidemiology Study

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## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0605306F Ranch Hand II Epidemiology Study

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.663	4.128	0.000	0.000	0.000	0.000	0.000	0.000	39.142
2767 Ranch Hand II Epidemiology Study	4.663	4.128	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.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	4.813	4.128	0.000
(U) Current PBR/President's Budget	4.663	4.128	0.000
(U) Total Adjustments	-0.150	0.000	
(U) Congressional Program Reductions	-0.150		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



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Exhibit R-2, RDT&E Budget Item Justification		DATE February 2006
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study	
None.		

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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

06 RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2767 Ranch Hand II Epidemiology Study	4.663	4.128	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		

(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>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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.	1.524	1.061	0.000
(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	1.554	1.967	0.000

Project 2767

R-1 Shopping List - Item No. 107-3 of 107-4

Exhibit R-2a (PE 0605306F)



## UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>							DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605306F Ranch Hand II Epidemiology Study</b>		PROJECT NUMBER AND TITLE <b>2767 Ranch Hand II Epidemiology Study</b>		

<p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <p>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.</p> <p>(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.</p> <p>(U) Total Cost</p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b></p>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>						
	1.585	1.100	0.000						
	4.663	4.128	0.000						
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
(U) Not Applicable.									
(U) <b><u>D. Acquisition Strategy</u></b>									
Not Applicable.									



## UNCLASSIFIED

PE NUMBER: 0605712F

PE TITLE: Initial Operational Test &amp; Evaluation

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	27.392	34.122	34.802	29.880	29.386	29.605	29.557	Continuing	TBD
0191 Initial Operational Test & Eval	27.392	34.122	34.802	29.880	29.386	29.605	29.557	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.



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	28.839	34.615	33.739
(U) Current PBR/President's Budget	27.392	34.122	34.802
(U) Total Adjustments	-1.447	-0.493	
(U) Congressional Program Reductions	-0.295		
Congressional Rescissions		-0.493	
Congressional Increases	2.000		
Reprogrammings	-2.414		
SBIR/STTR Transfer	-0.738		
(U) <u>Significant Program Changes:</u>			



Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>			PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0191 Initial Operational Test & Eval	27.392	34.122	34.802	29.880	29.386	29.605	29.557	Continuing	TBD
Quantity of RDT&E Articles	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><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) (U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include: FY05	16.242	21.987	17.394

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Early Involvement.
- AOA-10A Precision Engagement (AOA-10A PE): Early Involvement.
- B-2 Radar Modernization Program (RMP): Early Involvement.
- B-52 Avionics Mid-Life Improvement (AMI): Conduct IOT&E phase 2.
- C-130X Aircraft Modernization Program (AMP): Early Involvement.
- CV-22: Continue DT/OT.
- E-10A: Early Involvement.
- F-16 Common Configuration Improvement Program Multi Function Info Distro System Low Volume Terminal

Project 0191
R-1 Shopping List - Item No. 109-3 of 109-10
Exhibit R-2a (PE 0605712F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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(CCIP MIDS LVT): Conduct IOT&E and publish Final Report.

- F/A-22: Conduct FOT&E Spiral 1.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OA.
- Miniature Air Launched Decoy (MALD): Early involvement.
- MQ-9: Planning for OA.
- Other systems.

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.
- Combat Search and Rescue Vehicle (CSAR-X): Early Involvement.
- CV-22: Conduct OUE.
- E-10A: Early Involvement.
- F/A-22: Plan FOT&E Spiral 2.
- 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): Conduct 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 Spiral 2.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OUE.



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
	- Miniature Air Launched Decoy (MALD): Conduct OA, planning for IOT&E.				
	- MQ-9: Planning for IOT&E.				
	- Other systems.				
(U)					
(U)	(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include:		2.336	1.557	2.251
	FY05				
	- Advanced EHF Satellite Communications (Advanced EHF): Conduct OA-1.				
	- Combat Commanders Integrated Command & Control System-Increment 2 (CCIC2S Increment 2): Early Involvement.				
	- Global Broadcast System (GBS): Conduct DT/OT.				
	- Global Positioning System/GPS III (GPS-III): Early Involvement.				
	- National Polar-Orbit Ops Environment Satellite System (NPOESS): Conduct OA-1.				
	- Space Based Infrared Systems (SBIRS): Conduct DT/OT.				
	- Space Radar (SR): Early Involvement.				
	- Transformational Satellite Communications System (TSAT): Early Involvement.				
	- Upgraded Early Warning Radar (UEWR): Early Involvement.				
	- Wideband Gapfiller Satellite (WGS): Early Involvement.				
	- Other systems.				
	FY06				
	- 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.				
	- 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				

Project 0191

R-1 Shopping List - Item No. 109-5 of 109-10

Exhibit R-2a (PE 0605712F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.			
(U) (U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include: FY05 - Minuteman III Safety Enhanced Reentry Vehicle (ICBM-SERV): Conduct IOT&E. - Joint Air-to-Surface Standoff Missile (JASSM): Conduct FOT&E. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Test planning. - Joint Direct Attack Munition (JDAM MK 82): Publish final report. - Small Diameter Bomb (SDB): Conduct OA2. - Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Planning for OUE. - Other systems.	3.883	4.110	4.887
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.			

Project 0191

R-1 Shopping List - Item No. 109-6 of 109-10

Exhibit R-2a (PE 0605712F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<ul style="list-style-type: none"> <li>- Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Conduct OUE.</li> <li>- Other systems.</li> </ul>					
FY07					
<ul style="list-style-type: none"> <li>- Common Aero Vehicle (CAV): Early Involvement.</li> <li>- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct DT/OT.</li> <li>- Land Based Strategic Deterrent (LBSD): Early Involvement.</li> <li>- Small Diameter Bomb (SDB): Publish final report.</li> <li>- Other systems.</li> </ul>					
(U) (U) CATEGORY: COMMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include:			3.458	4.373	5.641
FY05					
<ul style="list-style-type: none"> <li>- Air Operations Center as a Weapons System (AOC): Conduct OUE.</li> <li>- Advanced Remote Ground Unattended System (ARGUS): Early Involvement.</li> <li>- Airborne Signals Intelligence Payload (ASIP): Early Involvement.</li> <li>- Cobra Judy Replacement (CJR): EOA planning.</li> <li>- Distributed Common Ground Station (DCGS): Early Involvement.</li> <li>- Expeditionary Combat Support System (ECSS): Early Involvement.</li> <li>- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Early Involvement.</li> <li>- Global Transportation Network 21 (GTN 21): Conduct DT/OT.</li> <li>- Integrated Broadcast System (IBS): Conduct DT/OT.</li> <li>- Joint Command and Control Capability (JC2): Early Involvement.</li> <li>- Joint Precision Approach and Landing System (JPALS): Early Involvement.</li> <li>- Joint Interface Control Officer (JICO) Support System (JSS): Test planning.</li> <li>- Joint Tactical Radio System (JTRS): Conduct Cluster 1 EOA.</li> <li>- Mobile Approach Control System (MACS): Conduct DT/OT.</li> <li>- Multi-Platform Common Data Link (MP CDL): Early involvement.</li> <li>- Rapid Attack Identification, Detection, and Reporting System (RAIDRS): OA planning.</li> <li>- Other systems.</li> </ul>					



## UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<p>FY06</p> <ul style="list-style-type: none"> <li>- Air Force Tactical Data Links (AF TDL): Early Involvement.</li> <li>- Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development.</li> <li>- Airborne Signals Intelligence Payload (ASIP): Planning for DT/OT.</li> <li>- Battle Control Systems-Mobile (BCS-M): Early Involvement.</li> <li>- Cobra Judy Replacement (CJR): Conduct EOA.</li> <li>- Distributed Common Ground System (DCGS): Early Involvement.</li> <li>- Expeditionary Combat Support System (ECSS): Early involvement.</li> <li>- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Plan and conduct OA.</li> <li>- Integrated Broadcast System (IBS): Conduct OA.</li> <li>- Joint Command and Control Capability (JC2): Early Involvement.</li> <li>- Joint Interface Control Officer (JICO) Support System (JSS): Conduct OA.</li> <li>- Mobile Approach Control System (MACS): Conduct DT/OT.</li> <li>- Multi-Mission Payload (MMP): Early Involvement.</li> <li>- Mark XIIA MODE 5 IFF (MODE 5): Early involvement.</li> <li>- Multi-Platform Common Data Link (MP CDL): Early Involvement.</li> <li>- Rapid Attack Identification, Detection and Reporting System (RAIDRS): Conduct OA and publish OA final report.</li> <li>- Other systems.</li> </ul> <p>FY07</p> <ul style="list-style-type: none"> <li>- Air Force Tactical Data Links (AF TDL): Early Involvement.</li> <li>- Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development.</li> <li>- Airborne Signals Intelligence Payload (ASIP): Conduct DT/OT.</li> <li>- Battle Control Systems-Mobile (BCS-M): Conduct IOT&amp;E.</li> <li>- Cobra Judy Replacement (CJR): Conduct Hull OA.</li> <li>- Deliberate and Crisis Action Planning and Execution Segments Increment 2b (DCAPES 2b): Early Involvement.</li> <li>- Distributed Common Ground System (DCGS): Plan and conduct OUE.</li> <li>- Expeditionary Combat Support System (ECSS): Early involvement.</li> <li>- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Conduct OA and publish OA Final Report.</li> <li>- Integrated Broadcast System (IBS): Conduct MOT&amp;E and publish Final Report.</li> <li>- Joint Command and Control Capability (JC2): Plan and conduct IOT&amp;E.</li> </ul>			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		
	<u>FY 2005</u>	<u>FY 2006</u> <u>FY 2007</u>
<ul style="list-style-type: none"> <li>- Joint Interface Control Officer (JICO) Support System (JSS): Conduct MOT&amp;E.</li> <li>- Multi-Mission Payload (MMP): Early Involvement</li> <li>- Mark XIIA MODE 5 IFF (MODE 5): Early involvement.</li> <li>- Mobile Approach Control System (MACS): Conduct IOT&amp;E and publish Final Report.</li> <li>- Multi-Platform Common Data Link (MP CDL): Early Involvement.</li> <li>- Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct IOT&amp;E and publish Final Report.</li> <li>- Other systems.</li> </ul>		
(U) (U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include: FY05	1.473	2.095      4.629
<ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Planning for OA.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan for MOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct IOT&amp;E.</li> <li>- Laser Warning and Detection (Laser WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul>		
FY06		
<ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Planning for OA.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan for MOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct IOT&amp;E.</li> <li>- Laser Warning Detection (LASER WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul>		
FY07		
<ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Conduct OA and publish OA Final Report.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan and Conduct MOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct IOT&amp;E.</li> <li>- Laser Warning Detection (LASER WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul>		
(U) B. Budget Activity Justification		
This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system		
Project 0191	R-1 Shopping List - Item No. 109-9 of 109-10	Exhibit R-2a (PE 0605712F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

PROJECT NUMBER AND TITLE

0191 Initial Operational Test &amp; Eval

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

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.

FY 2005FY 2006FY 2007

(U) Total Cost

27.392

34.122

34.802

(U) **C. Other Program Funding Summary (\$ in Millions)**FY 2005FY 2006FY 2007FY 2008FY 2009FY 2010FY 2011Cost toTotal CostActualEstimateEstimateEstimateEstimateEstimateEstimateComplete

(U) N/A

(U) **D. Acquisition Strategy**

N/A



## UNCLASSIFIED

PE NUMBER: 0605807F

PE TITLE: Test and Evaluation Support

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0605807F Test and Evaluation Support

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	358.584	685.657	742.522	716.414	718.918	744.452	736.117	Continuing	TBD
06TG 46 Test Group	23.175	25.611	32.914	27.954	28.632	29.868	30.144	Continuing	TBD
06TS Test and Evaluation Support	335.409	660.046	709.608	688.460	690.286	714.584	705.973	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, 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	358.218	692.665	672.848
(U) Current PBR/President's Budget	358.584	685.657	742.522
(U) Total Adjustments	0.366	-7.008	
(U) Congressional Program Reductions			
Congressional Rescissions	-3.134	-9.908	
Congressional Increases	3.500	2.900	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

The FY03 National Defense Authorization Act (NDAA) language directed 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 0605807F.



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605807F Test and Evaluation  
Support

PROJECT NUMBER AND TITLE

06TG 46 Test Group

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
06TG 46 Test Group	23.175	25.611	32.914	27.954	28.632	29.868	30.144	Continuing	TBD
Quantity of RDT&E Articles	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), 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 bi-static 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 AF test and training operations at White Sands Missile Range (WSMR). A growing number of the WSMR tests support Directed Energy Systems. The 586th Flight Test Squadron provides flight test and flight test support for weapon system, missile, guided bomb, unmanned aerial vehicles/systems, and spaceplane test and evaluation. The 46th TG support services contracts are awarded on the basis of full and open competition. 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)**

FY 2005

FY 2006

FY 2007

(U) Accomplishments/Planned Program:

(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.

(U) Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning Upgrade, Joint Global Positioning System (GPS) Combat Effectiveness, GPS jamming and electronic countermeasures, NAVWAR, Federal Aviation Authority (FAA), GPS integrated and embedded Inertial Navigation System (INS) programs, aircraft navigation systems including B-2 and F-22, munitions navigation systems such as Joint Air-to-Surface Standoff Missile (JASSM), F-22 ejection seat, Advanced Concept Ejection Seat (ACES) II Cooperative Modification Project (CMP), SM-3 Live Fire T&E (LFT&E), Theater High Altitude Area Defense (THAAD) LFT&E, Compact Energy Missile (CKEM) LFT&E, RCS testing, as well as multiple classified programs. Continue GPS-Joint Program Office (JPO) Responsible Test Organization (RTO) responsibilities.	3.125	2.858	8.425
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(U) Utilities	0.031	0.213	0.254
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(U) Contractor Services (in-house contract support activities)	10.682	10.507	11.895
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(U) T&E Civilian Pay	9.337	11.071	11.271
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Project 06TG

R-1 Shopping List - Item No. 110-2 of 110-6

Exhibit R-2a (PE 0605807F)



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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605807F Test and Evaluation  
Support

PROJECT NUMBER AND TITLE

06TG 46 Test Group

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Flying Hour Costs	0.000	0.962	1.069
(U) Total Cost	23.175	25.611	32.914

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

## (U) Related RDT&amp;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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Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>			PROJECT NUMBER AND TITLE <b>06TS Test and Evaluation Support</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
06TS Test and Evaluation Support	335.409	660.046	709.608	688.460	690.286	714.584	705.973	Continuing	TBD
Quantity of RDT&E Articles	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, 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. 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.

Budget Activity Justification:



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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		
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><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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, F22-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-22 Derivatives, Minuteman III PRP, Peacekeeper RSLP, MM-RVAP, Trident II-NSWC RSAP, Classified RS, ARROW, PAC-3, Space Shuttle, HyTECH SED, F22, 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.		7.920	22.079	23.555
(U)	Utilities.		5.812	8.763	9.100
(U)	Contractor Services (in-house contract support activities).		81.334	100.030	107.306
(U)	T&E Civilian Pay.		13.950	14.201	14.272
(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-22, 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. Significant increase from FY04 to FY05/06/07 reflects the planned execution of a "direct conversion" of previously identified A-76 study personnel (mil to civ) into a High Performance Organization (HPO) manned by civilians. FY06 increase includes \$50M for specific KC-135 aircraft modifications to provide airborne communications and a secure communications test bed. FY06/07 increases are a direct result of the FY03 NDAA zero base transfers (ZBT) for indirect test costs.		43.334	57.674	43.537
(U)	Utilities.		1.820	5.594	6.185
(U)	Contractor services (in-house contract support activities)		3.972	74.470	34.164
(U)	T&E Civilian Pay		80.104	147.455	153.319
(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 reparables (DLR); fuel and fuel price increase; and related support.		23.238	70.082	107.622
(U)	AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)				
Project 06TS		R-1 Shopping List - Item No. 110-5 of 110-6		Exhibit R-2a (PE 0605807F)	



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## Exhibit R-2a, RDT&amp;E Project Justification

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06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605807F Test and Evaluation  
Support

PROJECT NUMBER AND TITLE

06TS Test and Evaluation Support

(U)	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>						
(U)	Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, SEEK EAGLE, WCMD, F-22, AIM9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAF, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS), etc).	7.224	8.288	42.249						
(U)	Utilities.	3.740	3.758	4.827						
(U)	Contractor Services (in-house contract support activities).	22.963	67.846	70.931						
(U)	T&E Civilian Pay	32.600	48.855	49.068						
(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 reparable (DLR); fuel and fuel price increases; and related support. Funds proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals.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.	7.398	30.951	43.473						
(U)	Total Cost	335.409	660.046	709.608						
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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)	<b><u>D. Acquisition Strategy</u></b>									
	Not applicable.									



## UNCLASSIFIED

PE NUMBER: 0605860F

PE TITLE: Rocket Systems Launch Program (RSLP)

## Exhibit R-2, RDT&amp;E Budget Item Justification

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## BUDGET ACTIVITY

## 06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

## 0605860F Rocket Systems Launch Program (RSLP)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.975	26.391	14.704	15.004	14.931	15.096	15.178	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	21.975	26.391	14.704	15.004	14.931	15.096	15.178	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, as well as logistics and launch services. The RSLP program 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).

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	22.782	13.773	15.466
(U) Current PBR/President's Budget	21.975	26.391	14.704
(U) Total Adjustments	-0.807	12.618	
(U) Congressional Program Reductions	-0.017		
Congressional Rescissions		-0.382	
Congressional Increases		13.000	
Reprogrammings	-0.400		
SBIR/STTR Transfer	-0.390		

(U) **Significant Program Changes:**

FY06: Congressional add of +\$13M for Ballistic Missile Range Safety Technology



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BUDGET ACTIVITY

06 RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program (RSLP)	21.975	26.391	14.704	15.004	14.931	15.096	15.178	Continuing	TBD
Quantity of RDT&E Articles	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, as well as logistics and launch services. The RSLP program 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).

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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	6.425	9.655	9.815
(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	0.957	3.921	4.889
(U) Expand BMRST system capability, downrange reentry support, and expedite full Eastern Range certification	14.593	12.815	
(U) Total Cost	21.975	26.391	14.704

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) None

(U) **D. Acquisition Strategy**

N/A



## UNCLASSIFIED

PE NUMBER: 0605864F

PE TITLE: Space Test Program

## Exhibit R-2, RDT&amp;E Budget Item Justification

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## BUDGET ACTIVITY

## 06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

## 0605864F Space Test Program

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	44.705	47.308	46.310	57.000	57.651	58.129	58.600	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	44.705	47.308	46.310	57.000	57.651	58.129	58.600	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 and enabling future U.S. space superiority. The program flies an optimal 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:

- 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 Launch Vehicles/Shuttle/International Space Station

(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 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 role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command policy establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission.

(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.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.



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06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	44.129	48.157	47.953
(U) Current PBR/President's Budget	44.705	47.308	46.310
(U) Total Adjustments	0.576	-0.849	
(U) Congressional Program Reductions	-0.034	-0.849	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	1.800		
SBIR/STTR Transfer	-1.190		
(U) <u>Significant Program Changes:</u>			



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06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

PROJECT NUMBER AND TITLE

2617 Free-Flyer Spacecraft Missions

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2617 Free-Flyer Spacecraft Missions	44.705	47.308	46.310	57.000	57.651	58.129	58.600	Continuing	TBD
Quantity of RDT&E Articles	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 and enabling future U.S. space superiority. The program flies an optimal 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:

- 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 Launch Vehicles/Shuttle/International Space Station

(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 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 role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command policy establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission.

(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.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

PROJECT NUMBER AND TITLE

2617 Free-Flyer Spacecraft Missions

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	2.704	3.316	1.954
(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	16.439	17.351	26.624
(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	13.765	15.441	5.391
(U) Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	10.458	7.926	5.900
(U) Conduct studies to explore future launch opportunities, risk reduction activities, and mission planning	1.339	3.274	6.441
(U) Total Cost	44.705	47.308	46.310

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Related Procurement: Not Required									
(U) <b><u>D. Acquisition Strategy</u></b> Not Required									



## UNCLASSIFIED

PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&amp;E

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2006</b>																																					
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605976F Facility Restoration and Modernization - T&amp;E</b>																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	73.015	61.080	54.683	55.008	50.328	50.067	49.421	Continuing	TBD																																				
06MC Facility Restoration and Modernization - T&E	73.015	61.080	54.683	55.008	50.328	50.067	49.421	Continuing	TBD																																				
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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.</p> <p>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. The activities were funded within PE 0605807F, Test and Evaluation Support prior to FY 2004.</p> <p>FY 2005 includes \$4.500M to restore and modernize the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from its current mothball condition to an operational capability starting in FY 2005. FY 2005 includes \$17.800M Hurricane Ivan supplemental funds to repair storm damage. Restoration activities include repair and replacement work to restore damaged facilities due to failure attributable to inadequate sustainment, excessive age, or other causes.</p> <p>This program element is in Budget Activity 6, RDT&amp;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).</p> <p>(U) <b><u>B. Program Change Summary (\$ in Millions)</u></b></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">58.936</td> <td style="text-align: center;">60.561</td> <td style="text-align: center;">63.535</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: center;">73.015</td> <td style="text-align: center;">61.080</td> <td style="text-align: center;">54.683</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: center;">14.079</td> <td style="text-align: center;">0.519</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: center;">-0.564</td> <td style="text-align: center;">-0.881</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td style="text-align: center;">1.400</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: center;">16.283</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: center;">-1.640</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	58.936	60.561	63.535	(U) Current PBR/President's Budget	73.015	61.080	54.683	(U) Total Adjustments	14.079	0.519		(U) Congressional Program Reductions				Congressional Rescissions	-0.564	-0.881		Congressional Increases		1.400		Reprogrammings	16.283			SBIR/STTR Transfer	-1.640		
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R-1 Shopping List - Item No. 113-1 of 113-5

Exhibit R-2 (PE 0605976F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;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 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
06MC Facility Restoration and Modernization - T&E	73.015	61.080	54.683	55.008	50.328	50.067	49.421	Continuing	TBD
Quantity of RDT&E Articles	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. The activities were funded within PE 0605807F, Test and Evaluation Support prior to FY 2004.

FY 2005 includes \$4.500M to restore and modernize the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from its current mothball condition to an operational capability starting in FY 2005. FY 2005 includes \$17.800M Hurricane Ivan supplemental funds to repair storm damage. Restoration activities include repair and replacement work to restore damaged facilities due to failure attributable to inadequate sustainment, excessive age, or other causes.

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)**FY 2005FY 2006FY 2007

(U) Accomplishments/Planned Program:

(U) Restoration and modernization funds were previously within PE 0605807F, T&amp;E Support and restoration and modernization planning and design prior to FY 2004.

(U) 46TG: Projects include Kranko drive upgrade at NRTF, main site power validation/repair at NRTF, repaving camera pad/connector roads at 846th TS, and general restoration and modernization planning and design. 1.074

(U) 4TG: Restoration/Modernization of test unique infrastructure at the 46th TG. Projects include Rail refurbishment at Holloman High Speed Test Track (HHSTT), and Hangar Door Installation at 586 Flight Test Squadron (FTS), and general restoration and modernization planning and design. 1.151

(U) 46TG: Restoration/Modernization of test unique infrastructure at the 46th TG. Projects include Rams Range Surface Reseal and Pit 3 440 volt cable replacement at the National Radar Test Facility (NRTF), Building 1265 Renovations, 0.967



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Building 1261 Fire Alarm System and Roof Repair at 746 Test Squadron (TS), Building 1026 Auto Electric sliding gate and pave taxiway D at 586 FTS, and insulate HVAC in building 1604 at HHSTT, 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 9270-refilling seawall, Bldg 9292-replacing soil around building foundation, Bldg 12722-replacing septic tank, Bldg 12722-replacing AC, Bldg 9403-inspecting and replacing tower bolts, 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. FY05 includes \$17.800M Hurricane Ivan supplemental funds to repair storm damage.			22.530		
(U) 46TW: Replace roof of building 9604 at TA C-82. Replace well at TA B-70 control site. D-84 Restoration: build 50 x 50 concrete pad for Chicken Little. Expand compound at A-19. Repair/replace Coupeland tower at TA B-70. C-7 Hangar: erect Calibration Tower at D-3. Consolidation Remote Control Targets Facilities: Restoration of the Electro Optical Evaluation Facility Site C1 (Bldg 8777). Repaint Bldg. 9285 at A-13A. Repaint Bldg. 9287 at A-13A. Corrosion control of stair rails on IHAWK at A-13. Corrosion control of NIKE steel tower at A-13. 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. 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. Fabricate a building to accommodate the RHIB boat(s) at building 963 and general restoration and modernization planning and design.				4.225	
(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. Refurbish interior of building 9400 at TA B75 control. Paint/refurbish exterior of building 963 and general restoration and modernization planning and design.					3.488
(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			47.195	51.226	47.707
Project 06MC		R-1 Shopping List - Item No. 113-3 of 113-5			Exhibit R-2a (PE 0605976F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
to perform general 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. Starting in FY 2005, program includes funds for the restoration and modernization of the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from the current mothball condition to an operational capability.					
(U) AFFTC: Projects include expanding fire sprinkler system Bldg 1020 Integrated Facility for Avionics Systems Test (IFAST), upgrading fire alarm panels and detection system in the data acquisition center, repairing radio frequency shielded personnel doors at Bldg 1030 Benefield Anechoic Facility (BAF), designing future facility modifications to IFAST and BAF, replacing control room floor (Bldg 145), replacing roof (Bldg 4795, modifying control rooms 248/249/250 phase 1 (Bldg 1440, replacing UPS (Bldg 5790), installing utility meters (Bldgs 1830 & 1440), paving drainage ditch between spurs 3 & 4 (airfield), abating and resurfacing hangar floor (Bldgs 1630 & 1635), installing tiedowns pad 29 (airfield), repainting taxi lines ramp 12, and general restoration and modernization planning and design.			2.216		
(U) AFFTC: Projects include modifying Mission Control Rooms 248/249/250 in Bldg 1440; installing showers in Bldg 1020; repairing raised computer flooring, Rm 224, Bldg 1020; replacing deluge tank fill line in Bldg 1020; repairing raised computer flooring, Rm 127, Bldg 1020; replacing power distribution units, F-15 Test Bay; installing UPS power, F-16 Test Bay; installing fire detection system in Bldg 4389; installing double door in Bldg 1440; installing addressable alarm system in Bldg 1440; repairing freight elevator in Bldg 1020; repairing/upgrading passenger elevator in Bldg 1020, repairing emergency generator tracking station in Bldg 4970; repairing HVAC in ABL facility Bldg 369); repairing heating in Bldg 1830; and general restoration/modernization planning and design.				4.478	
(U) AFFTC: Projects include repairing HVAC chillers in Bldg 1440; repairing EMCS system interface in Bldg 1440; installing Simulator/Dome Equipment in Bldg 1020; repairing generator in SC Lab (Bldg 1440); replacing of air compressor in Bldg 1830; upgrading conference room A/B in Bldg 1020; and general restoration/modernization planning and design. Design Funds for FY06 & contingency for 05: Expanding fire sprinkler system to remove halon (Bldg 1020), maintaining roof of BAF (Bldg 1030), repairing gas and electric meters, installing water meters Bldg 1440, replacing crane in Bldg 1830, repairing/upgrading raised computer flooring Rm 214 (Bldg 1020), replacing Halon 1301 Suppression System (Bldg 1030), modifying Rooms 124, 125, 126 in IFAST Security Office (Bldg 1020), and modifying new generator to alleviate wet-stacking problem (Bldg 4790).					2.521
(U) Total Cost			73.015	61.080	54.683
Project 06MC		R-1 Shopping List - Item No. 113-4 of 113-5	Exhibit R-2a (PE 0605976F)		



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;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) C. Other Program Funding Summary (\$ in Millions)

<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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 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&amp;E Support

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

## 0605978F Facility Sustainment - T&amp;E Support

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.011	31.650	25.579	24.502	22.932	22.766	22.425	Continuing	TBD
06MR Facility Sustainment - T&E Support	22.011	31.650	25.579	24.502	22.932	22.766	22.425	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. The activities were previously funded within PE 06050807F, Test and Evaluation Support.

Funds will be utilized to perform sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include 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 the facility. Sustainment activities will be executed by AEDC.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	23.067	26.238	28.738
(U) Current PBR/President's Budget	22.011	31.650	25.579
(U) Total Adjustments	-1.056	5.412	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.222	-0.457	
Congressional Increases		5.869	
Reprogrammings	-0.192		
SBIR/STTR Transfer	-0.642		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0605978F Facility Sustainment - T&amp;E Support

## PROJECT NUMBER AND TITLE

06MR Facility Sustainment - T&amp;E Support

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
06MR Facility Sustainment - T&E Support	22.011	31.650	25.579	24.502	22.932	22.766	22.425	Continuing	TBD
Quantity of RDT&E Articles	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. The activities were previously funded within PE 06050807F, Test and Evaluation Support.

Funds will be utilized to perform sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include 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 the facility. Sustainment activities will be executed by AEDC.

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)**

FY 2005

FY 2006

FY 2007

## (U) Accomplishments/Planned Program:

(U) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.	0.409	0.451	0.443
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.	1.434	5.008	1.681
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN. Efforts include plant asset maintenance, test building maintenance, and core and support facility maintenance.	19.268	22.541	22.212

Beginning in FY05 AEDC will execute sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include 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 the facility.

(U) Sustainment of test unique infrastructure at the Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA.	0.900	3.650	1.243
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Project 06MR

R-1 Shopping List - Item No. 114-3 of 114-4

Exhibit R-2a (PE 0605978F)



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605978F Facility Sustainment - T&E  
Support

PROJECT NUMBER AND TITLE

06MR Facility Sustainment - T&E  
Support(U) **B. Accomplishments/Planned Program (\$ in Millions)**

		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Total Cost		22.011	31.650	25.579

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.311	0.327	0.305	0.299	0.290	0.289	0.286	Continuing	TBD
4980 Research and Development of Computer Forensic Anaylst Tools	0.311	0.327	0.305	0.299	0.290	0.289	0.286	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&amp;E Budget Item Justification

DATE

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BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.320	0.327	0.305
(U) Current PBR/President's Budget	0.311	0.327	0.305
(U) Total Adjustments	-0.009	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.009		
(U) <u>Significant Program Changes:</u>			



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2006</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0804731F GENERAL SKILL TRAINING</b>			PROJECT NUMBER AND TITLE <b>4980 Research and Development of Computer Forensic Anaylst Tools</b>		
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4980 Research and Development of Computer Forensic Anaylst Tools	0.311	0.327	0.305	0.299	0.290	0.289	0.286	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		
<p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 an 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.</p> <p style="margin-top: 20px;">This program is in Budget Activity 6 - Management and Support</p>									
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Accomplished/Planned Programs									
(U) Next Generation Electronic Media Analysis System						0.030	0.066		
(U) Damaged Storage Device Data Recovery Tools						0.101	0.060		
(U) Knowledge Management System						0.110	0.201		
(U) Vulnerability Assessment Environment (V.A.E.)								0.152	
(U) Fused Analysis System/Data Analysis Tools						0.070		0.153	
(U) Total Cost						0.311	0.327	0.305	
<div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>Project 4980</span> <span>R-1 Shopping List - Item No. 115-4 of 115-5</span> <span>Exhibit R-2a (PE 0804731F)</span> </div>									



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;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 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement	0.570	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.



## UNCLASSIFIED

PE NUMBER: 1001004F  
PE TITLE: International Activities

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006		
BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 1001004F International Activities						
Cost (\$ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost		3.797	3.686	3.911	3.998	4.069	4.162	4.240	Continuing	TBD
4645	International Cooperative Research & Development	3.797	3.686	3.911	3.998	4.069	4.162	4.240	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 support, 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.

R-1 Shopping List - Item No. 118-1 of 118-5

Exhibit R-2 (PE 1001004F)



## UNCLASSIFIED

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

1001004F International Activities

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.910	3.686	4.099
(U) Current PBR/President's Budget	3.797	3.686	3.911
(U) Total Adjustments	-0.113	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.113		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

1001004F International Activities

PROJECT NUMBER AND TITLE

4645 International Cooperative Research &amp; Development

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4645 International Cooperative Research & Development	3.797	3.686	3.911	3.998	4.069	4.162	4.240	Continuing	TBD
Quantity of RDT&E Articles	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 support, 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 2005</u>	<u>FY 2006</u>	<u>FY 2007</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.	0.100	0.060	0.030
(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.	0.175	0.350	0.300
(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	2.027	1.926	2.106

Project 4645

R-1 Shopping List - Item No. 118-3 of 118-5

Exhibit R-2a (PE 1001004F)



## UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification			DATE February 2006		
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>B. Accomplishments/Planned Program (\$ in Millions)</b>			<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.					
(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.			0.800	0.850	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.			0.600	0.400	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 Components.			0.050	0.025	0.000
(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			0.045	0.075	0.075
(U) Total Cost			3.797	3.686	3.911
Project 4645		R-1 Shopping List - Item No. 118-4 of 118-5	Exhibit R-2a (PE 1001004F)		



## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

1001004F International Activities

PROJECT NUMBER AND TITLE

4645 International Cooperative  
Research & Development(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

06 RDT&amp;E Management Support

## PE NUMBER AND TITLE

0702806F ACQUISITION AND MANAGEMENT SUPPORT

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.110	4.735	17.706	18.794	18.801	18.824	18.842	Continuing	TBD
ACS1 R&D Change Management	5.110	4.735	17.706	18.794	18.801	18.824	18.842	Continuing	TBD

(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.

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)**

	FY 2005	FY 2006	FY 2007
(U) Previous President's Budget	1.582	3.404	4.737
(U) Current PBR/President's Budget	5.110	4.735	17.706
(U) Total Adjustments	3.528	1.331	
(U) Congressional Program Reductions	-0.014		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	3.542	1.331	
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY05:

- Realignment of \$4.5M of AF RDT&E funds to further Acquisition Transformation Initiatives

FY06-07:

- 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



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Exhibit R-2, RDT&E Budget Item Justification		DATE <b>February 2006</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0702806F ACQUISITION AND MANAGEMENT SUPPORT</b>	
<ul style="list-style-type: none"><li>· 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</li><li>· 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</li><li>· Transforming acquisition review processes to re-establish clean lines of responsibility, authority, and accountability at appropriate levels</li><li>· Exploring methods to operate a materiel solution development process that is responsive to COCOM capability needs, aligned with the OSD Joint Task Assignment Process</li></ul>		

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2006

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0702806F ACQUISITION AND  
MANAGEMENT SUPPORT

PROJECT NUMBER AND TITLE

ACS1 R&amp;D Change Management

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
ACS1 R&D Change Management	5.110	4.735	17.706	18.794	18.801	18.824	18.842	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, this is a new PE.

(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.

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 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Acquisition/engineering process research/cost estimating	5.110	1.735	6.590
(U) Systems integration modeling/architecture analysis		1.400	5.335
(U) IT infrastructure development		1.200	5.181
(U) Technical workforce management		0.400	0.600
(U) Total Cost	5.110	4.735	17.706

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

	<u>FY 2005</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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</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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