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DEPARTMENT OF THE AIR FORCE
FISCAL YEAR (FY) 2010 BUDGET ESTIMATES
RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)
DESCRIPTIVE SUMMARIES, VOLUME II
BUDGET ACTIVITIES 4 - 6

MAY 2009



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**Fiscal Year 2010 Program And Budget Estimates
RDT&E Descriptive Summaries, Volume II
Scientific and Technology Budget Activities 4 - 6
May 2009**

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 2010 President's Budget.
- 1) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exception:
 - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
 - 2) Other comments on exhibit contents in this document:
 - a) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2010 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 in this submission.

2. (U) CLASSIFICATION

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

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Joint Strike Fighter EMD	0604800F	Vol 2	525
JOINT SURVEILLANCE SYSTEM	0102325F	Vol 3	73
JSpOC Mission System	0305614F	Vol 3	773
KC-10S	0401219F	Vol 3	917
KC-135 Replacement Tanker	0401221F	Vol 3	925
KC-135s	0401218F	Vol 3	905
KC-X, Next Generation Aerial Refueling Aircraft	0605221F	Vol 2	559
Large Aircraft InfraRed Counter Measures (LAIRCM)	0401134F	Vol 3	895
Life Support Systems	0604706F	Vol 2	491
Link 16 Support and Sustainment	0207434F	Vol 2	591
Logistics Information Technology (LOGIT)	0708610F	Vol 3	979
Major T&E Investment	0604759F	Vol 2	683
Manned Destructive Suppression	0207136F	Vol 3	141
Manned Reconnaissance System	0305207F	Vol 3	711
Manufacturing Technologies	0603680F	Vol 1	636
Materials	0602102F	Vol 1	87
MAUI SPACE SURVEILLANCE SYSTEM	0603444F	Vol 1	581

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Medical Development	0602015F	Vol 1	81
MILSATCOM Terminals	0303601F	Vol 3	527
Minimum Essential Emergency Communications Network (MEECN)	0303131F	Vol 3	455
Mission Planning Systems	0208006F	Vol 3	413
MQ-9 Development and Fielding	0205219F	Vol 3	101
Multi-Platform Electronics	0207040F	Vol 3	109
NASS, IO TECH INTEGRATION & TOOL DEV	0307141F	Vol 3	831
National Polar-Orbiting Op Env Satellite	0305178F	Vol 2	261
National Security Space Office	0305924F	Vol 3	815
NATO Cooperative R&D	0603790F	Vol 2	85
NAVSTAR Global Positioning System User Equipment Space	0305164F	Vol 3	631
NAVSTAR GPS (Space)	0305165F	Vol 3	639
NCCMC - TW/AA System	0305906F	Vol 3	799
Network Centric Collaborative Targeting	0305221F	Vol 3	753
Next Generation Long Range Strike (NGLRS)	0604015F	Vol 2	165
Nuclear Weapons Support	0604222F	Vol 2	281
NUDET Detection System (Space)	0305913F	Vol 3	807
OPERATIONAL SUPPORT AIRLIFT	0401314F	Vol 3	933
Operationally Responsive Space	0604857F	Vol 2	235
OTHER FLIGHT TRAINING	0804743F	Vol 3	999
OTHER PERSONNEL ACTIVITIES	0808716F	Vol 3	1017
Pararescue (Guardian Angel Weapon System)	0207227F	Vol 3	175
PERSONNEL ADMINISTRATION	0901220F	Vol 3	1043
Personnel Recovery Systems	0604261F	Vol 2	335

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Physical Security Equipment	0603287F	Vol 2	21
Physical Security Equipment	0604287F	Vol 2	379
Polar MILSATCOM (Space)	0603432F	Vol 2	53
Pollution Prevention	0603859F	Vol 2	151
Precision Attack Systems	0207249F	Vol 3	189
PREDATOR DEVELOPMENT/FIELDING	0305219F	Vol 3	733
RAND Project Air Force	0605101F	Vol 2	693
RDT&E For Aging Aircraft	0605011F	Vol 2	551
REGION/ SECTOR OPERATIONS CONTROL CENTER	0102326F	Vol 3	79
Requirements Analysis and Maturation	0604337F	Vol 2	191
Rocket Systems Launch Program (RSLP)	0605860F	Vol 2	713
Satellite Control Network	0305110F	Vol 3	583
Security And Investigative Activities	0305128F	Vol 3	617
Seek Eagle	0207590F	Vol 3	375
SERVICE-WIDE SUPPORT	0901212F	Vol 3	1029
Shared Early Warning System	0308699F	Vol 3	839
Single Integrated Air Picture (SIAP)	0207451F	Vol 2	619
SLC3S-A (Senior Leader C3S)	0401845F	Vol 2	667
Small Diameter Bomb	0604329F	Vol 2	385
Space & Missile Test & Evaluation Center	0305173F	Vol 3	645
Space Based Infrared Systems (SBIRS) High EMD	0604441F	Vol 2	447
Space Control Technology	0603438F	Vol 2	59
Space Situation Awareness Operations	0305940F	Vol 3	821
Space Situation Awareness Systems	0604425F	Vol 2	411

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Space Technology	0602601F	Vol 1	287
Space Test Program	0605864F	Vol 2	717
SPACE WARFARE CENTER	0305174F	Vol 3	653
Spacelift Range System	0305182F	Vol 3	659
SPECIAL TACTICS/COMBAT CONTROL	0408011F	Vol 3	951
Specialized Undergraduate Pilot Training	0604233F	Vol 2	309
STRAT AEROSPACE INTEL SYS ACTIVITIES	0102823F	Vol 3	87
STRAT WAR PLANNING SYS - USSTRATCOM	0101313F	Vol 3	55
Submunitions	0604604F	Vol 2	475
Support Systems Development	0708611F	Vol 3	987
Sustainment Science and Technology (S&T)	0603199F	Vol 1	429
TAC AIRBORNE CONTROL SYSTEM	0207418F	Vol 3	289
Tactical AIM Missiles	0207161F	Vol 3	155
TACTICAL DATA NETWORKS ENTERPRISE	0604281F	Vol 2	365
Technology Transition Program.	0604858F	Vol 2	253
Test and Evaluation Support	0605807F	Vol 2	707
Theater Battle Management (TBM) C4I	0207438F	Vol 3	317
Third Generation Infrared Surveillance (3GIRS)	0604443F	Vol 2	453
Threat Simulator Development	0604256F	Vol 2	675
TRAINING DEVELOPMENTS	0804772F	Vol 3	1011
Transformational SATCOM (TSAT)	0603845F	Vol 2	103
University Research Initiatives	0601103F	Vol 1	65
USAF Modeling and Simulation	0207601F	Vol 3	383
Warfighter Rapid Acquisition Program	0203761F	Vol 3	93

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Wargaming and Simulation Centers	0207605F	Vol 3	401
WEATHER SERVICE	0305111F	Vol 3	591
Wideband MILSATCOM (Space)	0603854F	Vol 2	139
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	Vol 3	511

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 Summary
 (Dollars in Thousands)

05 MAY 2009

Summary Recap of Budget Activities -----	FY 2008 -----	FY 2009 -----	FY 2010 -----
Basic Research	403,995	464,290	466,111
Applied Research	1,148,114	1,213,683	1,094,651
Advanced Technology Development	666,736	722,524	618,030
Advanced Component Development & Prototypes	2,620,511	2,530,283	1,795,884
System Development & Demonstration	4,138,350	4,159,289	4,219,726
RDT&E Management Support	1,485,564	1,127,767	1,046,524
Operational Systems Development	15,883,545	16,834,385	18,751,901
Total Research, Development, Test & Eval, AF	26,346,815	27,052,221	27,992,827
 Summary Recap of FYDP Programs -----			
Strategic Forces	110,411	85,539	735,769
General Purpose Forces	2,376,981	2,352,545	2,331,745
Intelligence and Communications	2,225,360	2,492,422	3,262,011
Mobility Forces	763,908	668,563	628,244
Research and Development	9,774,486	9,483,102	8,714,607
Central Supply and Maintenance	216,874	258,385	273,226
Training Medical and Other	6,039	4,318	7,360
Administration and Associated Activities	76,787	52,173	81,033
Support of Other Nations	3,903	3,899	3,748
Classified Programs	10,792,066	11,651,275	11,955,084
Total Research, Development, Test & Eval, AF	26,346,815	27,052,221	27,992,827

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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1	0601102F	Defense Research Sciences	01	275,207	313,845	321,028	U
2	0601103F	University Research Initiatives	01	116,567	137,056	132,249	U
3	0601108F	High Energy Laser Research Initiatives	01	12,221	13,389	12,834	U
		Basic Research		-----	-----	-----	
				403,995	464,290	466,111	
6	0602015F	Medical Development	02	1,490	4,887		U
7	0602102F	Materials	02	175,040	188,152	127,957	U
8	0602201F	Aerospace Vehicle Technologies	02	135,401	123,036	127,129	U
9	0602202F	Human Effectiveness Applied Research	02	90,603	93,222	85,122	U
10	0602203F	Aerospace Propulsion	02	217,266	252,024	196,529	U
11	0602204F	Aerospace Sensors	02	118,740	128,447	121,768	U
12	0602601F	Space Technology	02	124,910	138,980	104,148	U
13	0602602F	Conventional Munitions	02	61,469	57,407	58,289	U
14	0602605F	Directed Energy Technology	02	55,062	62,701	105,677	U
15	0602702F	Command Control and Communications	02	119,545	115,559		U
16	0602788F	Dominant Information Sciences and Methods	02			115,278	U
17	0602890F	High Energy Laser Research	02	48,588	49,268	52,754	U
		Applied Research		-----	-----	-----	
				1,148,114	1,213,683	1,094,651	
18	0603112F	Advanced Materials for Weapon Systems	03	61,166	62,676	37,901	U
19	0603199F	Sustainment Science and Technology (S&T)	03			2,955	U

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Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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20	0603203F	Advanced Aerospace Sensors	03	60,877	65,115	51,482	U
21	0603211F	Aerospace Technology Dev/Demo	03	70,352	45,990	76,844	U
22	0603216F	Aerospace Propulsion and Power Technology	03	139,591	180,554	175,676	U
23	0603231F	Crew Systems and Personnel Protection Technology	03	36,084	36,411		U
24	0603270F	Electronic Combat Technology	03	26,947	30,241	31,021	U
25	0603401F	Advanced Spacecraft Technology	03	97,639	97,469	83,909	U
26	0603444F	Maui Space Surveillance System (MSSS)	03	41,357	36,339	5,813	U
27	0603456F	Human Effectiveness Advanced Technology Development	03			24,565	U
28	0603601F	Conventional Weapons Technology	03	18,698	17,166	14,356	U
29	0603605F	Advanced Weapons Technology	03	78,556	56,283	30,056	U
30	0603680F	Manufacturing Technology Program	03		56,376	39,913	U
31	0603788F	Battlespace Knowledge Development and Demonstration	03			39,708	U
32	0603789F	C3I Advanced Development	03	31,781	33,902		U
33	0603924F	High Energy Laser Advanced Technology Program	03	3,688	4,002	3,831	U
		Advanced Technology Development		666,736	722,524	618,030	
34	0603260F	Intelligence Advanced Development	04	5,892	6,570	5,009	U
35	0603287F	Physical Security Equipment	04	2,767	1,672	3,623	U
36	0603421F	NAVSTAR Global Positioning System III	04	446,197			U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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37	0603423F	Global Positioning System III - Operational Control Segment	04		306,502		U
38	0603430F	Advanced EHF MILSATCOM (SPACE)	04	612,318	386,425	464,335	U
39	0603432F	Polar MILSATCOM (SPACE)	04	171,775	236,965	253,150	U
40	0603438F	Space Control Technology	04	61,659	86,110	97,701	U
41	0603742F	Combat Identification Technology	04	25,170	29,300	27,252	U
42	0603790F	NATO Research and Development	04	4,173	4,322	4,351	U
43	0603791F	International Space Cooperative R&D	04	593	620	632	U
44	0603845F	Transformational SATCOM (TSAT)	04	776,505	761,285		U
45	0603850F	Integrated Broadcast Service	04	20,873	21,020	20,739	U
46	0603851F	Intercontinental Ballistic Missile	04	26,069	70,237	66,079	U
47	0603854F	Wideband Global SATCOM RDT&E (Space)	04	20,992	52,080	70,956	U
48	0603859F	Pollution Prevention	04	10,660	11,645	2,896	U
49	0603860F	Joint Precision Approach and Landing Systems	04	6,216	7,358	23,174	U
50	0604015F	Next Generation Bomber	04	7,000			U
51	0604283F	Battle Mgmt Com & Ctrl Sensor Development	04			22,612	U
52	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04			20,891	U
53	0604330F	Joint Dual Role Air Dominance Missile	04			6,882	U
54	0604337F	Requirements Analysis and Maturation	04			35,533	U

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55	0604635F	Ground Attack Weapons Fuze Development	04			18,778	U
56	0604796F	Alternative Fuels	04		54,217	89,020	U
57	0604830F	Automated Air-to-Air Refueling	04		9,862	43,158	U
58	0604856F	Common Aero Vehicle (CAV)	04	3,695			U
59	0604857F	Operationally Responsive Space	04	86,985	196,561	112,861	U
60	0604858F	Tech Transition Program	04			9,611	U
61	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	330,972	287,532	396,641	U
	Advanced Component Development & Prototypes			2,620,511	2,530,283	1,795,884	
62	0603840F	Global Broadcast Service (GBS)	05	21,373	18,709	31,124	U
63	0604222F	Nuclear Weapons Support	05	19,739	20,111	37,860	U
64	0604226F	B-1B	05	180,434	142,643		U
65	0604233F	Specialized Undergraduate Flight Training	05	14,033	13,426	6,227	U
66	0604240F	B-2 Advanced Technology Bomber	05	277,880	364,076		U
67	0604261F	Personnel Recovery Systems	05	60,344			U
68	0604270F	Electronic Warfare Development	05	76,169	56,342	97,275	U
69	0604281F	Tactical Data Networks Enterprise	05			88,444	U
70	0604287F	Physical Security Equipment	05	33	52	50	U
71	0604329F	Small Diameter Bomb (SDB)	05	147,586	126,324	153,815	U
72	0604421F	Counterspace Systems	05	59,379	76,147	64,248	U
73	0604425F	Space Situation Awareness Systems	05	206,362	209,266	308,134	U

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74	0604429F	Airborne Electronic Attack	05	23,170	43,123	11,107	U
75	0604441F	Space Based Infrared System (SBIRS) High EMD	05	583,305	542,411	512,642	U
76	0604443F	Third Generation Infrared Surveillance (3GIRS)	05	75,410	953	143,169	U
77	0604602F	Armament/Ordnance Development	05	7,558	2,089	18,671	U
78	0604604F	Submunitions	05	1,970	1,725	1,784	U
79	0604617F	Agile Combat Support	05	11,856	5,775	11,261	U
80	0604706F	Life Support Systems	05	13,247	16,553	10,711	U
81	0604735F	Combat Training Ranges	05	15,541	27,971	29,718	U
82	0604740F	Integrated Command & Control Applications (IC2A)	05	27,804	9,704	10	U
83	0604750F	Intelligence Equipment	05	5,037	2,282	1,495	U
84	0604800F	Joint Strike Fighter (JSF)	05	1,939,107	1,734,299	1,858,055	U
85	0604851F	Intercontinental Ballistic Missile	05			60,010	U
86	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	6,500	33,628	26,545	U
87	0605011F	RDT&E for Aging Aircraft	05	26,973	13,791		U
88	0605221F	Next Generation Aerial Refueling Aircraft	05		22,938	439,615	U
89	0605277F	CSAR-X RDT&E	05		232,232	89,975	U
90	0605278F	HC/MC-130 Recap RDT&E	05		11,660	20,582	U
91	0605452F	Joint SIAP Executive Program Office	05			34,877	U
92	0207434F	Link-16 Support and Sustainment	05	186,371	192,460		U

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93	0207450F	E-10 Squadrons	05	37,675			U
94	0207451F	Single Integrated Air Picture (SIAP)	05	4,723	66,663	13,466	U
95	0207701F	Full Combat Mission Training	05	60,171	134,786	99,807	U
96	0305176F	Combat Survivor Evader Locator	05	4,900			U
97	0401138F	Joint Cargo Aircraft (JCA)	05	20,283	16,732	9,353	U
98	0401318F	CV-22	05	23,417	18,512	19,640	U
99	0401845F	Airborne Senior Leader C3 (SLC3S)	05		1,906	20,056	U
	System Development & Demonstration			4,138,350	4,159,289	4,219,726	
100	0604256F	Threat Simulator Development	06	35,903	34,474	27,789	U
101	0604759F	Major T&E Investment	06	62,635	69,221	60,824	U
102	0605101F	RAND Project Air Force	06	40,469	29,891	27,501	U
103	0605502F	Small Business Innovation Research	06	361,808			U
104	0605712F	Initial Operational Test & Evaluation	06	29,952	29,457	25,833	U
105	0605807F	Test and Evaluation Support	06	753,220	785,576	736,488	U
106	0605860F	Rocket Systems Launch Program (SPACE)	06	23,804	14,855	14,637	U
107	0605864F	Space Test Program (STP)	06	50,019	47,654	47,215	U
108	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	61,234	46,108	52,409	U
109	0605978F	Facilities Sustainment - Test and Evaluation Support	06	33,849	29,618	29,683	U
110	0702806F	Acquisition and Management Support	06	25,630	37,014	18,947	U

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111	0804731F	General Skill Training	06	2,904		1,450	U
112	0909999F	Financing for Cancelled Account Adjustments	06	234			U
113	1001004F	International Activities	06	3,903	3,899	3,748	U
	RDT&E Management Support			1,485,564	1,127,767	1,046,524	
114	0604263F	Common Vertical Lift Support Platform	07		3,858	9,513	U
115	0605024F	Anti-Tamper Technology Executive Agency	07	12,399	20,912	47,276	U
117	0101113F	B-52 Squadrons	07	51,336	38,546	93,930	U
118	0101122F	Air-Launched Cruise Missile (ALCM)	07	4,514	395	3,652	U
119	0101126F	B-1B Squadrons	07			148,025	U
120	0101127F	B-2 Squadrons	07			415,414	U
121	0101313F	Strat War Planning System - USSTRATCOM	07	25,159	17,505	33,836	U
122	0101314F	Night Fist - USSTRATCOM	07	6,774	5,285	5,328	U
124	0102325F	Atmospheric Early Warning System	07			9,832	U
125	0102326F	Region/Sector Operation Control Center Modernization Program	07	22,628	23,793	25,734	U
126	0102823F	Strategic Aerospace Intelligence System Activities	07		15	18	U
127	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	21,757	20,751	11,996	U
128	0205219F	MQ-9 UAV	07	55,863	46,431	39,245	U

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129	0207040F	Multi-Platform Electronic Warfare Equipment	07			14,747	U
130	0207131F	A-10 Squadrons	07	6,498	3,989	9,697	U
131	0207133F	F-16 Squadrons	07	76,816	126,834	141,020	U
132	0207134F	F-15E Squadrons	07	114,865	198,872	311,167	U
133	0207136F	Manned Destructive Suppression	07	500	5,570	10,748	U
134	0207138F	F-22A Squadrons	07	607,785	605,659	569,345	U
135	0207161F	Tactical AIM Missiles	07	7,692	5,732	5,915	U
136	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	36,414	54,092	49,971	U
137	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	07	4,244	3,183	2,529	U
138	0207227F	Combat Rescue - Pararescue	07			2,950	U
139	0207247F	AF TENCAP	07	11,452	11,547	11,643	U
140	0207249F	Precision Attack Systems Procurement	07			2,950	U
141	0207253F	Compass Call	07	13,470	4,657	13,019	U
142	0207268F	Aircraft Engine Component Improvement Program	07	158,560	150,547	166,563	U
143	0207277F	CSAF Innovation Program	07			4,621	U
144	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	11,775	32,946	29,494	U
145	0207410F	Air & Space Operations Center (AOC)	07	96,593	98,566	99,405	U
146	0207412F	Control and Reporting Center (CRC)	07	24,108	58,894	52,508	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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147	0207417F	Airborne Warning and Control System (AWACS)	07	146,341	125,710	176,040	U
148	0207418F	Tactical Airborne Control Systems	07	3,366	1,526		U
149	0207423F	Advanced Communications Systems	07	30,226	29,587	63,782	U
151	0207431F	Combat Air Intelligence System Activities	07			1,475	U
152	0207438F	Theater Battle Management (TBM) C4I	07	12,079	19,384	19,067	U
153	0207445F	Fighter Tactical Data Link	07	57,424	57,264	72,106	U
154	0207446F	Bomber Tactical Data Link	07	38,280	11,603		U
155	0207448F	C2ISR Tactical Data Link	07	1,745	1,719	1,667	U
156	0207449F	Command and Control (C2) Constellation	07	42,969	31,705	26,792	U
157	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	337,563	81,025	140,670	U
158	0207590F	Seek Eagle	07	22,663	21,586	22,071	U
159	0207601F	USAF Modeling and Simulation	07	20,739	28,866	27,245	U
160	0207605F	Wargaming and Simulation Centers	07	6,186	3,860	7,018	U
161	0207697F	Distributed Training and Exercises	07	6,770	7,118	6,740	U
162	0208006F	Mission Planning Systems	07	101,666	97,296	91,995	U
163	0208021F	Information Warfare Support	07	11,632	12,117	12,271	U
170	0302015F	E-4B National Airborne Operations Center (NAOC)	07	18,576	4,058	26,107	U
171	0303112F	Air Force Communications (AIRCOM)	07	2,009			U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

UNCLASSIFIED

Department of the Air Force
 FY 2010/2011 President's Budget
 Exhibit R-1
 (Dollars in Thousands)

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

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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172	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	85,458	70,562	72,694	U
173	0303140F	Information Systems Security Program	07	178,671	189,956	196,621	U
174	0303141F	Global Combat Support System	07	14,665	5,744	3,375	U
175	0303150F	Global Command and Control System	07	3,174	3,209	3,149	U
176	0303158F	Joint Command and Control Program (JC2)	07	5,585	3,225	3,087	U
177	0303601F	MILSATCOM Terminals	07	362,676	334,182	257,693	U
179	0304260F	Airborne SIGINT Enterprise	07	138,346	173,160	176,989	U
182	0305099F	Global Air Traffic Management (GATM)	07	7,203	6,258	6,028	U
183	0305103F	Cyber Security Initiative	07		2,078	2,065	U
184	0305110F	Satellite Control Network (SPACE)	07	23,530	16,547	20,991	U
185	0305111F	Weather Service	07	39,830	47,219	33,531	U
186	0305114F	Air Traffic Control, Approach, and Landing System (ATCAL)	07	6,395	10,796	9,006	U
187	0305116F	Aerial Targets	07	5,683	34,683	54,807	U
190	0305128F	Security and Investigative Activities	07	1,922	784	742	U
192	0305146F	Defense Joint Counterintelligence Activities	07		39	39	U
194	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	150,979	126,712	137,692	U
195	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	110,224	90,711	52,039	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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197	0305173F	Space and Missile Test and Evaluation Center	07	4,986	1,967	3,599	U
198	0305174F	Space Warfare Center	07	1,622	2,974	3,009	U
199	0305182F	Spacelift Range System (SPACE)	07	25,089	12,322	9,957	U
200	0305193F	Intelligence Support to Information Operations (IO)	07	8,312	3,627	1,240	U
201	0305202F	Dragon U-2	07	608			U
202	0305205F	Endurance Unmanned Aerial Vehicles	07			73,736	U
203	0305206F	Airborne Reconnaissance Systems	07	111,842	103,870	143,892	U
204	0305207F	Manned Reconnaissance Systems	07	24,333	17,811	12,846	U
205	0305208F	Distributed Common Ground/Surface Systems	07	100,330	105,272	82,765	U
206	0305219F	MQ-1 Predator A UAV	07	37,642	36,906	18,101	U
207	0305220F	RQ-4 UAV	07	274,729	310,664	317,316	U
208	0305221F	Network-Centric Collaborative Targeting	07	12,035	8,783	8,160	U
209	0305265F	GPS III Space Segment	07		392,276	815,095	U
210	0305614F	JSpOC Mission System	07			131,271	U
211	0305887F	Intelligence Support to Information Warfare	07	5,163	5,401	5,267	U
212	0305906F	NCCM - TW/AA System	07	11,417			U
213	0305913F	NUDET Detection System (SPACE)	07	38,279	41,102	84,021	U
214	0305924F	National Security Space Office	07	15,104	7,587	10,634	U
215	0305940F	Space Situation Awareness Operations	07	38,679	15,579	54,648	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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Department of the Air Force
 FY 2010/2011 President's Budget
 Exhibit R-1
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APPROPRIATION: 3600F Research, Development, Test & Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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216	0307141F	Information Operations Technology Integration & Tool Development	07	21,348	15,683	30,076	U
217	0308699F	Shared Early Warning (SEW)	07	3,044	3,143	3,082	U
218	0401115F	C-130 Airlift Squadron	07	233,309	179,272	201,250	U
219	0401119F	C-5 Airlift Squadrons (IF)	07	173,960	127,118	95,266	U
220	0401130F	C-17 Aircraft (IF)	07	166,217	235,407	161,855	U
221	0401132F	C-130J Program	07	62,106	27,280	30,019	U
222	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	17,557	36,401	31,784	U
223	0401218F	KC-135s	07	7,825	10,305	10,297	U
224	0401219F	KC-10s	07	13,510		35,586	U
225	0401221F	KC-135 Tanker Replacement	07	29,686			U
226	0401314F	Operational Support Airlift	07	3,870		4,916	U
227	0401839F	Air Mobility Tactical Data Link	07	4,300	7,923		U
228	0408011F	Special Tactics / Combat Control	07	7,868	7,707	8,222	U
229	0702207F	Depot Maintenance (Non-IF)	07	1,459	1,527	1,508	U
230	0702976F	Facilities Restoration & Modernization - Logistics	07		44,778		U
231	0708011F	Industrial Preparedness	07	48,987			U
232	0708610F	Logistics Information Technology (LOGIT)	07	104,817	159,246	246,483	U
233	0708611F	Support Systems Development	07	35,981	15,820	6,288	U
234	0804743F	Other Flight Training	07			805	U
235	0804757F	Joint National Training Center	07	3,021	3,205	3,220	U

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Department of the Air Force
 FY 2010/2011 President's Budget
 Exhibit R-1
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APPROPRIATION: 3600F Research, Development, Test & Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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236	0804772F	Training Developments	07			1,769	U
237	0808716F	Other Personnel Activities	07	114	1,113	116	U
238	0901202F	Joint Personnel Recovery Agency	07	5,192	5,752	6,376	U
239	0901212F	Service-Wide Support (Not Otherwise Accounted For)	07	6,454	3,008		U
240	0901218F	Civilian Compensation Program	07	13,328	8,101	8,174	U
241	0901220F	Personnel Administration	07	22,944	18,575	10,492	U
242	0901538F	Financial Management Information Systems Development	07	28,635	16,737	55,991	U
9999	9999999999	Classified Programs		10,792,066	11,651,275	11,955,084	U
		Operational Systems Development		15,883,545	16,834,385	18,751,901	
		Total Research, Development, Test & Eval, AF		26,346,815	27,052,221	27,992,827	

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (By BUDGET ACTIVITY)

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

REMARKS

0601102F Defense Research Sciences

In FY 2010, efforts will move from this Project to Projects 2307 and 2311 within this PE to more accurately align basic research efforts in the Fluid Dynamics and Information Science disciplines, respectively. Note: In FY 2010, efforts were moved from this Project to Projects 2306 and 2308 within this PE to more accurately align basic research efforts in the Materials and Propulsion disciplines, respectively. In FY 2010, efforts in building and testing mathematical descriptions of cognitive decision-making moved from Project 2313 in this PE to this Project to more accurately align basic research efforts in Information Services. In FY 2010, Bioenergy and Catalysis efforts from Project 2312 in this PE moved to this Project to more accurately align basic research efforts in Propulsion. In FY 2010, Natural Flight Control and Navigation efforts from Project 2313 in this PE moved to this Project to more accurately align basic research efforts in Fluid Mechanics.

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

0602102F
Materials

In FY 2010 and out, funds from Project 01SP have been moved to Project 4347, Project 4348, and Project 4349 within this Program Element to more accurately align efforts.

0602202F Human Effectiveness Applied Research

In FY 2010, Human Dynamics Evaluation efforts will move from Project 7184 to Project 5328, Sensory Evaluation and Decision Science efforts will move from Project 7184 to Project 5329, and Performance Evaluation in Extreme Environments efforts within Project 7757 will move to Project 7184 to better align efforts.

0602203F Aerospace Propulsion

In FY 2010. The fuels portion of this Project will be moved to Project 5330 within this Program Element to more accurately align efforts with organizational structure. In FY10, work was moved to PE 0602203F Project 4847 to more accurately align efforts. In FY2010 The funding in this project will be transferred in from 62203F Project 3048 to more accurately align efforts with organizational structure. In FY 2010, funds from Project 44SP are being moved to Projects 2002, 2003, and 7622 to better align efforts.

0602204F Aerospace Sensors

0602605F Directed Energy Technology

In FY 2010, the efforts that had been in Project 55SP, Laser and Imaging Space Technology have been moved to this project to allow better integration of directed energy efforts. Also in FY 2010 several electric laser, relay mirror, and space situational awareness efforts in PE 0603605F, Advanced Weapons Technology, have been moved into this project to better reflect the actual technology readiness level of the efforts. In FY 2010, the efforts in this project are being moved to Project 4866, Lasers & Imaging Technology to better align efforts.

0602702F Command Control and Communications

In FY 2010, efforts in this PE move to PE 0602788F, Dominant Information Technology. In FY 2010, this effort moves to PE 0602788F, Project 5316, Info Mgmt and Computational Tech. In FY 2010, these efforts move to PE 0602788, Project 5318, Operational Awareness Tech, and Project 5317, Information Decision Making Tech. In FY 2010, this effort moves to PE 0602788F, Project 5315, Connectivity and Protection Tech.

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

0603203F Advanced Aerospace Sensors

In FY 2010, funds from Project 88SP are being moved to Projects 665A and 69DF to better align efforts.

0603216F Aerospace Propulsion and Power Technology

In FY10, The funding has been increased due to emphasis on component development in support of adaptive cycle demonstrations, highly efficient embedded turbine engines, and small heavy fueled engines. In FY10, this work was moved from Project 10SP within this Program Element to better align efforts. In FY10 and beyond, this work was moved to Project 4922 within this Program Element to better align efforts.

0603231F	Crew Systems and Personnel Protection Technology	In FY 2010, Decision Effectiveness Technology efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5324, Project 5326, and Project 5327; Warfighter Readiness Technology efforts will move from PE 0603231F, Project 4924 to PE 0603456F, Project 5325; and Bioeffects & Protection Technology efforts will move from PE 0603231F, Project 5020 to PE 0603456F, Project 5323 and Project 5326 to better align efforts.
0603456F	Human Effectiveness Adv Tech Dev	In FY 2010, Directed Energy Bioeffects Parameters efforts will move from PE 0603231F, Project 5020 to PE 0603456F, Project 5323; Human Dynamics and Terrain Demonstration efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5324; Mission Effective Performance efforts will move from PE 0603231F, Project 4924 to PE 0603456F, Project 5325; Performance Enhancement Demonstration efforts will move from PE 0603231F, Project 2830 and Project 5020 to PE 0603456F, Project 5326; and Warfighter Interfaces efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5327 to better align efforts.
0603605F	Advanced Weapons Technology	In FY 2010, some of the efforts from Project 11SP, Advanced Optics and Laser Space Technology, are being moved to this Project to better align efforts. Also in FY 2010, some of the electric laser, relay mirror, and space situational awareness efforts in this project have been moved into PE 0602605F, Directed Energy Technology, to better reflect the technology readiness level of the efforts.
0603789F	C3I Advanced Development	In FY 2010 efforts moves to PE 0603788F, Project 5321, Global Battlespace Awareness, Project 5322, Knowledge Management and Computing, and Project 5319, Anticipatory Ops Intent and Response.

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

0603845F	Transformational SATCOM (TSAT)	In FY2010, Project #4944, Advanced Wideband System, was terminated.
0604283F	BMC2 Sensor Development	In FY 2010, Project 5363, MP-RTIP, efforts were transferred from PE 0207581F, PE Joint STARS, Project 0003, in order to continue risk reduction on a Wide Area Surveillance (WAS) radar and supporting Battle Management Command and Control (BMC2).
0604635F	Ground Attack Weapons Fuze Development	In FY 2010, Project 645312, Hard target Void Sensing Fuze is a new start effort.

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

0207434F	Link 16 Support and Sustainment	In FY2010, Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise.
0207451F	Single Integrated Air Picture (SIAP)	In FY2010, efforts to develop and complete the Joint Track Manager were transferred to PE 0605452F, Joint SIAP Executive Program Office, Project 5370.
0604226F	B-1B	In FY2010, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.
0604240F	B-2 Advanced Technology Bomber	In FY 2010, Project Number 653843, B-2 Advanced Technology Bomber efforts are transferring from PE 0604240F, B-2 Advanced Technology Bomber, to PE 0101127F, B-2 Squadrons, transferring funds/efforts from MFP 6 to MFP 1.
0604270F	EW Development	In FY 2010, MALD-J is broken out in Project 655305, MALD-J.
0604281F	Tactical Data Networks Enterprise	In FY2010, Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to this Program Element.
0604421F	Counterspace Systems	In FY 2010, Program 65A024, RAIDRS Block 20 content and funding were transferred to PE 0305614F, Joint Space Operations Center (JSpOC) Mission Systems

0604425F	Space Situation Awareness Systems	In FY 2010, Space Situation Awareness Environmental Monitoring (SSAEM), 65A038, is a new project . Space Surveillance Telescope, 65A037, is a new project in FY10. Net-centric Sensors and Data Sources, 65A012, is a new project in FY10, with the exception of the ESSA ACTD transition effort which was included previously in the ISSA program and is now associated with the JSpOC Mission System in PE 35614F. Beginning in FY10 efforts formerly in the ISSA project have transferred to the JSpOC Mission System (JMS), PE 35164F, except for the ESSA ACTD, which is now executed in the Net-Centric Sensors and Data Sources project.
0604602F		In FY 2010, Project 5361, Stores-Aircraft Interface (new), efforts were transferred from PE 0605011F, RDT&E for Aging Aircraft, Project 654685, Universal Armament Interface (UAI), in order to properly fund the maturing technology.
0604617F	Agile Combat Support	In FY2010, Project 652895, Civil Engineering Readiness (CE), and Project 654910, Aeromedical Readiness, include New-Start efforts.
0604853F	Evolved Expendable Launch Vehicle - EMD	In FY2010, PE0604853F, Evolved Expendable Launch Vehicle (EELV) includes New Start efforts for Pre-Planned Product Improvements to sustain the EELV capability through 2030.
0605452F	Joint SIAP Program Executive Office	In FY2010, this is a new PE. Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP) funding was transferred from Air Force Program Element 0207451F, Single Integrated Air Picture (SIAP), Joint SIAP Engineering and Development, to Air Force Program Element 0605452F, Joint Program Executive Office (JPEO) SIAP, in accordance with Department of Defense designation of the Air Force as the SIAP Acquisition Executive. As a result, funding was placed in the JPEO SIAP line for ongoing development of the Joint Track Manager (JTM) in FY10. The Quadrennial Defense Review (QDR) Analysis will assess the path forward by leveraging existing SIAP technologies and the Cooperative Engagement Capability (CEC) and Tactical Component Network (TCN) programs.

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

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

0305219F	Predator Development/Fielding	In FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.
0401130F	C-17 Aircraft	In FY2010, 672569, C-17 Aircraft development includes new start efforts.
0708011F	Industrial Preparedness	In FY 2010, research efforts in Projects 2312 and 2313 moved to Projects 2306, 2307, 2308, and 2311 in this PE to more accurately align them to the Projects they support.
0207410F	Air and Space Operations Center -Weapon System (AOC-WS)	In FY2010, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).
0207325F	Joint Air to Surface Standoff Missile (JASSM)	In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.
0207268F	Aircraft Engine Component Improvement Program (CIP)	In FY2010 this PE is broken out in 3 projects given above. Last year all RDT&E was funded in project 4515. This is a new project, starting in FY10.
0207134F	F-15E SQUADDRONS	In FY 2010, - Project 675365 is new in FY10 to provide enhanced funds tracking and accountability for the F135 engine (F-35). Previously, all Engine CIP work was accomplished entirely within Project 671012.
0305940F	Space Situation Awareness Operations	In FY 2010, The F-15 program has one FY 2010 new start: F-15C/D Infrared Search and Track (IRST) develops and procures a new air-to-air sensor.
0205219F	MQ-9 Development and Fielding	In FY2010, The GEODSS and Globus II service life extension programs are new starts in FY10.
		In FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

0305265F	GPS III Space Segment	In FY2010, funding from 2 OCX PEs (0603423F and 0603427F) consolidated into separate BPAC in this PE.
0207249F	Precision Attack Systems	In FY2010, Project 675347, Advanced Targeting Pod includes new start efforts.
0101126F	B-1B SQUADRONS	In FY2010, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.
0305205F	Endurance Unmanned Aerial Vehicles	In FY 2010, Project 5372, Integrated Sensor Is Structure, includes new start efforts.
0207412F	Control and Reporting Center (CRC)	IN FY2010, within PE 0207412F, partial funding was transferred from Project Number 485L, Project Title Control and Reporting Center (CRC), to Project Number 5294, Project Title Theater Air Control System Improvement - Radar (TACSI-R), to continue development of the AN/TPS-75 sensor replacement/upgrade, known as Three Dimensional Expeditionary Long Range Radar (3DELRR). In FY2010, Key Management Equipment Modernization (KMEM) concept refinement and development transfers to ISSP Project 675231, AF KMI, for integral KMI development. The KMEM project develops the KOV-21 follow-on crypto engine that will be utilized with the KMI next generation fill device" under development."
0303140F	Information System Security Program	In FY2010, Funding decreased in FY10 to reflect the SIGINT Capabilities Working Group (SCWG) priorities and the accomplishment of other ASE initiatives.
0304260F	Airborne SIGINT Enterprise (JMIP)	
0101313F	STRAT WAR PLANNING SYS- USSTRATCOM	In FY2010 Project 5368, Global Sensor Integrated Network (GSIN) transferred from PE 0105921F, Service Support to STRATCOM Space Activities, in order to better align effort and appropriation.
0305614F	JSpOC Mission System	In FY2010, JSpOC Mission System is a new program element. It consolidates on-going efforts from PE 64425F (Integrated Space Situational Awareness (ISSA), PE 64421F (RAIDRS Block 20), and PE 27410F (Space Command and Control) into a single program element as the programs were consolidated into a single program. This program will also develop improved, responsive, and accurate orbital collision predictions for commercial and international space systems.

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

<u>Program Element</u>	<u>Title</u>
0101314F	NIGHT FIST- USSTRATCOM
0101815F	Advanced Strategic Program
0207424F	Evaluation and Analysis Program
0208161F	Special Evaluation System
0301310F	National Air Intelligence Center
0301314F	COBRA BALL
0301315F	Missile and Space Technical Collection
0301324F	FOREST GREEN
0301386F	GDIP Collection Management
0301555F	Classified Programs
0301556F	Special Program
0304111F	Special Activities
0304311F	Selected Activities
0304348F	Advanced Geospatial Intelligence (AGI)
0305124F	Special Applications Program
0305142F	Applied Technology and Integration
0305159F	Defense Reconnaissance Support Activities
0305172F	Combined Advanced Applications
0605798F	Analysis Support Group
0305127F	Foreign Counterintelligence Activities

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

UNCLASSIFIED

PE NUMBER: 0603260F
 PE TITLE: Intelligence Advanced Development

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.892	6.570	5.009	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3479 Advanced Sensor Exploitation	1.807	1.830	1.829	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3480 Automated Imagery Exploitation	0.641	2.446	0.911	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1.506	1.577	1.557	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3482 Science & Tech Intelligence Methodology	1.938	0.717	0.712	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) Program Element (PE) 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. The Air Force Research Laboratory, Rome Research Site, Information and Intelligence Exploitation Division (AFRL/RIE) works directly with users, employing a rapid prototyping evolutionary approach, then integrating finished modules directly into the field. The programs are oriented towards specific shortfalls and deficiencies as documented by the major commands, combatant commands, and intelligence organizations in their mission and functional area plans. The goal of this PE is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF PE is focused on technology insertion to correct AF intelligence deficiencies at tactical and operational levels. The PE bridges the transition of new technologies from Advanced Technology Demonstrations and Integrated Technology Thrust Programs into current/new systems, and also supports the associated Defense Technology Objectives. IAD may reallocate existing resources to support out-of-cycle new/updated warfighter requirements.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.892	4.988	5.095
(U) Current PBR/President's Budget	5.892	6.570	5.009
(U) Total Adjustments	0.000	1.582	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.018	
Congressional Increases		1.600	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY09 \$1.6M Congressional Add for Broad Area Multi-Intelligence Ubiquitous Enterprise (BMUSE) Project in BPAC 673480.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3479 Advanced Sensor Exploitation	1.807	1.830	1.829	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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 and Measurement and Signature Intelligence - MASINT) 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, IMINT and MASINT; providing faster situational awareness and threat assessment, and replace manual systems with automated capabilities. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Completed Predictive Battlespace Awareness (Live Electronic Order of Battle)	0.536		
(U) Completed Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)	0.216		
(U) Continue Ubiquitous Collaboration	1.055	0.872	1.829
(U) Completed Semi-Autonomous Intelligence Fusion		0.958	
(U) Total Cost	1.807	1.830	1.829

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										
None										

(U) D. Acquisition Strategy

Requirements for new advanced sensor exploitation technologies are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency). Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0603260F Intelligence Advanced
Development**

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

project are awarded after full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603260F Intelligence Advanced Development					3479 Advanced Sensor Exploitation			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Predictive Battlespace Awareness (Live Electronic Order of Battle)	C/CPFF	Northrop-Gru mman, Bellevue, NE and Intelligent Software Solutions, Colorado Springs, CO	3.733	0.536	Nov-07	0.000		0.000		0.000	4.269	4.269
Web Automated Assistance with Intelligence Preparation of the Battlefield (WA2IPB)	C/IDIQ	Zel-Tech, LLC, Hampton, VA	0.258	0.216	Nov-07	0.000		0.000		0.000	0.474	0.474
Ubiquitous Collaboration	C/IDIQ	Chiliad; ISS Washington DC and Dolphin/ITT Rome, NY	0.000	1.055	Mar-08	0.872	Nov-08	1.829	Nov-09	Continuing	TBD	TBD
Semi-Autonomous Intelligence Fusion	C/IDIQ	Dynetics, Dayton, OH	0.000	0.000		0.958	Jan-09	0.000		0.000	0.958	0.958
Subtotal Product Development			3.991	1.807		1.830		1.829		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			3.991	1.807		1.830		1.829		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

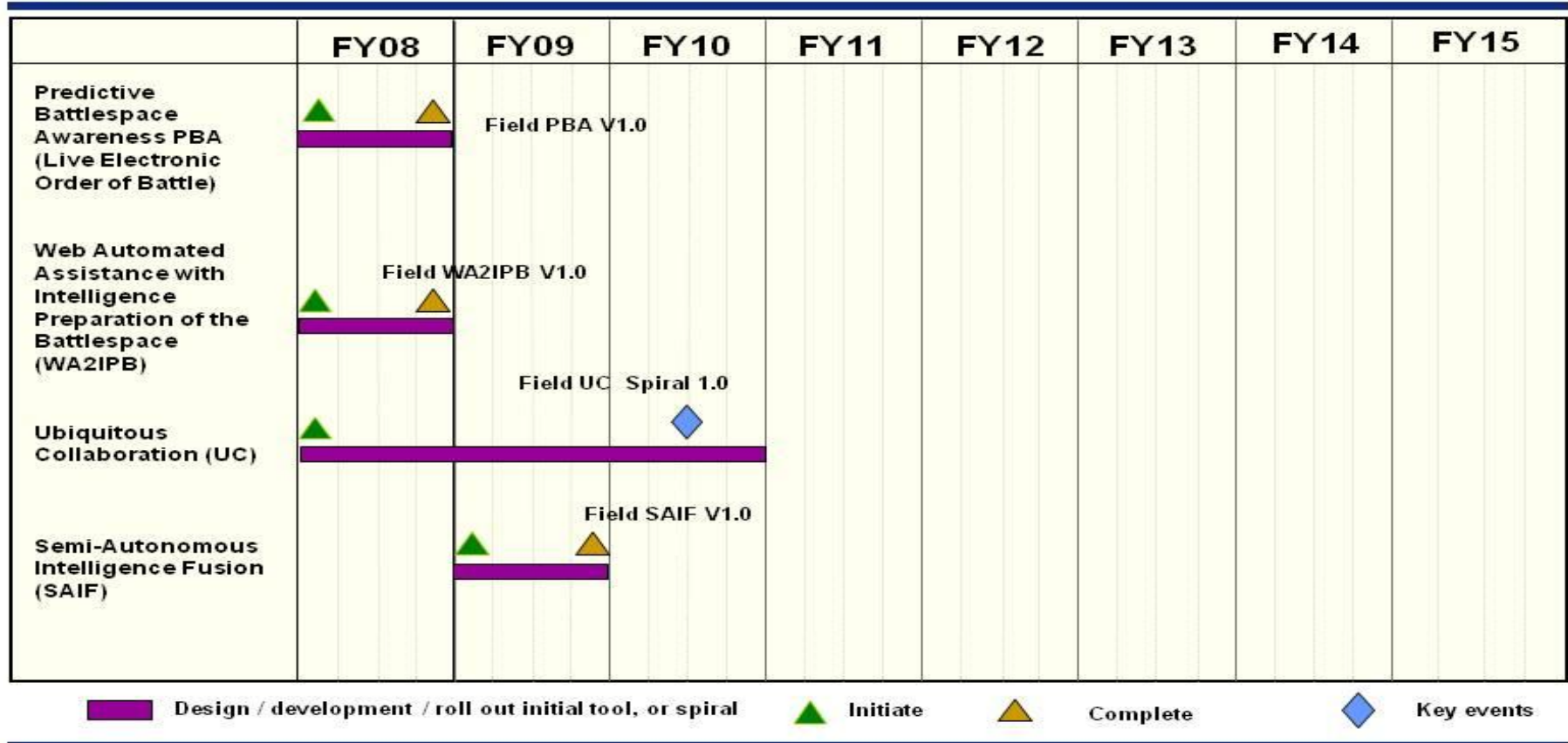
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation



Intelligence Advanced Development Program – Advanced Sensor Exploitation Program Schedule (BPAC 643479)



PB10 R-Docs

Depicted by installation/production flow

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Complete Predictive Battlespace Awareness (Live Electronic Order of Battle)	1-4Q		
(U) Complete Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)	1-4Q		
(U) Initiate / Continue Ubiquitous Collaboration	1-4Q	1-4Q	1-4Q
(U) Initiate /Continue / Complete Semi-Autonomous Intelligence Fusion (a.k.a Dynamic Models)		1-4Q	

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3480 Automated Imagery Exploitation	0.641	2.446	0.911	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Complete Multi-View Toolkit for Imagery Assessment and Exploitation	0.340	0.546	
(U) Initiate / Continue Persistent Surveillance	0.301	0.300	0.330
(U) Initiate / Continue Digital Library Input Processing (DLIPS)			0.581
(U) Initiate/ Complete Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE)		1.600	
(U) Total Cost	0.641	2.446	0.911

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										
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 Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency. Development of new / improved capabilities to meet these requirements is managed by AF Research Laboratory (Rome Research Site). The prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Multi-View Toolkit for Imagery Assessment and Exploitation	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.907	0.340	Nov-07	0.546	Nov-08	0.000		0.000	1.793	1.793
Persistent Surveillance	C/CPFF	ITT, Rochester, NY	0.000	0.301	Jul-08	0.300	Nov-08	0.330	Nov-09	Continuing	TBD	TBD
Digital Library Input Processing (DLIPS)	C/TBD	TBD	0.000	0.000		0.000		0.581	Feb-10	Continuing	TBD	TBD
Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE)	C/TBD	ITT, White Plains, NY				1.600	Mar-09				1.600	1.600
Subtotal Product Development			0.907	0.641		2.446		0.911		Continuing	TBD	TBD
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.907	0.641		2.446		0.911		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

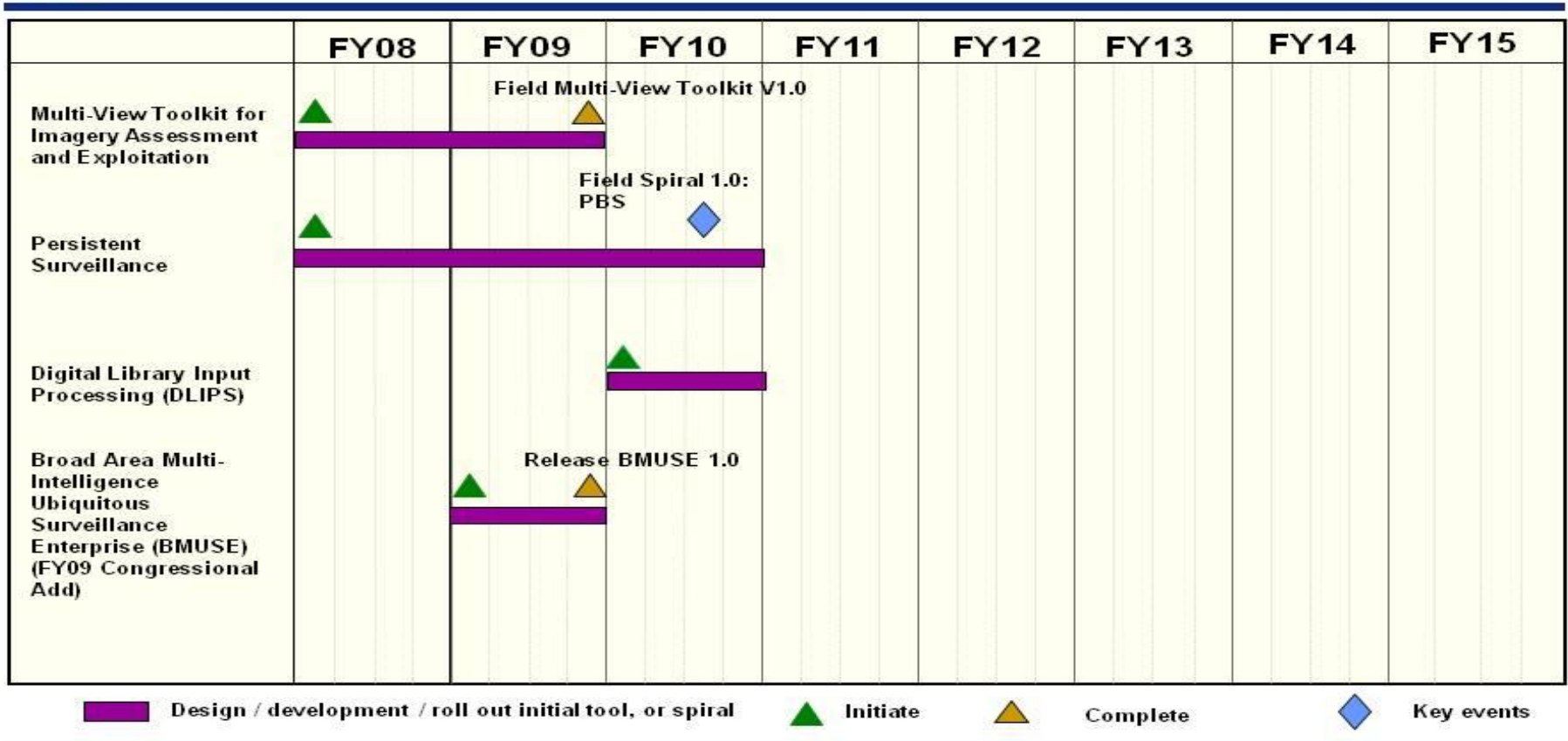
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE
3480 Automated Imagery Exploitation



Intelligence Advanced Development Program – Advanced Automated Imagery Exploitation Schedule (BPAC 643480)



PB10 R-Docs

Depicted by installation/production flow

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3480 Automated Imagery Exploitation
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Completed Multi-View Toolkit for Imagery Assessment and Exploitation	1-4Q	1-4Q	
(U) Continue Persistent Surveillance	1-4Q	1-4Q	1-4Q
(U) Initiate Digital Library Input Processing (DLIPS)			1-4Q
(U) Completed Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE) (FY09 Congressional Add)		1-4Q	

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3481 Knowledge Based Tech For Intelligence	1.506	1.577	1.557	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Completed Enterprise Workflow Management (EWM)	0.185		
(U) Completed Non-Traditional Intelligence / Surveillance / Reconnaissance (ISR) Production Management	0.838		
(U) Continue Dynamic ISR for Non-Traditional Adversarial Methods	0.483	0.621	0.547
(U) Continue Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI)		0.956	1.010
(U) Total Cost	1.506	1.577	1.557

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) N/A										
None										

(U) D. Acquisition Strategy

Requirements for new / improved analytical aids to exploit collected intelligence data are gathered and prioritized by the Air Force Intelligence, Surveillance and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency. Development of new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603260F Intelligence Advanced Development				3481 Knowledge Based Tech For Intelligence			

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Enterprise Workflow Management	C/CPFF	Northrop Grumman Corp, Bellevue, NE	1.565	0.185	Nov-07	0.000		0.000		0.000	1.750	1.750
Non-Traditional ISR Production Management (NTIPM)	C/IDIQ	Northrop-Grumman Corp, Bellevue NE & Intelligent Software Solutions, Colorado Springs, CO	1.626	0.838	Nov-07	0.000		0.000		0.000	2.464	2.464
Dynamic ISR for Non-Traditional Adversarial Methods	C/IDIQ	Northrop-Grumman Corp, Bellevue, NE	0.000	0.483	Feb-08	0.621	Nov-08	0.547	Nov-09	Continuing	TBD	TBD
Net-Enabled Dynamic Security	C/IDIQ	ISS, Colorado Springs, CO	0.000	0.000		0.956	Jan-09	1.010	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			3.191	1.506		1.577		1.557		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			3.191	1.506		1.577		1.557		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

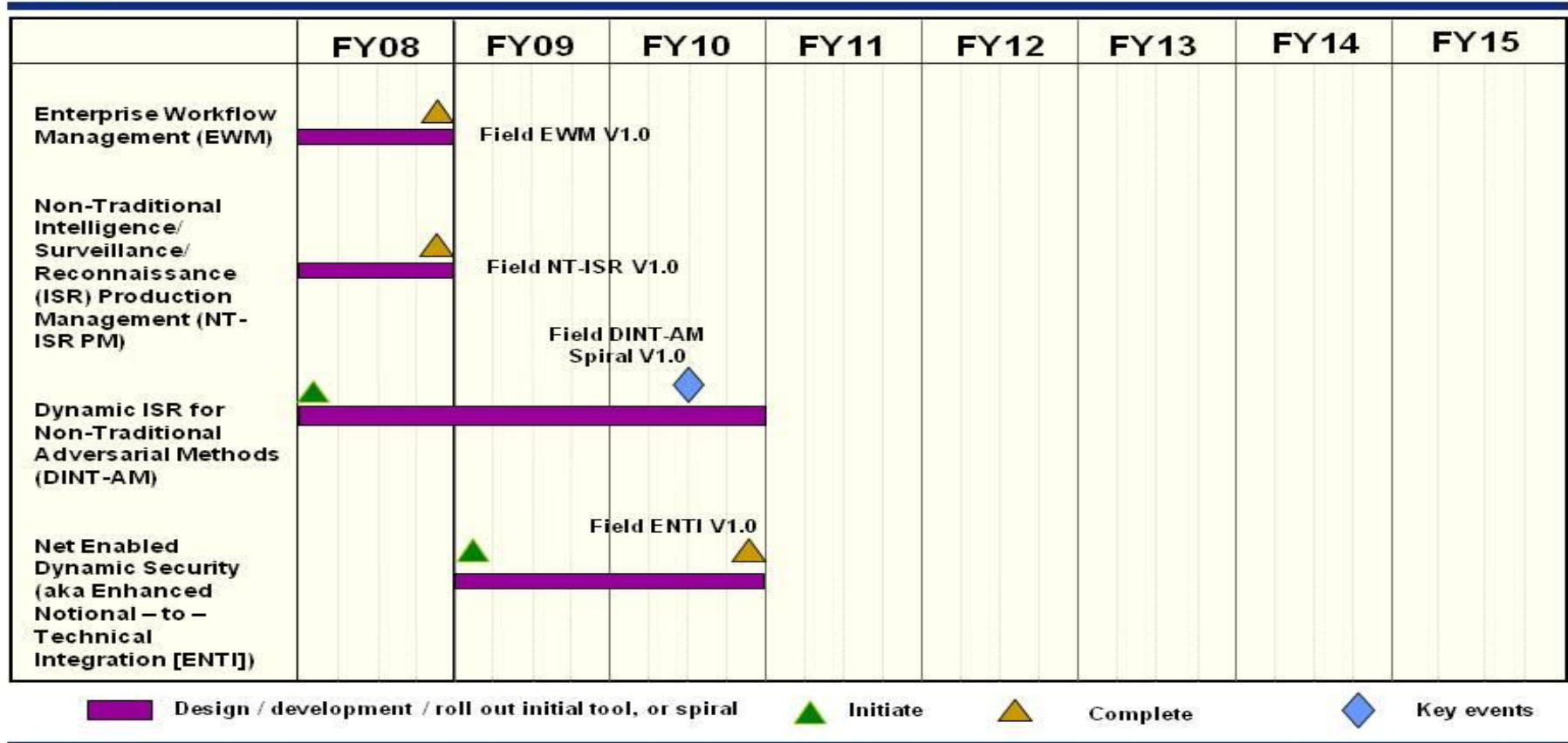
BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE
3481 Knowledge Based Tech For Intelligence



Intelligence Advanced Development Program – Knowledge Based Tech for Intelligence Schedule (BPAC 643481)



PB10 R-Docs

Depicted by installation/production flow

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Completed Enterprise Workflow Management Tool	1-4Q		
(U) Completed Non-Traditional ISR Production Management	1-4Q		
(U) Continue Dynamic ISR for Non-Traditional Adversarial Methods	1-4Q	1-4Q	1-4Q
(U) Continue Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration [ENTI])		1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT NUMBER AND TITLE 3482 Science & Tech Intelligence Methodology		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3482 Science & Tech Intelligence Methodology	1.938	0.717	0.712	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The project demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency, requirements. The methods and techniques will help AFISRA 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. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Completed Integrated Denial & Deception Signatures and Materials (IDMATS)	0.512		
(U) Complete Adversary Tactics, Training, and Readiness Knowledge Base	0.257	0.717	
(U) Completed Multilingual Text Mining Platform for Intel Analyst (MTMP) (FY08 Congressional Add)	1.169		
(U) Initiate / Continue Real Time Intelligence Situational Awareness (Analyst of Tomorrow - AoT)			0.712
(U) Total Cost	1.938	0.717	0.712

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) N/A										
None										

(U) D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0603260F Intelligence Advanced Development	3482 Science & Tech Intelligence Methodology

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Integrated Denial & Deception Signatures and Materials (IDMATs)	C/CPFF	SAIC, Dayton OH	0.235	0.512	Nov-07	0.000		0.000		0.000	0.747	0.747
Adversary Tactics, Training, and Readiness Knowledge Base	C/CPFF	Northrop-Gru mman, Fairborn, OH	0.156	0.257	Nov-07	0.717	Nov-08			0.000	1.130	1.130
Multilingual Text Mining Platform for Intel Analyst (MTMP)	C/CPFF	Janya, Amherst, NY	0.000	1.169	Apr-08	0.000		0.000		0.000	1.169	1.169
Real Time Intelligence Situational Awareness (Analyst of Tomorrow - AoT)	TBD	TBD	0.000	0.000		0.000		0.712	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			0.391	1.938		0.717		0.712		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.391	1.938		0.717		0.712		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

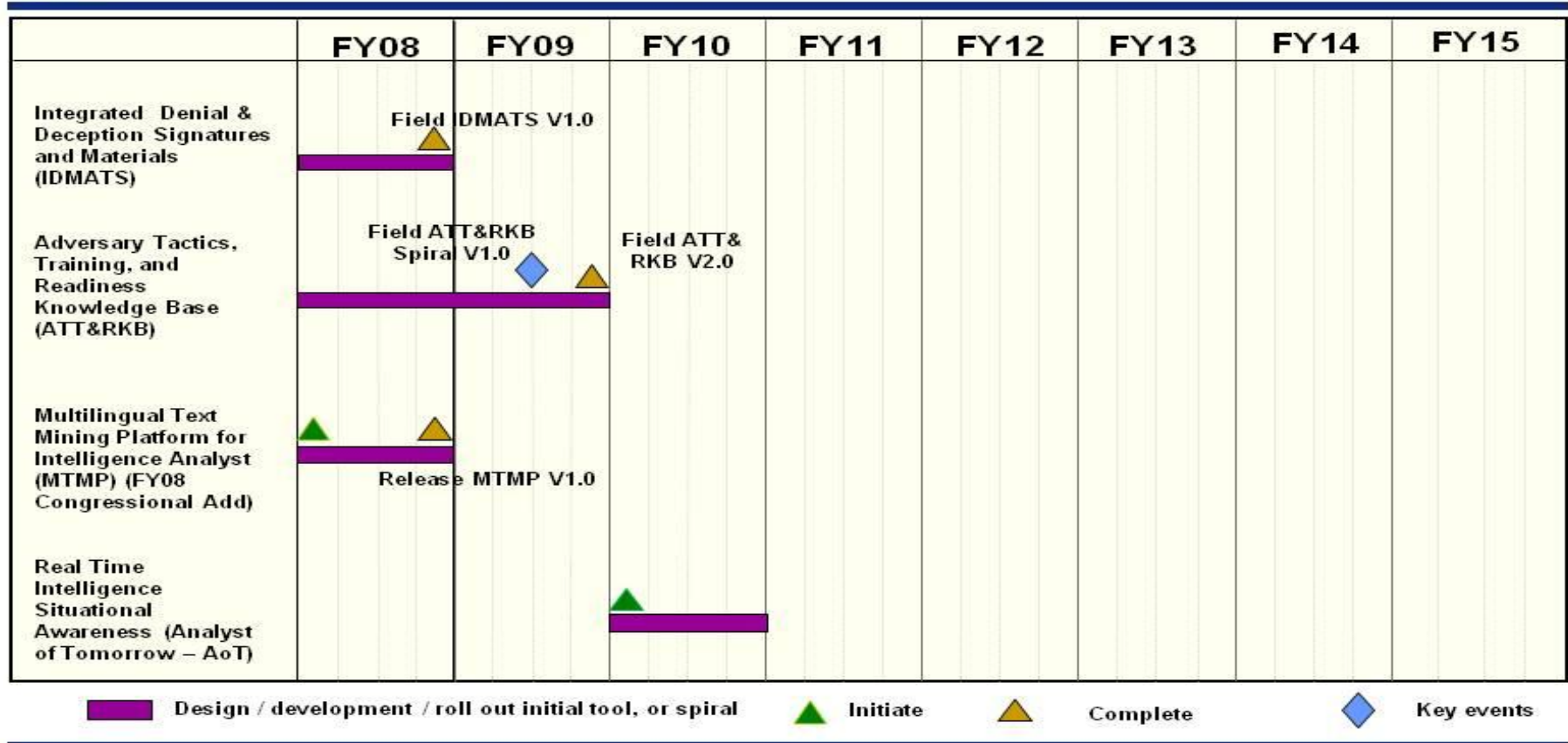
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3482 Science & Tech Intelligence Methodology



Intelligence Advanced Development Program – Science & Tech Intelligence Methodology Schedule (BPAC 643482)



PB10 R-Docs

Depicted by installation/production flow

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UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT NUMBER AND TITLE 3482 Science & Tech Intelligence Methodology
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Completed IDMATS Program	1-4Q		
(U) Complete Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)	1-4Q	1-4Q	
(U) Completed Multilingual Text Mining Platform for Intel Analyst (MTMP) (FY 08 Congressional Add)	1-4Q		
(U) Initiate / Continue Real Time Intelligence Situational Awareness (Analyst of Tomorrow - AoT)			1-4Q

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PE NUMBER: 0603287F
 PE TITLE: Physical Security Equipment

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.767	1.672	3.623	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5121 Physical Security Equipment	2.767	1.672	3.623	0.000	0.000	0.000	0.000	0.000	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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	2.767	1.672	0.478
(U) Current PBR/President's Budget	2.767	1.672	3.623
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

Residual funds will be reprogrammed.

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5121 Physical Security Equipment	2.767	1.672	3.623	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**
 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>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|--|----------------|----------------|----------------|
- (U) **B. Accomplishments/Planned Program (\$ in Millions)**
- (U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT
- Awarded LKMD SDD contract. Conduct Production Qualification LKMD testing.
 - Issued Federal Business Opportunities Announcement for the Tactical Video Surveillance System (TVSS).
 - Conducted market survey for the TVSS.
 - Conducted Concept Exploration for the best technical approach to integrate TVSS with other phenomenology for tactical intrusion detection.
 - Conducted operational testing of ASPSS.
 - Refined and researched improvements for the Smart Gate program.
 - Continued TASS P3I efforts including improvements to the annunciator.
 - Continued to manage, develop, evaluate, and test Delay/Denial products.
 - Continued to manage sensor and assessment product developments and tests.
 - Continued to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.
 - Continued to prepare operational systems improvement plans; develop technology roadmap, update system architecture.
 - Continued to test, develop, and integrate equipment to improve security and access to facilities.

Exhibit R-2a, RDT&E Project Justification		DATE
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)		May 2009
PE NUMBER AND TITLE 0603287F Physical Security Equipment		PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2008</u> <u>FY 2009</u> <u>FY 2010</u>
- Began to develop the XML Wide Area Sensor.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT	2.767	
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		1.672
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
- Demonstrated ability to network robotic systems to provide enhanced detection, surveillance, and response in all aspects of installation force protection and installation security.		
- Continued efforts to improve the operational capability and safety of integrated weapon systems and robotics platforms employed in force protection and security missions.		
- Continues imagery improvements for the FPASS.		
- Developed a Digital Network Centric capability for the Remotely Operated Weapons System (ROWS).		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2008 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.		
(U) WATERSIDE SECURITY SYSTEM		
- Began the C3 integration of Pierside and Shipboard Security Systems.		
- Began the upgrade of Swimmer Detection sonars.		
(U) WATERSIDE SECURITY SYSTEM		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		

Exhibit R-2a, RDT&E Project Justification		DATE
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)		PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
PE NUMBER AND TITLE 0603287F Physical Security Equipment		DATE May 2009
(U) B. Accomplishments/Planned Program (\$ in Millions)		<u>FY 2008</u> <u>FY 2009</u> <u>FY 2010</u>
(U) WATERSIDE SECURITY SYSTEM In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.		
(U) WATERSIDE SECURITY SYSTEM In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2010 plans.		3.623
(U) EXPLOSIVE DETECTION EQUIPMENT - Invested in the integration of image and chem/bio detection to counter the WMD threat. - Invested in the reduction of the manpower footprint associated with the detection of vehicle and cargo explosive threats. - Awarded the development contract for Video/Radar Concealed Bomb Detection. - Began to build the infrastructure to test Shaped Energy X-Ray Detection Systems.		
(U) EXPLOSIVE DETECTION EQUIPMENT In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2011 plans.		
(U) EXPLOSIVE DETECTION EQUIPMENT In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.		
(U) EXPLOSIVE DETECTION EQUIPMENT In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.		
(U) LOCKS, SAFES, VAULTS - Completed the light-wight weapons armory door ILD prototype. - Developed ILD design improvements to increase operational capability and improved resistance against forced entry. - Continued evaluating Lock technology and attack tools.		
(U) LOCKS, SAFES, VAULTS In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		
(U) LOCKS, SAFES, VAULTS In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.		
(U) LOCKS, SAFES, VAULTS		

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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(U) **B. Accomplishments/Planned Program (\$ in Millions)** FY 2008 FY 2009 FY 2010
 In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

(U) **COMMERCIAL-OFF-THE-SHELF TESTING**
 - Delivered FPED V After Action Report
 - Distributed FPED V CDs
 - Launched FPED VI on-line registration
 - Prepared to execute FPED VI.
 - Continued to seek near-term (commercial) solutions for immediate force protection needs.

(U) **COMMERCIAL-OFF-THE-SHELF TESTING**
 In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.

(U) **COMMERCIAL-OFF-THE-SHELF TESTING**
 In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.

(U) **COMMERCIAL-OFF-THE-SHELF TESTING**
 In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

(U) Total Cost	2.767	1.672	3.623
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>

(U) Not Applicable

(U) **D. Acquisition Strategy**
 Not Applicable

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
HQ ESC (Air Force)	PO			2.767	Apr-08	1.672	Apr-09	3.623	Apr-10	Continuing	TBD	TBD
PM-PSE (US Army)	MIPR									Continuing	TBD	TBD
CNO-N34 (US Navy)	MIPR									Continuing	TBD	TBD
DTRA	MIPR									Continuing	TBD	TBD
Subtotal Product Development			0.000	2.767		1.672		3.623		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 & Evaluation</u>											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 Office Support										Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Not Applicable</u>												
<u>(U) Total Cost</u>			0.000	2.767		1.672		3.623		Continuing	TBD	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0603287F Physical Security
Equipment

PROJECT NUMBER AND TITLE
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

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

PE NUMBER AND TITLE
PE0603287F Physical Security
Equipment

PROJECT NUMBER AND NAME
5121 Physical Security Equipment

Fiscal Year	FY08				FY09				FY10			
	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						▲						

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

PE0603287F Physical Security Equipment

PROJECT NUMBER AND NAME

5121 Physical Security Equipment

Fiscal Year	FY08				FY09				FY10			
	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								▲				

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Project 5121

Exhibit R-4 (PE 0603287F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT NUMBER AND TITLE 5121 Physical Security Equipment
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(U) Schedule Profile	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Conduct market survey for the TVSS			1-4Q
(U) TVSS Prototype Design, Fabrication, & Integration	2Q	1-4Q	
(U) PAS Market Survey and Investigation	2Q	3Q	
(U) Continue TASS P3I efforts including the annunciator		3Q	1-4Q
(U) Conduct a Leap Ahead assessment of current PSE technology			1-3Q
(U) Follow-on Early User Appraisal for MDARS		1-4Q	
(U) Buy Equipment to build a Hybrid Image/Trace EDE system	2-3Q		
(U) C3 integration of Pierside and Shipboard Security Systems	1-2Q		

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PE NUMBER: 0603421F
 PE TITLE: GLOBAL POSITIONING SYSTEM

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	446.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4993 GPS III	446.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation GPS Control Segment (OCX) through FY08. 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, developmental test resources, and technology needs forecasting.

In FY09, remaining funding from this PE is divided and transferred into the following PEs:

PE 0305265F - GPS III Space Segment (RDT&E and MPAF for GPS III Space Vehicles)

PE 0603423F - Global Positioning System III - Operational Control Segment (GPS III OCX Blocks II, III & IV)

FY09 Funding established in PE 0603427F, GPS Operational Control Segment - Backwards Compatibility, is combined with PE 0603423F for FY09.

Beginning in FY10, all OCX RDT&E, AF funding will be combined under the GPS III PE, 0305265F, and reside in a separate Budget Program Activity Code (BPAC) from the Space Vehicle development funding.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	482.845	0.000	0.000
(U) Current PBR/President's Budget	446.197	0.000	0.000
(U) Total Adjustments	-36.648	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-9.409		
SBIR/STTR Transfer	-27.239		
(U) <u>Significant Program Changes:</u>			
-\$9.409M for higher priorities.			

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM		PROJECT NUMBER AND TITLE 4993 GPS III	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4993 GPS III	446.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation GPS Control Segment (OCX) through FY08. 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, developmental test resources, and technology needs forecasting.

In FY09, remaining funding from this PE is divided and transferred into the following PEs:

PE 0305265F - GPS III Space Segment (RDT&E and MPAF for GPS III Space Vehicles)

PE 0603423F - Global Positioning System III - Operational Control Segment (GPS III OCX Blocks II, III & IV)

FY09 Funding established in PE 0603427F, GPS Operational Control Segment - Backwards Compatibility, is combined with PE 0603423F for FY09.

Beginning in FY10, all OCX RDT&E, AF funding will be combined under the GPS III PE, 0305265F, and reside in a separate Budget Program Activity Code (BPAC) from the Space Vehicle development funding.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue GPS III Space Vehicle (SV) Development	180.689	0.000	0.000
(U) Continue Next Generation Control Segment (OCX)	251.522	0.000	0.000
(U) Continue Program Support for GPS III SV/OCX, to include Systems Engineering and Integration	13.986	0.000	0.000
(U) Total Cost	446.197	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0305265F GPS III Space Segment, (Project 67A019; BA-07; R-197)	0.000	392.276	425.634							TBD

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT NUMBER AND TITLE 4993 GPS III
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(U) C. Other Program Funding Summary (\$ in Millions)

(U)	PE 0305265F OCX, (Project 67A020; BA-07;R-XXX)	0.000	0.000	389.948		TBD
(U)	PE 0603423F Global Positioning System III Operational Control Segment (OCX), (Project 64A021; BA-04; R-36)	0.000	306.502	0.000		306.502
(U)	Other APPN					
(U)	Missile Procurement: PE 0305265F, BA-04, P-xx, P-xx)	0.000	0.000	0.000		TBD
(U)	Other Procurement: PE 0305265F, BP 83, WSC 836730, P-37	0.000	0.000	0.000		TBD

(U) D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to GPS III space vehicle (SV) development and the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach utilizes a disciplined systems engineering approach which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach focuses on mission success and on time delivery.

GPS III SV funding in this PE was transferred in FY09 to PE 030265F, and OCX funding was transferred in FY09 to PEs 0603423F and 0603427F; the funding in 0603427F was then transferred to PE 0603423F in FY09. Beginning in FY10, OCX development will be combined in a single Program Element, PE 0305265F with separate Budget Program Activity Codes (BPACs) for the space and ground segment.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT NUMBER AND TITLE 4993 GPS III
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>											0.000	
Phase A Continuation Contracts												
Phase A Contracts - GPS III (Boeing)	CPFF	Huntington Beach, CA	106.220	0.000		0.000		0.000		0.000	106.220	24.257
Phase A Contracts - GPS III (Lockheed Martin)	CPFF	King of Prussia, PA	117.006	0.000		0.000		0.000		0.000	117.006	24.234
Phase A OCX (Raytheon)	CPFF	Aurora, CO	8.695	105.673	Jan-08	0.000		0.000		0.000	114.368	
Phase A OCX (Northrop Grumman)	CPFF	Carson, CA	8.695	105.673	Jan-08	0.000		0.000		0.000	114.368	
Block IIIA Subsystem Risk Reduction	CPAF	TBD	7.504	53.599	Jan-08	0.000		0.000		0.000	61.103	
GPS III Development PRDAs	Various	Various	13.537	0.000		0.000		0.000		0.000	13.537	
Mod System Engineering & Technical Support	Various	Various	178.241	70.867	Jan-08	0.000		0.000		0.000	249.108	
Blk IIIA Contract	TBD	TBD	0.000	96.399	Jan-08	0.000		0.000		0.000	96.399	
Subtotal Product Development			439.898	432.211		0.000		0.000		0.000	872.109	48.491
Remarks:												
(U) <u>Support</u>												
Wing Support for GPS III / OCX	Various	Various	70.466	11.085	Jan-08	0.000		0.000		0.000	81.551	
Other Agency Support for GPS III/ OCX	Various	Various	16.771	2.901	Jan-08	0.000		0.000		0.000	19.672	
Subtotal Support			87.237	13.986		0.000		0.000		0.000	101.223	0.000
Remarks:												
(U) <u>Test & 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			527.135	446.197		0.000		0.000		0.000	973.332	48.491

Exhibit R-4, RDT&E Schedule Profile

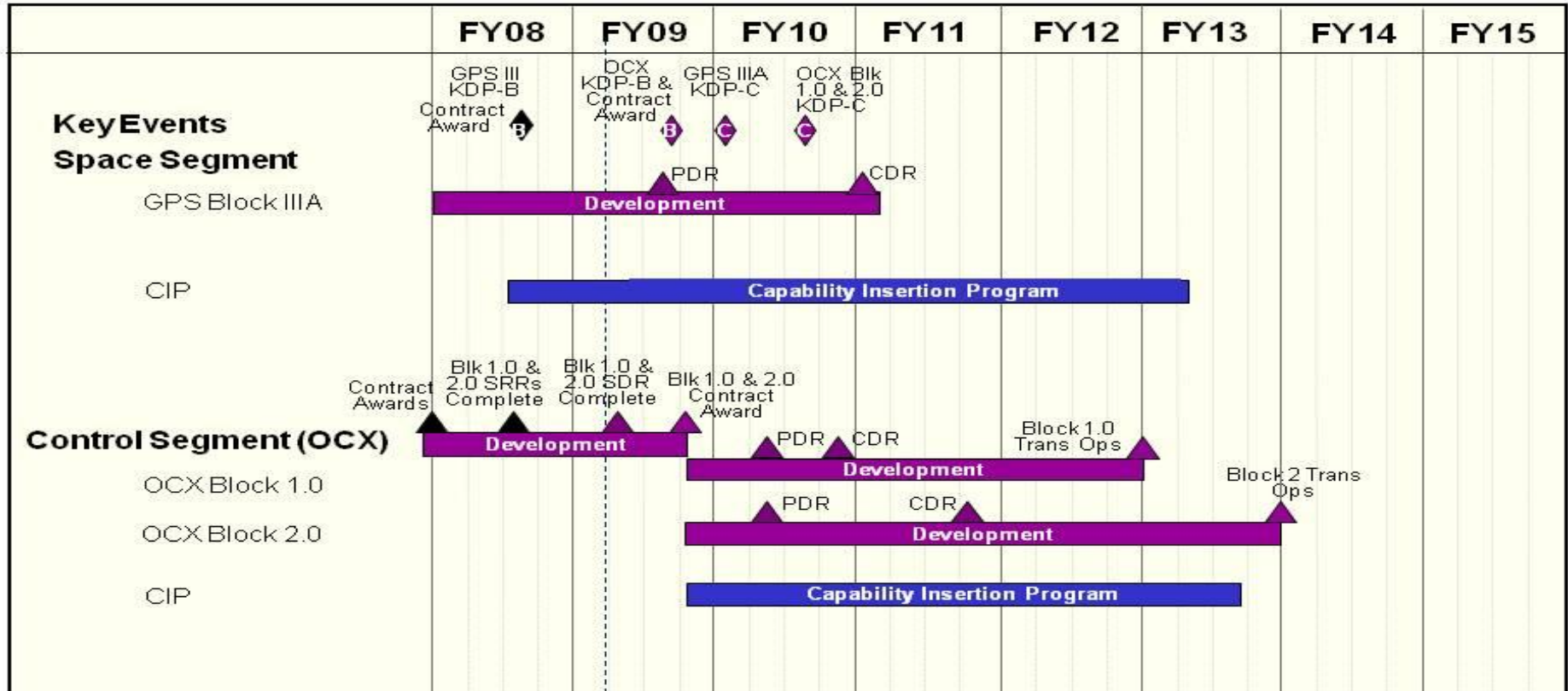
DATE

May 2009

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

PE NUMBER AND TITLE
0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE
4993 GPS III



CDR – Critical Design Review
CIP – Capability Insertion Program
PDR: Preliminary Design Review
SRR: System Requirements Review
SDR: System Design Review

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE

4993 GPS III

(U) Schedule Profile

- (U) OCX Award 2 Contracts
- (U) Block IIIA KDP-B
- (U) OCX SRRs
- (U) Block IIIA Contract Award

FY 2008

FY 2009

FY 2010

1Q
3Q
3Q
3Q

UNCLASSIFIED
TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0603421F	644993	3600	446.197		0.000		0.000		0.000		0.000		0.000					

Effort Title

Global Positioning System (GPS) III

Program Description

GPS III is the next generation GPS satellite. OCX is the next generation ground control segment.

Status to Date

No FY10 funding is requested for this Program Element. Program will continue in other PEs.

Rationale for Termination

Starting in FY09, all funding is distributed among 3 new PEs for increased program visibility. PE 0603421F is discontinued after FY08.

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PE NUMBER: 0603423F

PE TITLE: Global Positioning System III - Operational Control Segment

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603423F Global Positioning System III - Operational Control Segment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	306.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A021 GPS III OCX	0.000	306.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program element funds the Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate situational awareness to support Navwar and signal monitoring, and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development efforts.

Beginning in FY10, OCX funding will be combined under the GPS III PE, 0305265F, and reside in a separate Budget Program Activity Code (BPAC) from the Space Vehicle development funding.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	2.975	236.734
(U) Current PBR/President's Budget	0.000	306.502	0.000
(U) Total Adjustments	0.000	303.527	
(U) Congressional Program Reductions		-0.833	
Congressional Rescissions			
Congressional Increases		304.360	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

OCX funding transferred to PE 0305265F beginning in FY10. -\$0.833M in FY09 for Congressional General Reductions. \$304.360M transferred by Congress from PE

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603423F Global Positioning System III - Operational Control Segment

0603427F to consolidate OCX efforts in FY09.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603423F Global Positioning System III - Operational Control Segment		PROJECT NUMBER AND TITLE A021 GPS III OCX		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A021 GPS III OCX	0.000	306.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program element funds the Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate situational awareness to support Navwar and signal monitoring, and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development efforts.

Beginning in FY10, OCX funding will be combined under the GPS III PE, 0305265F, and reside in a separate Budget Program Activity Code (BPAC) from the Space Vehicle development funding.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) OCX Development	0.000	228.045	0.000
(U) System Engineering & Integration (SE&I)	0.000	4.644	0.000
(U) Program Support	0.000	73.813	0.000
(U) Total Cost	0.000	306.502	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0603421F Global Positioning System (Project 644993; BA-04; R-38)	446.197	0.000	0.000							446.197

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603423F Global Positioning System III - Operational Control Segment	PROJECT NUMBER AND TITLE A021 GPS III OCX
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) PE 0305265F GPS III Space Segment (Project 67A019; BA-07; R-197)	0.000	392.276	425.634		TBD
(U) PE 0305265F OCX (Project 67A019; BA-07; R-xxx)	0.000	0.000	389.948		TBD
(U) Other APPN					
(U) Missile Procurement: PE 0305265F, BA 5, P-XX	0.000	0.000	0.000		TBD
(U) Other Procurement: PE 0305265F, BP 83, WSC 836730, P-71	0.000	0.000	0.000		TBD

(U) D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach follows the "Back to Basics" space program acquisition philosophy which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach focuses on mission success and on time delivery.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603423F Global Positioning System III - Operational Control Segment					A021 GPS III OCX			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Phase A OCX Development	CPFF	Northrop Grumman, Carson, CA	0.000	0.000		114.022	Nov-08	0.000		0.000	114.022	
Phase A OCX Development	CPDD	Raytheon, Aurora, CO	0.000	0.000		114.022	Nov-08	0.000		0.000	114.022	
SE&I	CPAF	SAIC, Huntington Beach, CA	0.000	0.000		4.644	Nov-08	0.000		0.000	4.644	
Modernization/SE & Technical Support	Various	Various	0.000	0.000		21.496	Nov-08	0.000		0.000	21.496	
Subtotal Product Development			0.000	0.000		254.184		0.000		0.000	254.184	0.000
Remarks:	Funding transferred to PE 0305265F starting in FY10											
(U) <u>Support</u>												
Wing Support	Various	Various	0.000	0.000		52.318	Nov-08	0.000		0.000	52.318	
Subtotal Support			0.000	0.000		52.318		0.000		0.000	52.318	0.000
Remarks:	Funding transferred to PE 0305265F starting in FY10											
(U) <u>Test & 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			0.000	0.000		306.502		0.000		0.000	306.502	0.000

Exhibit R-4, RDT&E Schedule Profile

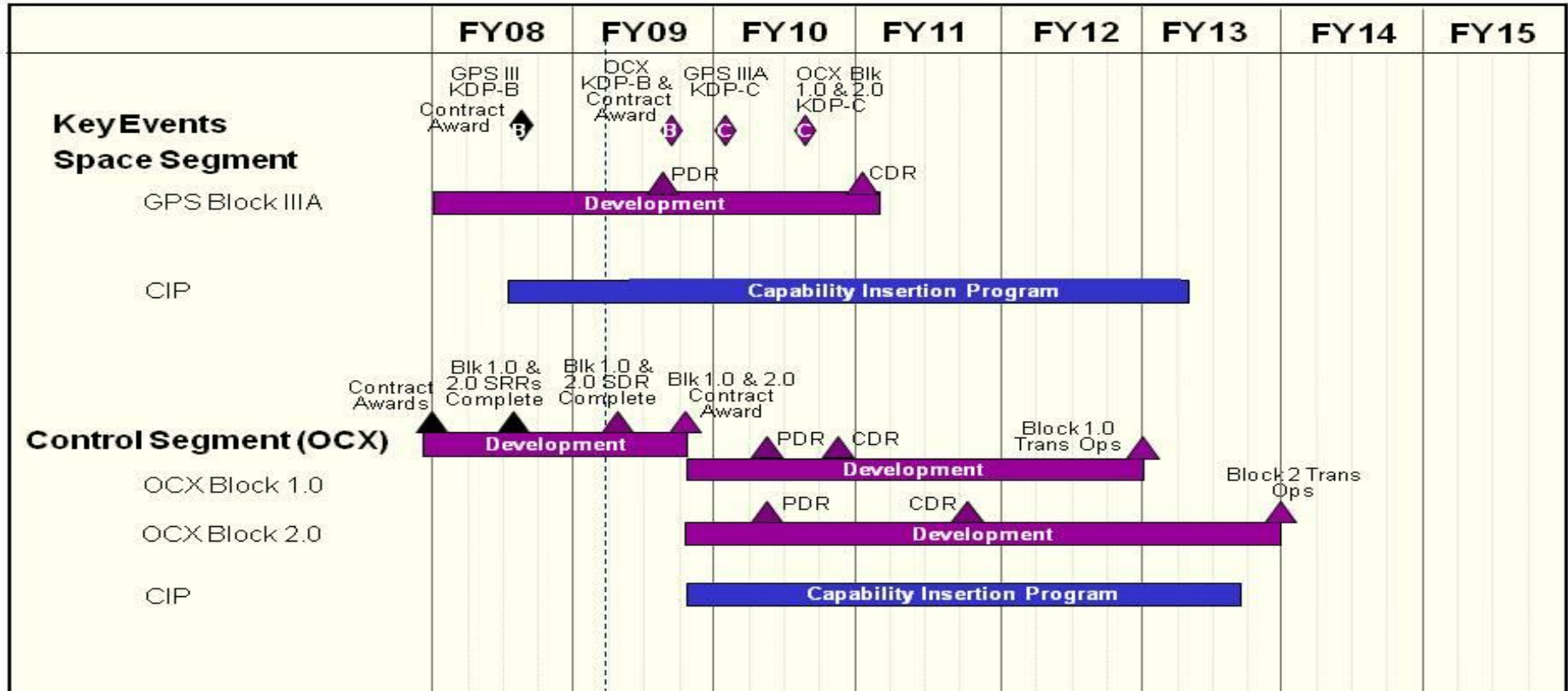
DATE

May 2009

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

PE NUMBER AND TITLE
0603423F Global Positioning System
III - Operational Control Segment

PROJECT NUMBER AND TITLE
A021 GPS III OCX



CDR – Critical Design Review
CIP – Capability Insertion Program
PDR: Preliminary Design Review
SRR: System Requirements Review
SDR: System Design Review

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603423F Global Positioning System
III - Operational Control Segment

PROJECT NUMBER AND TITLE

A021 GPS III OCX

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) OCX System Design Review (SDR)

2Q

(U) Key Decision Point (KDP)-B

3Q

(U) Begin OCX Block II Development

3Q

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TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0603423F	64A021	3600	0.000		306.502		0.000		0.000		0.000		0.000		0.000		0.000	

Effort Title

Global Positioning System III - Operational Control Segment

Program Description

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program element funds the Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate the GPS Operations Center (GPSOC) functionality into the GPS Control Segment and 3) enable mission capability upgrades to support warfighter effect based operations.

Status to Date

Program is funded in this PE in FY09.

Rationale for

Termination

Beginning in FY10, OCX funding will be combined under the GPS III PE, 0305265F, and reside in a separate Budget Program Activity Code (BPAC) from the Space Vehicle development funding.

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

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	612.318	386.425	464.335	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4050 Advanced MILSATCOM	612.318	386.425	464.335	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(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 warfighters. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

First time integration and test challenges and flight hardware problems with Space Vehicle-1 (SV-1) have delayed the launch to September 2010. These issues also impact SV-2 cost and schedule. SV-2 launch has been delayed to September 2011. A Service Cost Position (SCP) was completed in July 2008 and an OSD Cost Analysis Improvement Group (CAIG) Independent Cost Estimate (ICE) was completed in November 2008. The budget was increased to fully fund SV-1 and SV-2 overruns and match the OSD CAIG cost estimate.

A Nunn-McCurdy review due to a critical Average Procurement Unit Cost (APUC) breach has completed and the program was certified on 29 December 2008 (see Missile Procurement budget justification documentation for further details).

The FY10PB funds efforts such as SV-1 integration and test, and launch; SV-2 integration and test; technology needs forecasting; obsolescence and studies for future SVs; and incremental Mission Control Segment (MCS) including ground mobile command and control development, test/fielding and support.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	599.353	388.041	109.067
(U) Current PBR/President's Budget	612.318	386.425	464.335
(U) Total Adjustments	12.965	-1.616	
(U) Congressional Program Reductions		-0.566	
Congressional Rescissions		-1.050	
Congressional Increases			
Reprogrammings	20.000		
SBIR/STTR Transfer	-7.035		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603430F Advanced (EHF MILSATCOM (Space)

FY08: Reprogrammed \$20.0M (Omnibus) to address AEHF SV-1 & SV-2 launch delays
Congress approved (not reflected above) the reprogramming of \$45M FY08 & \$35M FY09, and the Department added FY10 funds to address ongoing AEHF SV-1 & SV-2 delays resulting from integration and test problems in accordance with the OSD CAIG Independent Cost Estimate.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))		PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4050 Advanced MILSATCOM	612.318	386.425	464.335	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

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 warfighters. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

First time integration and test challenges and flight hardware problems with Space Vehicle-1 (SV-1) have delayed the launch to September 2010. These issues also impact SV-2 cost and schedule. SV-2 launch has been delayed to September 2011. A Service Cost Position (SCP) was completed in July 2008 and an OSD Cost Analysis Improvement Group (CAIG) Independent Cost Estimate (ICE) was completed in November 2008. The budget was increased to fully fund SV-1 and SV-2 overruns and match the OSD CAIG cost estimate.

A Nunn-McCurdy review due to a critical Average Procurement Unit Cost (APUC) breach has completed and the program was certified on 29 December 2008 (see Missile Procurement budget justification documentation for further details).

The FY10PB funds efforts such as SV-1 integration and test, and launch; SV-2 integration and test; technology needs forecasting; obsolescence and studies for future SVs; and incremental Mission Control Segment (MCS) including ground mobile command and control development, test/fielding and support.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue efforts such as SDD of the AEHF satellites and MCS. Launch SV-1; continue build of Satellite 1 and 2 flight hardware, and intermediate software increments for bus and payload; technology needs forecasting; obsolescence and studies for future SVs	547.808	334.710	418.823
(U) Continue satellite cryptographic development	16.772	11.415	5.348
(U) Government Furnished Property (such as Launch Prep, MCS, Communication Circuit, etc)	4.267	1.987	0.703
(U) Continue Technical Support including studies and analyses	21.684	22.551	23.227
(U) Continue Program Office and related support activities, such as Systems Engineering and Integration	21.787	15.762	16.234
(U) Total Cost	612.318	386.425	464.335

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Related Proc:										
(U) MPAF, PE 0303604F, Advanced EHF, P-17/18	149.894	166.072	1843.475						Continuing	TBD
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-52	20.992	12.343	18.321						Continuing	TBD
(U) OPAF, PE 0303600F WGS, Project #836780, CCS-C	8.335	0.000	0.000						Continuing	TBD
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-175	362.676	334.182	257.831						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 Systems Development and Demonstration (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. The Program Office is updating the acquisition strategy to include AEHF SV-4.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603430F Advanced (EHF MILSATCOM (Space))					4050 Advanced MILSATCOM			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
NSA	MIPR	Camden, NJ	224.990	16.772	Dec-07	11.415	Dec-08	5.348	Dec-09	Continuing	TBD	
JTEO	PR	San Diego, CA	15.491							0.000	15.491	
MIT/LL	MIPR	Hanscom AFB, MA	4.988							0.000	4.988	
Hughes	CPFF	El Segundo, CA	67.175							0.000	67.175	
TRW	CPFF	Redondo Beach, CA	62.083							0.000	62.083	
Various	Various	Various	66.659							0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011							0.000	225.011	
Hughes	FFP	El Segundo, CA								0.000	0.000	
SDD Contractor (Lockheed Martin)	CPAF		3,405.934	547.808	Dec-07	334.710	Dec-08	418.823	Dec-09	Continuing	TBD	
Radiation Hardened parts developers	Various	Various	98.530							0.000	98.530	
Subtotal Product Development			4,170.861	564.580		346.125		424.171		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Various	Various		123.696							0.000	123.696	
Technical Support			43.725	21.684	Dec-07	22.551	Dec-08	23.227	Dec-09	Continuing	TBD	
GFP			6.150	4.267		1.987		0.703		0.000	13.107	
Program Office Support			75.003	21.787		15.762		16.234		Continuing	TBD	
Subtotal Support			248.574	47.738		40.300		40.164		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			4,419.435	612.318		386.425		464.335		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

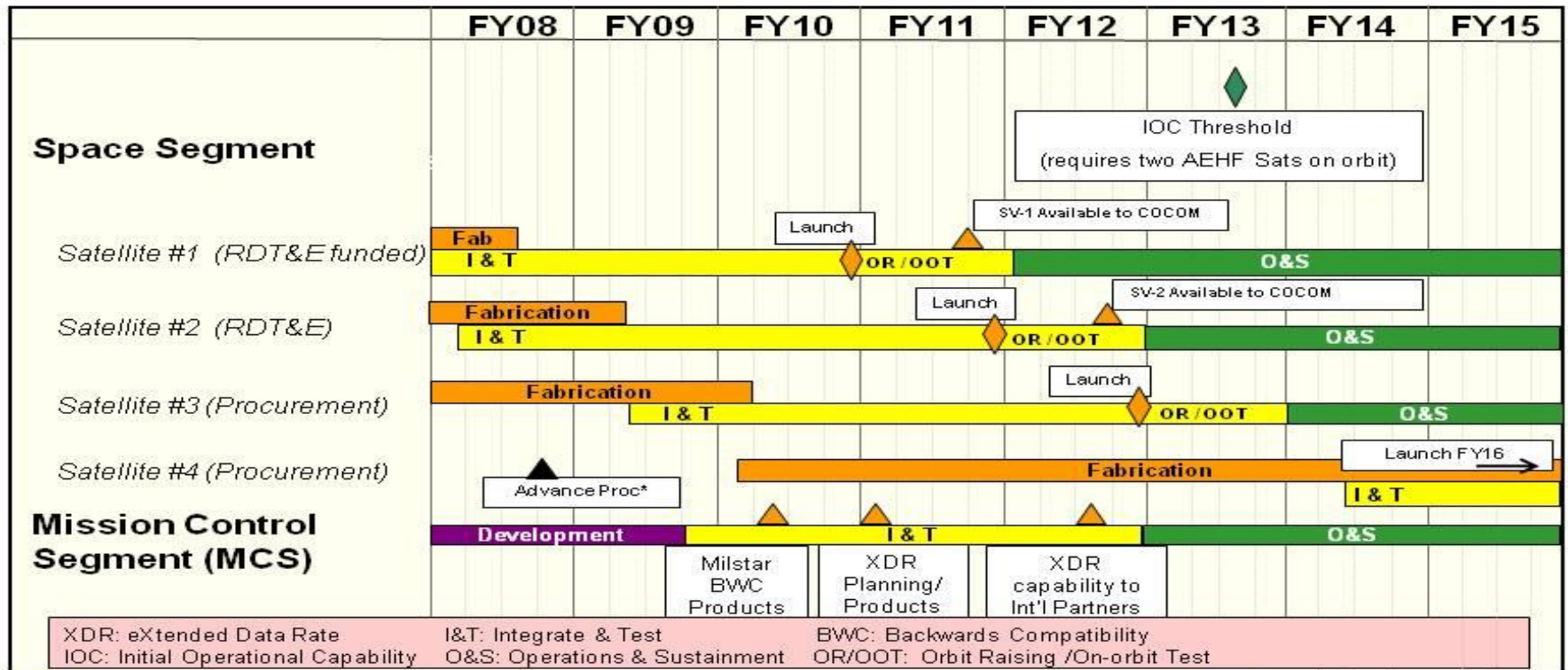
DATE

May 2009

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

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

PROJECT NUMBER AND TITLE
4050 Advanced MILSATCOM



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

***Parts Obsolescence study for fourth AEHF satellite began Jan 2008. Long lead awarded July 2008.**

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT NUMBER AND TITLE 4050 Advanced MILSATCOM
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) SV-2 Baseline Integrated System Test	4Q		
(U) Field Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5 Milstar satellites and 1 AEHF satellite - BWC Products)			2Q
(U) Launch first AEHF satellite			4Q

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PE NUMBER: 0603432F
 PE TITLE: Polar MILSATCOM (Space)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	171.775	236.965	253.150	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4052 Polar Satellite Communications	171.775	236.965	253.150	0.000	0.000	0.000	0.000	0.000	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.

Through FY05, Polar Satellite Communications had funded three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted packages are required to provide the necessary 24-hour coverage. The third package went into operations in November 2008.

Beginning in FY06, Polar Satellite Communications began funding the next generation capability with two more polar packages via the same host (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document, Joint Requirements Oversight Council approved in September 2006, is based on a two-package, hosted XDR program with operational availability in FY15 and FY17. FY10 funds will initiate the fabrication of the two hosted EPS packages (EPS #1 and EPS #2); pursue technology needs forecasting; and continue the development of the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 8 Dec 07 USD(AT&L) memorandum to develop the enhanced polar hosted solution.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	177.535	237.749	257.059
(U) Current PBR/President's Budget	171.775	236.965	253.150
(U) Total Adjustments	-5.760	-0.784	
(U) Congressional Program Reductions		-0.140	
Congressional Rescissions		-0.644	
Congressional Increases			
Reprogrammings	-0.934		
SBIR/STTR Transfer	-4.826		

(U) Significant Program Changes:

FY2008: Reprogrammed \$0.934M for higher priorities

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4052 Polar Satellite Communications	171.775	236.965	253.150	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

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.

Through FY05, Polar Satellite Communications had funded three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted packages are required to provide the necessary 24-hour coverage. The third package went into operations in November 2008.

Beginning in FY06, Polar Satellite Communications began funding the next generation capability with two more polar packages via the same host (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document, Joint Requirements Oversight Council approved in September 2006, is based on a two-package, hosted XDR program with operational availability in FY15 and FY17. FY10 funds will initiate the fabrication of the two hosted EPS packages (EPS #1 and EPS #2); pursue technology needs forecasting; and continue the development of the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 8 Dec 07 USD(AT&L) memorandum to develop the enhanced polar hosted solution.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Conduct requirements analyses and design trade studies for Enhanced Polar packages and associated ground segment	14.583	17.500	18.566
(U) Continue design and development of Enhanced Polar packages and associated ground segment	142.823	202.109	208.635
(U) Cryptographic modifications (including Information Assurance)	0.000	1.922	1.783
(U) Provide Program Office Support and related support activities, such as Systems Engineering and Integration	10.768	10.594	8.951
(U) Provide Technical Analysis	3.601	4.840	4.872
(U) Government Furnished Property (such as specialized testing equipment)	0.000	0.000	10.343
(U) Total Cost	171.775	236.965	253.150

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None.										

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

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)	PROJECT NUMBER AND TITLE 4052 Polar Satellite Communications
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(U) **D. Acquisition Strategy**

The Enhanced Polar System (EPS) is the follow-on to the currently operational IPS and is a key component of the Extremely High Frequency SATCOM architecture providing secure, protected communications to worldwide users. The EPS acquisition will consist of four segments (Payload, Mission Control, Gateway, and Terminal) acquired by separate procurement actions. The Terminals used by EPS will be acquired by each Service's Terminal Program Office. The MILSATCOM Systems Wing (MCSW) will procure the Mission Control and Gateway segments. The EPS payloads will be hosted on a classified satellite and acquired by the organization hosting the EPS payloads.

Under the direction of the Program Executive Officer for Space, the EPS Program Office is developing the EPS Acquisition Strategy through studies and activities leading to a 2QFY10 Defense Acquisition Board for Milestone B entry approval. Based on the successful December 2007 Acquisition Strategy review and an 8 December 2007 signed Acquisition Decision Memorandum, the classified host program office was provided authority to proceed for the design, procurement, and integration of two EPS packages and plans to definitize the contract with the host prime contractor by 3QFY09.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603432F Polar MILSATCOM (Space)					4052 Polar Satellite Communications			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Classified	Classified		299.594								299.594	
EPS Requirement Analyses and Design Trade Studies	Various	Various	33.333	14.583	Jan-08	17.500	Dec-08	18.566	Dec-09	Continuing	TBD	
NGST EPS Design/Development Contract	CPAF/IF	Redondo Beach, CA	0.000	142.823	Jul-08	202.109	Jan-09	208.635	Dec-09	Continuing	TBD	
Cryptographic Modifications (NSA)			0.000	0.000	Dec-07	1.922	Jan-09	1.783	Jan-10	Continuing	TBD	
Subtotal Product Development			332.927	157.406		221.531		228.984		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Technical Support	Various		1.933	3.601	Dec-07	4.840	Dec-08	4.872	Dec-09	Continuing	TBD	
Program Office Support	Various		4.745	10.768	Dec-07	10.594	Dec-08	8.951	Dec-09	Continuing	TBD	
Govt Furnished Property	Various	Various	0.000	0.000		0.000		10.343	Dec-09	Continuing	TBD	
Subtotal Support			6.678	14.369		15.434		24.166		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
N/A											0.000	
N/A											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			339.605	171.775		236.965		253.150		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

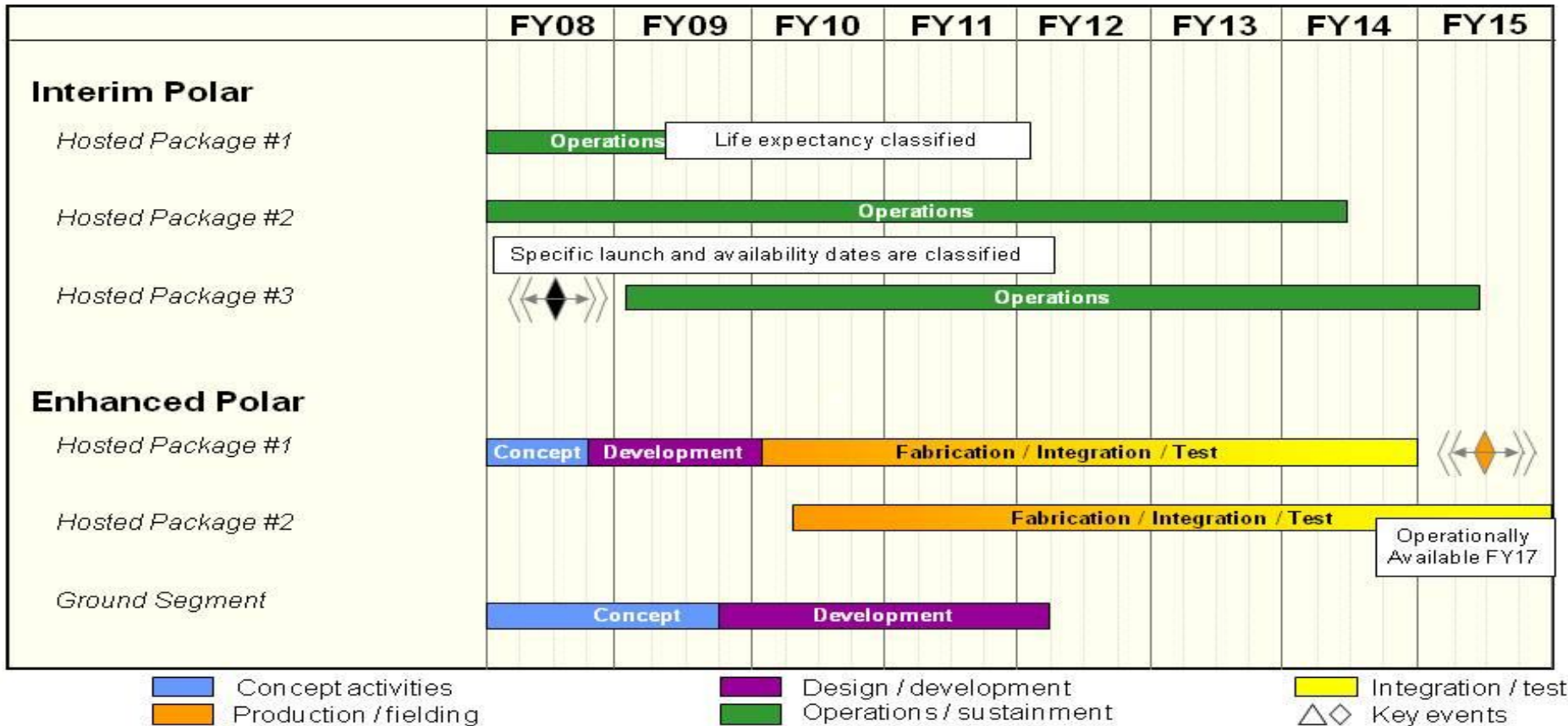


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) Schedule Profile

- (U) Begin design and development of Enhanced Polar packages
- (U) Continue ground segment concept studies
- (U) Begin design and development of the ground segment
- (U) Begin fabrication of first Enhanced Polar package
- (U) Begin fabrication of second Enhanced Polar package

FY 2008

4Q

1Q

FY 2009

4Q

FY 2010

1Q

2Q

UNCLASSIFIED

PE NUMBER: 0603438F
 PE TITLE: Space Control Technology

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	61.659	86.110	97.701	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2611 Technology Insertion Planning and Analysis	55.041	64.643	75.937	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A007 Space Range	6.618	21.467	21.764	0.000	0.000	0.000	0.000	0.000	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), Offensive Counterspace (OCS) and Command and Control and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and terrestrial based space capabilities. 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. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to war fighter needs. Rapid Reaction Capabilities in response to immediate war fighter needs are developed within this program.

Emphasis on the Space Protection Program effort has added a project line within this Program Element to support the Air Force response to the Public Law 110-181 task to develop a DoD space protection strategy and in response to the "Sense of Congress" that "the United States should place greater priority on the protection of national security space systems."

Also supported is the development of the technology and infrastructure for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

As a result of an FY08 \$25M congressional add, the Air Force began the Self Awareness Space Situation Awareness (SASSA) technology demonstration that will build a payload to provide tactical SSA around a host satellite. SASSA is designed to demonstrate the ability to detect attacks, locate attacking sources, and communicate relevant information to the ground. SASSA will contain a suite of threat warning sensors designed to address a range of anti-satellite and environmental threats. SASSA will also have a communication package and common interface unit that eases integration and performs on-board sensor data processing. The

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

interface unit and sensors can be configured into tailored sensing payloads for future space missions.

Spacetrack Integration Node Global Enhanced Reporting (STINGER) project converts an enhanced processing capability developed for missile warning radar to use for the space situation awareness program radars.

SASSA Risk Reduction: This effort will leverage the on-going technology demonstration to further reduce the risk associated with critical technologies, requirements, CONOPS, MUA/AoA, interfaces, sensors, and communication architectures to enable rapid prototyping of future SASSA concepts potentially leading to attribution, awareness and protection capabilities.

These 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.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	66.182	76.845	78.337
(U) Current PBR/President's Budget	61.659	86.110	97.701
(U) Total Adjustments	-4.523	9.265	
(U) Congressional Program Reductions		-0.301	
Congressional Rescissions		-0.234	
Congressional Increases		9.800	
Reprogrammings	-3.797		
SBIR/STTR Transfer	-0.726		

(U) **Significant Program Changes:**

FY 2008: - \$3.797 reprogrammed for higher Air Force priorities

FY 2009: +\$9.800M Congressional add for Space Situation Awareness technologies

FY 2010: +\$19.364M increase (\$6.585M for Space Protection Program, \$9.8M for SASSA risk reduction, and \$4.500M for STINGER project, -\$1.4M decrease for inflation)

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2611 Technology Insertion Planning and Analysis	55.041	64.643	75.937	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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), Offensive Counterspace (OCS) and Command and Control and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and terrestrial based space capabilities. 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. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to warfighter needs. Rapid Reaction Capabilities in response to immediate warfighter needs are developed within this program.

As a result of an FY08 \$25M Congressional add, the Air Force began the Self Awareness Space Situation Awareness (SASSA) technology demonstration that will build a payload to provide tactical space situational awareness (SSA) around a host satellite. SASSA is designed to demonstrate the ability to detect attacks, locate attacking sources, and communicate relevant information to the ground. SASSA will contain a suite of threat warning sensors designed to address a range of anti-satellite and environmental threats. SASSA will also have a communication package and common interface unit that eases integration and performs on-board sensor data processing. The interface unit and sensors can be configured into tailored sensing payloads for future space missions.

SASSA Risk Reduction: This effort will leverage the on-going technology demonstration to further reduce the risk associated with critical technologies, requirements, CONOPS, MUA/AoA, interfaces, sensors and communication architectures to enable rapid prototyping of future SASSA concepts potentially leading to attribution, awareness and protection capabilities.

Spacetrack Integration Node Global Enhanced Reporting (STINGER) project converts an enhanced processing capability developed for missile warning radar to use for the space situation awareness program radars.

Emphasis on the Space Protection Program effort has added a project line within this Program Element to support the Air Force response to the Public Law 110-181 task to develop a DoD space protection strategy and in response to the "Sense of Congress" that "the United States should place greater priority on the protection of national security space systems."

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Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Space Situational Awareness efforts.	4.899	13.120	4.526
Continue development of key space situational awareness enabling technologies			
(U) Defensive Counterspace efforts.	9.927	13.806	13.091
(U) Continue vulnerability assessments, development and demonstration of advanced techniques and technologies for space control prevention systems			
(U) Space Protection Program	3.200	0.000	6.493
(U) Continue Counterspace C2 efforts	0.000	1.515	1.124
(U) Continue to conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.	5.368	5.681	5.942
(U) Self Awareness Space Situation Awareness (SASSA)	25.000	25.000	25.000
(U) SASSA Risk Reduction	0.000	0.000	9.615
(U) STINGER	0.000	0.000	4.432
(U) Program Office and Other Technical Support (includes System Engineering and Architectural Support)	6.647	5.521	5.714
(U) Total Cost	55.041	64.643	75.937

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) None										

(U) **D. Acquisition Strategy**
 All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603438F Space Control Technology					2611 Technology Insertion Planning and Analysis			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
SSA Development	Various	Various	14.302	4.899	Jan-08	13.120	Jan-09	4.526	Jan-10	Continuing	TBD	TBD
DCS Activities	Various	Various	32.434	9.927	Jan-08	13.806	Jan-09	13.091	Jan-10	Continuing	TBD	TBD
Space Protection Program	Various	Various	0.000	3.200	Jan-08	0.000		6.493	Jan-10	Continuing	TBD	TBD
Counterspace C2	Various	Various	0.000	0.000		1.515	Jan-09	1.124	Jan-10	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	6.251	5.368	Jan-08	5.681	Jan-09	5.942	Jan-10	Continuing	TBD	TBD
SASSA Tech Demo	Various	Various	0.000	25.000	Oct-08	25.000	Dec-08	25.000	Jan-10	0.000	75.000	75.000
SASSA Risk Reduction	TBD	TBD	0.000	0.000		0.000		9.615	Jan-10	Continuing	TBD	TBD
STINGER	TBD	TBD	0.000	0.000		0.000		4.432	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			52.987	48.394		59.122		70.223		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	11.028	3.592	Jan-08	3.374	Jan-09	3.597	Jan-10	Continuing	TBD	TBD
System Engineering and Architectural Support	CPAF	Northrup Grumman, Redondo Beach, CA	0.000	3.055	Nov-07	2.147	Dec-09	2.117	Jan-10	Continuing	TBD	TBD
Subtotal Support			11.028	6.647		5.521		5.714		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			64.015	55.041		64.643		75.937		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0603438F Space Control Technology

PROJECT NUMBER AND TITLE
2611 Technology Insertion Planning and Analysis

SCT Schedule: Technology Insertion

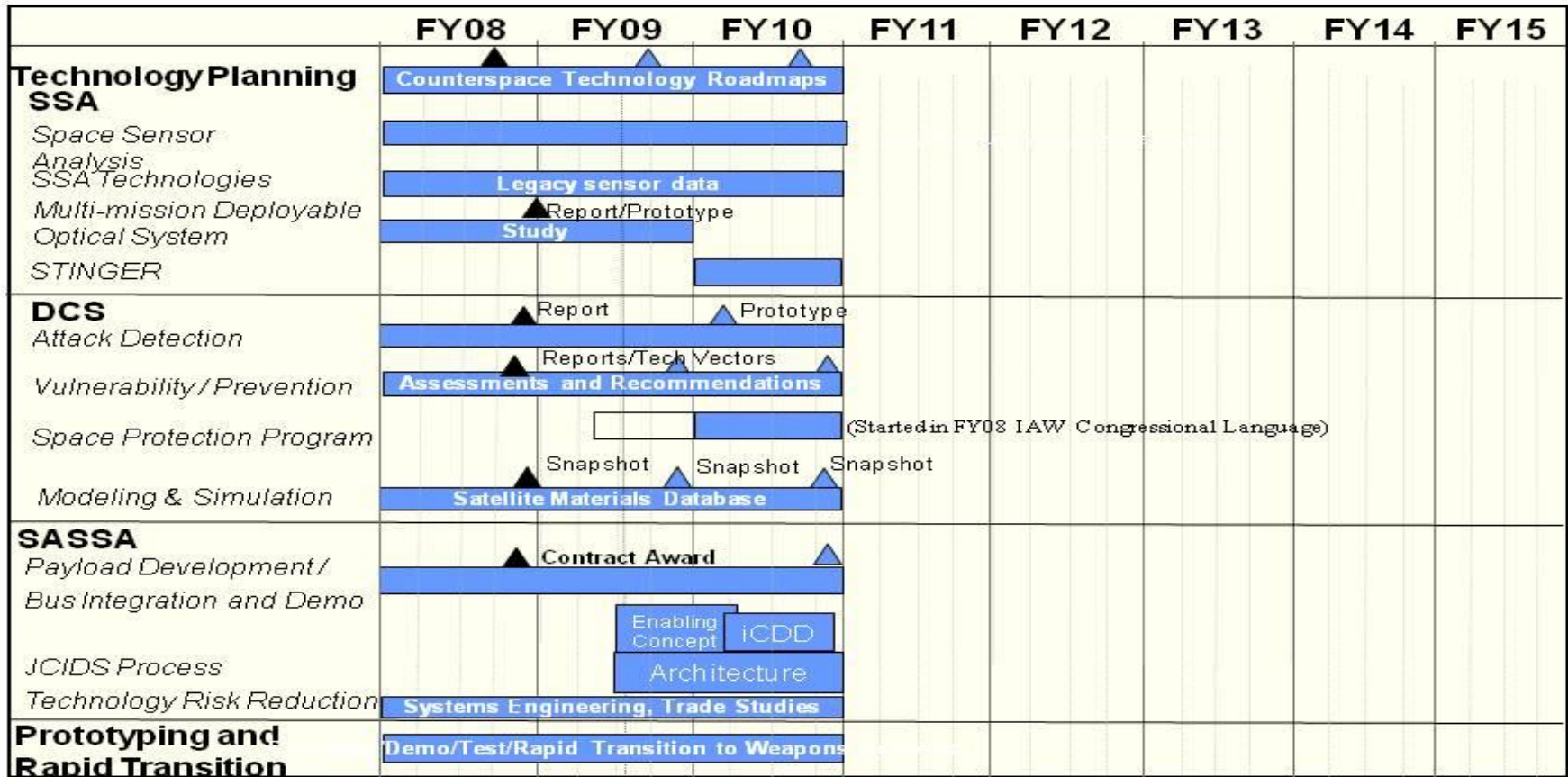


Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Technology Roadmaps & Planning	1-4Q	1-4Q	1-4Q
(U) SSA- Continue sensor development	1-4Q	1-4Q	1-4Q
(U) SSA - Multi-mission Deployable Optical System Prototype	1-4Q	1-4Q	
(U) DCS - Continue DCS technology development and evaluation	1-4Q	1-4Q	1-4Q
(U) DCS - Continue Vulnerability and threat assessment report	1-4Q	1-4Q	1-4Q
(U) DCS - Continue AFRL Modelling and Simulation	1-4Q	1-4Q	1-4Q
(U) Space Protection Program			1-4Q
(U) Prototyping and Rapid Transition to Weapons Systems	1-4Q	1-4Q	1-4Q
(U) STINGER processing integration for SSA radar systems			1-4Q
(U) SASSA Contract Definition and Award	1-4Q		
(U) SASSA Sensor Deliveries/Demo			4Q
(U) SASSA Risk Reduction Architecture development		3-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603438F Space Control Technology			PROJECT NUMBER AND TITLE A007 Space Range	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A007 Space Range	6.618	21.467	21.764	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program supports the development of space test and training range capabilities required to support developmental and operational test, training, exercises and tactics development for Space Control systems and related architecture. This 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. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Range Control - Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities	1.036	8.548	13.450
(U) STTR Leased Bandwith	2.000	3.000	3.000
(U) STTR Studies and Analysis	0.500	0.425	0.425
(U) Program Office and Other Technical Support	3.082	9.494	4.889
(U) Total Cost	6.618	21.467	21.764

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603438F Space Control Technology					A007 Space Range			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Leased Bandwidth	FFP	INTELSAT, Bethesda, MD	0.000	2.000	Jan-08	0.000		0.000		0.000	2.000	2.000
Leased Bandwidth	TBD	DISA	0.000	0.000		3.000	Feb-09	3.000	Feb-10	Continuing	TBD	TBD
STTR Upgrade (Execution Test Center)	CPAF	Harris Corp, Melbourne, FL	0.000	0.824	Nov-07	4.400	Jan-09	4.600	Nov-09	0.000	9.824	9.824
Execution Test Center Transition into SROC	CPAF	Harris Corp, Melbourne, FL	0.000	0.000						Continuing	TBD	TBD
STTR Transportable	CPAF	Harris Corp, Melbourne, FL	0.000			0.400	Jan-09	2.586	Nov-09	0.000	2.986	2.986
STTR Training Suite	CPAF	Harris Corp, Melbourne, FL	0.000	0.000		0.600	Jan-09	0.450	Nov-09	Continuing	TBD	TBD
Signal Generation, Monitoring and Collection	CPFF	Harris Corp, Melbourne, FL	0.000	0.212	Sep-08	1.988	Nov-08	4.240	Nov-09	Continuing	TBD	TBD
Automated Scheduling Software Tool	TBD	Various	0.000	0.000		1.160	Feb-09	1.150	Nov-09	Continuing	TBD	TBD
STTR Tech Refresh	TBD	Various	0.000	0.000		0.000		0.400	Jan-10	Continuing	TBD	TBD
Advanced Capabilities Environment (ACE)	CPAF	Harris Corp, Melbourne, FL	0.000	0.000		0.000		0.000		Continuing	TBD	TBD
STTR Studies and Analysis	CPFF	Harris Corp, Melbourne, FL	0.837	0.500	Sep-08	0.425	Dec-08	0.425	Jan-10	Continuing	TBD	TBD
STTR Systems Engineering and Architecture	Various	Various	0.000	0.000		0.000		0.357	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			0.837	3.536		11.973		17.208		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	4.144	3.082	Dec-07	9.494	Nov-08	4.556	Nov-09	Continuing	TBD	TBD
Subtotal Support			4.144	3.082		9.494		4.556		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			4.981	6.618		21.467		21.764		Continuing	TBD	TBD

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Exhibit R-3 (PE 0603438F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0603438F Space Control Technology

PROJECT NUMBER AND TITLE
A007 Space Range

STTR Program Schedule

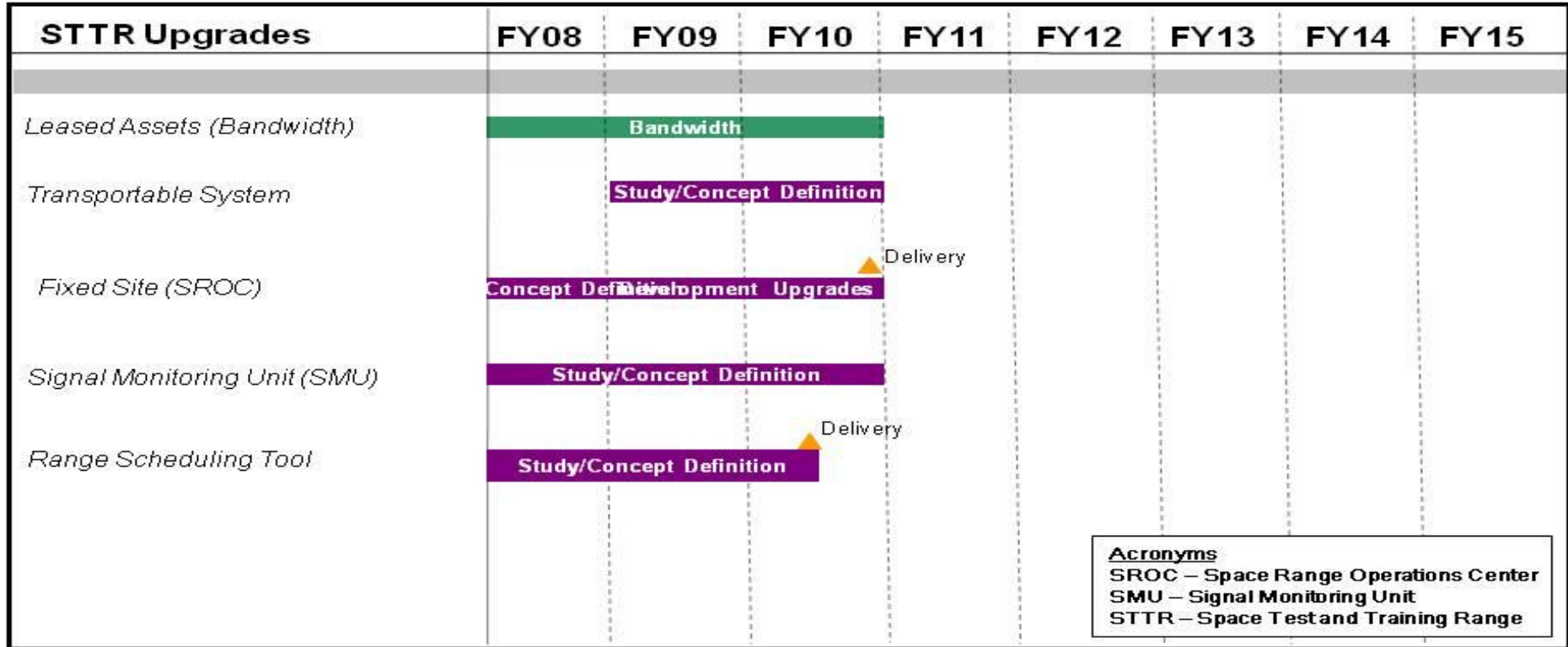


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE A007 Space Range
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(U) Schedule Profile	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) RANGE CONTROL/TARGETS/THREATS			
(U) Deliver Leased Assets	1-4Q	1-4Q	1-4Q
(U) Upgrade Transportable System		1-4Q	1-4Q
(U) Develop fixed-site capability (SROC)	1-4Q	1-4Q	1-4Q
(U) Signal monitoring and collection (SMU)	1-4Q	1-4Q	1-4Q
(U) Range Scheduling Tool	1-4Q	1-4Q	1-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.170	29.300	27.252	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2597 Noncooperative Identification Subsystems	19.586	20.320	23.642	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2599 Cooperative Identification Techniques	5.584	8.980	3.610	0.000	0.000	0.000	0.000	0.000	0.000	56.165

(U) A. Mission Description and Budget Item Justification

The Combat Identification (CID) Technology program element analyzes, develops, and demonstrates promising target identification technologies for transition into System Development and Demonstration (SDD). Numerous joint needs statements, operational documents, lessons learned, and NATO requirements state the need for positive CID. High confidence CID increases combat effectiveness and prevents fratricide. It also enables combatant commanders to effectively command and control their forces in all weather, day or night. This program element focuses on the cooperative and non-cooperative technologies that have the capability to positively identify surface and air targets in both air-to-surface and air-to-air engagements.

In order to rapidly transition promising CID technologies, the program element funds design studies, engineering analysis, non-recurring engineering, and other efforts associated with integration and modification of CID related technologies and systems on platforms. It also supports the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

Non-cooperative CID employs a number of sensing technologies and signal processing techniques. The results are compared against a database of known objects to identify 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 (a) the Laser Target Imaging Program (LTIP) which will consist of exploiting synergies between non-cooperative and cooperative ID systems (radio, millimeter wave, infrared, and laser), combat mode improvements, laser vibration development, and studies to support decisions on future work and (b) the Advanced (3D) Laser Sensing (ALS)/Aided Target Recognition (ATR) Combat ID program which includes advanced laser vibration, 3-dimensional laser detection and ranging, laser radar, synthetic aperture laser (SAL) radar, aided/automatic target recognition, and image fusion; (2) Radar Vision, an air-to-ground radar imaging technique to identify stationary and moving targets using their radar signatures; (3) Signature Database, a project focused on real and synthetic signature collection, generation, processing, testing, and standardization techniques that will greatly reduce the cost of supporting fielded and future non-cooperative systems; (4) Fusion Vision, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) X-Patch, a validated set of prediction codes and analysis tools that use the shooting-and-bouncing ray (SBR) method to predict realistic far-field radar signatures from 3D target models in order to predict 1D and/or 2D data. X-Patch is vital to the mission of database production centers which support Joint Sensors Signature Database (JSSD) pathfinders.

Cooperative CID requires systems that rapidly identify friendly platforms. Utilizing a challenge and response system, platforms in the air-to-air or air-to-surface setting emit a directed electromagnetic challenge to achieve a reaction positively identifying another platform as a friendly. This program element funds growth to Mark XIIA, the next generation Identification Friend or Foe (IFF) standard for the DoD and NATO. Mark XIIA represents a substantial enhancement to the Mark XII IFF system.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

It is expected to achieve joint initial operational capability in 2014. The "A" denotes the addition of Mode 5 (an encrypted challenge-and-reply mode) to the other Mark XII system modes (Modes 1, 2, 3/A, C, S, and 4). The Mode 5 secure IFF program is a DoD-wide, Navy-led development and acquisition program. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes because it transitions technologies from laboratory to operational use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	25.875	29.400	27.841
(U) Current PBR/President's Budget	25.170	29.300	27.252
(U) Total Adjustments	-0.705	-0.100	
(U) Congressional Program Reductions		-0.021	
Congressional Rescissions		-0.079	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.705		

(U) Significant Program Changes:

Funding for X-Patch was moved into the Combat ID program element for FY09 and beyond, and previously resided in PE 63203F. Within PE 63742F, money for X-Patch was placed in BPAC 642599 (Cooperative) for FY09 and BPAC 642597 (Non-cooperative) for FY10.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603742F Combat Identification Technology			PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2597 Noncooperative Identification Subsystems	19.586	20.320	23.642	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Non-cooperative CID employs a number of sensing technologies and signal processing techniques. The results are compared against a database of known objects to identify 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 (a) the Laser Target Imaging Program (LTIP) which will consist of exploiting synergies between non-cooperative and cooperative ID systems (radio, millimeter wave, infrared, and laser), combat mode improvements, laser vibration development, and studies to support decisions on future work and (b) the Advanced (3D) Laser Sensing (ALS)/Aided Target Recognition (ATR) Combat ID program which includes advanced laser vibration, 3-dimensional laser detection and ranging, laser radar, synthetic aperture laser (SAL) radar, aided/automatic target recognition, and image fusion; (2) Radar Vision, an air-to-ground radar imaging technique to identify stationary and moving targetets using their radar signatures; (3) Database, a project focused on real and synthetic signature collection, generation, processing, testing and standardization techniques that will greatly reduce the cost of supporting fielded and future non-cooperative systems; (4) Fusion Vision, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) X-Patch; a validated set of prediction codes and analysis tools that use the shooting-and-bouncing ray (SBR) method to predict realistic far-field radar signatures from 3D target models in order to predict 1D and/or 2D data. X-Patch is vital to the mission of database production centers which support Joint Sensors Signature Database (JSSD) pathfinders.

CID will support Boldquest 09 with more advanced LTIP targeting pods and RBCI (Radio Based Combat ID) in a pod. FY10 development will begin to join cooperative and non-cooperative systems in the Fusion Vision Program to gain a higher confidence combat identification will be the CID project of the future. This program is in Budget Activity 4 - Advanced Component Development and Prototypes because it transitions technologies from laboratory to operational use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Transition / convert the High Range Resolution (HRR) synthetic target database developed in conjunction with National Air and Space Intelligence Center (NASIC) to the Target Signature Data Base for use on multiple platforms. NASIC is in the process of assuming responsibility for the target database development.	0.070	0.000	0.000
(U) Establish and develop the Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Incorporate the analysis and database developed in prior years by the HRR program.	4.448	0.610	0.259
(U) The Laser Vision (LV) project provides the demonstration and evaluation data necessary to make well informed transition decisions on promising CID technologies for both air-to-air and air-to-surface ID that will enhance mission performance and reduce battle space fratricide. The LV project is focused on emerging technologies that could be installed into platforms like targeting pods and UAVs. Future LV candidate projects include the development and testing of enhanced 2D laser imaging, radio based combat identification, hyper-spectral, low light imaging,	2.992	5.372	3.816

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			
polarization, 1st generation electro-optical automatic target cueing / recognition, advanced 3D laser imaging, laser vibration, and insertion of mature, hardened camera technologies into alternate platforms.			
(U) The Radar Vision technology applies Aided Target Recognition (ATR) algorithms to Radar Imagery and Radar Signature returns which puts target ID labels on the radar imagery and tracks using a common database of target signatures. Radar Vision is using spiral development to mature algorithms, add target signatures, and test/demonstrate. Future spirals will include hybrid algorithms, moving surface targets, advanced radar modes and frequencies, and exploitation of 3D characteristics.	8.499	8.903	10.037
(U) Continue funding the Fusion Vision program, a fusion of sensor data from multiple sources to create a high confidence in surface and air targets CID.	0.362	2.000	2.580
(U) Fund the Air Traffic Control Radar Beacon Systems Identification Friend or Foe Mark XII/XIIA System (AIMS) Program Office. The DoD International AIMS PO has system level interoperability management responsibilities for the present Mark XII system, development and integration of Mark XIIA (Mode 5) and transition to Mark XIIA Mode S Systems.	1.010	0.236	0.289
(U) Continue funding Combat Identification technology flight and other engineering support necessary for management of CID efforts.	2.122	2.599	2.727
(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.	0.083	0.600	0.504
(U) X-Patch consists of software code refinement based on feedback from the X-Patch user community. Priority is given to the needs of the JSSD Pathfinders and other signature production teams. It will also consist of configuration management, S/W protection, maintenance, and support. The JSSD Pathfinders 1 and 2 are heavily dependent on X-Patch for the predicting data on threat targets.	0.000	0.000	3.430
(U) Total Cost	19.586	20.320	23.642

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Not Applicable										

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification
Technology

PROJECT NUMBER AND TITLE

2597 Noncooperative Identification
Subsystems

(U) D. Acquisition Strategy

Award multiple, competitive contract vehicles emphasizing off-the-shelf technology and maximizing the use of non-developmental items (NDIs).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon Company	C/CPFF	El Segundo, CA	21.483	0.356	Mar-08	2.538	Dec-08	2.747	Dec-09	Continuing	TBD	TBD
Northrop Grumman Corporation	C/CPFF	Linthicum Heights, MD	13.136	4.516	Oct-07	4.088	Nov-08	7.290	Nov-09	Continuing	TBD	TBD
Northrop Grumman Corporation	C/CPFF	Rowling Meadows, IL	8.385	1.591	Jun-08	2.763	Nov-08	1.715	Nov-09	Continuing	TBD	TBD
Science Applications Internation Corporation	SS/CPFF	Dayton, OH	24.162	3.233	Nov-07	0.180	Nov-08	0.150	Nov-09	Continuing	TBD	TBD
AIMS Program Office	MIPR/PO	Warner Robins, GA	4.936	1.010	Oct-07	0.236	Oct-08	0.290	Oct-09	Continuing	TBD	TBD
General Dynamics (formerly Veridian)	C/CPFF	Buffalo, NY	2.330	0.225	Nov-07					Continuing	TBD	TBD
General Dynamcis	C/CPFF	Beavercreek, OH	0.276	0.901	Feb-08	0.980	Dec-08	0.569	Dec-09	Continuing	TBD	TBD
Sverdrup Technology	C/CPFF	Ft Walton Beach, FL	3.061	1.207	Nov-07	0.850	Nov-08	0.180	Nov-09	Continuing	TBD	TBD
SIREN & Litening Study	POs	SAF/FMBIB	0.794	0.170	Dec-07	1.100	Dec-08	2.200	Dec-09		4.264	
Systems Research & Applications Corp	C/CPFF	Fairfax, VA	1.781	0.383	Nov-07						2.164	
DOE - Sandia National Labs	MIPR	Albuquerque, NM	1.460	0.684	Jan-08	0.667	Dec-08	1.205	Dec-09	Continuing	TBD	TBD
Studies	PO	WPAFB, OH	0.082	0.083	Jan-08	0.450	Dec-08	0.349	Dec-09	Continuing	TBD	TBD
Big Safari	BTR	WPAFB, OH	0.000	0.930	Aug-08					Continuing	TBD	TBD
X-Patch	AF616	WPAFB, OH						3.430	Nov-09	Continuing	TBD	TBD
Lockheed	C/CPFF	Eglin, AFB, FL				0.900	Jun-09			Continuing	0.900	
Subtotal Product Development			81.886	15.289		14.752		20.125		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO support	Various	Hanscom	12.369	2.130	Oct-07	2.599	Oct-08	2.727	Oct-09	Continuing	TBD	TBD
Air Force Research Laboratory	MIPR	WPAFB, OH	3.553	0.311	Oct-07	0.330	Oct-08	0.340	Oct-09	Continuing	TBD	TBD
Subtotal Support			15.922	2.441		2.929		3.067		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
46th Test Wing	MIPR/PO	Eglin AFB, FL	5.702	0.309	Jun-08	0.500	Jun-09	0.225	Jun-10	Continuing	TBD	TBD
Test Wings	MIPR/PO	Edwards AFB, CA	1.377	0.526	Aug-08	1.079	Jun-09	0.225	Jun-10	Continuing	TBD	TBD
Aberdeen Proving Ground	MIPR	Aberdeen Proving Ground, MD	0.100	0.030	Aug-08	0.017	Jan-09				0.147	0.100
DIA & TSMO	MIPR	Redstone Arsenal, AL	0.135	0.245	Feb-08	0.468	Apr-09			Continuing	TBD	TBD

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Project 2597

Exhibit R-3 (PE 0603742F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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		
ACTD JFCOM	MIPR	Norfolk, VA	0.344	May-08				0.344	0.344
Redstone Technical Test Center	MIPR	Redstone Arsenal, AL	0.402	Sep-08				0.402	
NASIC		WPAFB, OH			0.375	May-09		0.375	
Yuma					0.200	Apr-09		0.200	
Subtotal Test & Evaluation			7.314	1.856	2.639		0.450	Continuing	TBD
Remarks:									
(U) <u>Management</u>									
Subtotal Management			0.000	0.000	0.000		0.000	0.000	0.000
Remarks:									
(U) Total Cost			105.122	19.586	20.320		23.642	Continuing	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

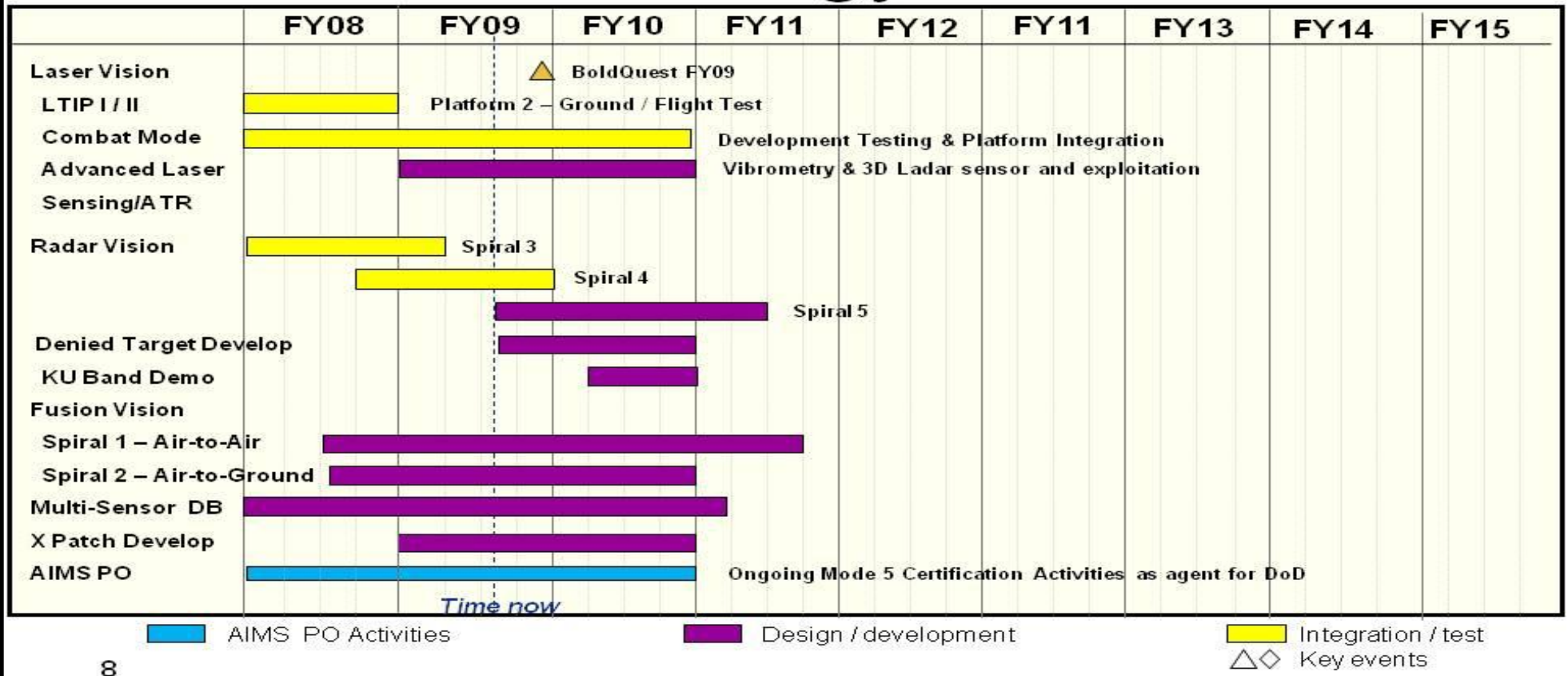
May 2009

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

PE NUMBER AND TITLE
0603742F Combat Identification
Technology

PROJECT NUMBER AND TITLE
2597 Noncooperative Identification
Subsystems

Non-Cooperative CID Technology Schedule



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Exhibit R-4a, RDT&E Schedule Detail

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May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2597 Noncooperative Identification Subsystems
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(U) Schedule Profile	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) LASER VISION - LTIP I / LTIP II Platform 2 Ground / Flt Test	1-4Q		
(U) LASER VISION - Combat Mode Dev Test & Platform Integ	1-4Q	1-4Q	1-4Q
(U) LASER VISION - Advanced Laser Sensing/Aided Target Recognition		1-4Q	1-4Q
(U) RADAR VISION - Radar Vision Spiral 3	1-4Q	1Q	
(U) RADAR VISION - Radar Vision Spiral 4	4Q	1-4Q	
(U) RADAR VISION - Radar Vision Spiral 5		3-4Q	1-4Q
(U) RADAR VISION - Denied Target Development		3-4Q	1-4Q
(U) RADAR VISION - Ku-Band Demonstration			2-4Q
(U) FUSION VISION - Spiral 1 - Air-toAir	3-4Q	1-4Q	1-4Q
(U) FUSION VISION - Spiral 2 - Air-to-Ground	3-4Q	1-4Q	1-4Q
(U) MULTI-SENSOR CID DATABASE - Analysis & Development	1-4Q	1-4Q	1-4Q
(U) X-Patch Development		1-4Q	1-4Q
(U) AIMSPO - IFF Certification Activities	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603742F Combat Identification Technology				PROJECT NUMBER AND TITLE 2599 Cooperative Identification Techniques			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
2599 Cooperative Identification Techniques	5.584	8.980	3.610	0.000	0.000	0.000	0.000	0.000	0.000	56.165	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

Cooperative CID requires systems that rapidly identify friendly platforms. Utilizing a challenge and response system, platforms in the air-to-air or air-to-surface setting emit a directed electromagnetic challenge to achieve a reaction positively identifying another platform as a friendly.

This program element funds growth to Mark XIIA, the next generation Identification Friend or Foe (IFF) standard for the DoD and NATO. Mark XIIA represents a substantial enhancement to the Mark XII IFF system. It is expected to achieve joint initial operational capability in 2014. The "A" denotes the addition of Mode 5 (an encrypted challenge-and-reply mode) to the other Mark XII system modes (Modes 1, 2, 3/A, C, S, and 4). The Mode 5 secure IFF program is a DoD-wide, Navy-led development and acquisition program. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes because it transitions technologies from laboratory to operational use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). Continue the Mode 5 upgrade to interrogators such as the UPX-40 interrogator on the AWACS. Provide systems engineering and program management to facilitate planned platform integrations, including interoperability testing.	4.350	4.324	2.169
(U) Continue funding Combat Identification technology flight and other engineering support necessary for management of CID efforts.	0.734		
(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.	0.500	1.447	1.441
(U) X-Patch consists of software code refinement based on feedback from the X-Patch user community. Priority is given to the needs of the JSSD Pathfinders and other signature production teams. It will also consist of configuration management, S/W protection, maintenance, and support. The JSSD Pathfinders 1 and 2 are heavily dependent on X-Patch for the predicting data on threat targets.		3.209	0.000
(U) Total Cost	5.584	8.980	3.610

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE

2599 Cooperative Identification Techniques

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) D. Acquisition Strategy

Award multiple, competitive contract vehicles emphasizing off-the-shelf technology and maximizing the use of non-developmental items (NDIs).

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603742F Combat Identification Technology					2599 Cooperative Identification Techniques			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
BAE	C/CPFF	Greenlawn, NY	9.340	1.736	Jan-08					Continuing	TBD	TBD
Boeing/Telephonics	C/CPFF	Farmingdale, NY	7.083							Continuing	TBD	TBD
Raytheon	C/CPFF	Baltimore, MD	11.531	2.525	Dec-07	3.268	Oct-08			Continuing	TBD	TBD
SAIC, X-Patch	SS/CPFF	San Diego, CA				3.209	Nov-08			Continuing	TBD	TBD
TBD Interrogators								2.169	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			27.954	4.261		6.477		2.169		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO Support	Various	Various	1.685	0.735	Oct-07					Continuing	TBD	TBD
Subtotal Support			1.685	0.735		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
JFCOM	MIPR	Norfolk, VA	0.100							Continuing	TBD	TBD
46 Test Wing	PO	Eglin AFB, FL	0.069	0.030	Dec-07	0.025	Jul-09				0.124	
WR-ALC	AF616	Robins AFB, GA	0.038								0.038	
Navy, Pax River	MIPR	Pax River, MD		0.058	Mar-09						0.058	
General Dynamics	C/CPFF	Beavercreek, OH				0.200	Mar-09				0.200	
BAE	TBD	TBD				0.831	Jul-09				0.831	
Subtotal Test & Evaluation			0.207	0.088		1.056		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Systems Engineering/Program Management (AIMS PO)	AF616	Robins AFB, GA	0.644	0.500	Nov-07	1.447	Nov-08	1.441	Nov-09	Continuing	TBD	TBD
Subtotal Management			0.644	0.500		1.447		1.441		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			30.490	5.584		8.980		3.610		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

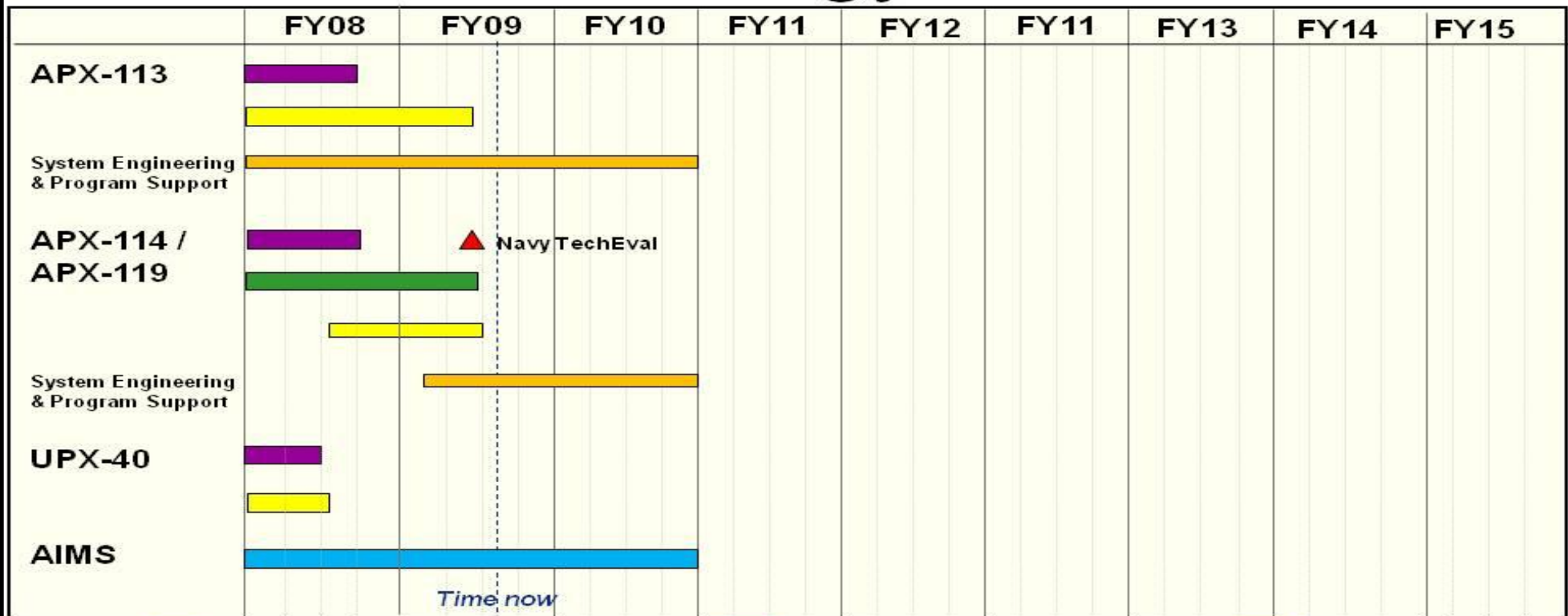
May 2009

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

PE NUMBER AND TITLE
0603742F Combat Identification
Technology

PROJECT NUMBER AND TITLE
2599 Cooperative Identification
Techniques

Cooperative CID Technology Schedule



- 7 AIMS Certification
- System Engineering & Program Support
- Design / development
- Integration
- Test / Certification
- Key events

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT NUMBER AND TITLE 2599 Cooperative Identification Techniques
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) APX-113 - Systems Development/Demonstration	1-3Q		
(U) APX-113 - Test and Evaluation - AIMS Certification	1-4Q	1-2Q	
(U) APX-113 System Engineering & Program Support	1-4Q	1-4Q	1-4Q
(U) APX-114/APX-119 - Systems Development/Demonstration	1-3Q		
(U) APX-114/APX-119 - Systems Integration	1-4Q	1-3Q	
(U) APX-114/APX-119 - Test and Evaluation - AIMS Certification	3-4Q	1-2Q	
(U) APX-114 /APX-119 System Engineering & Program Support		1-4Q	1-4Q
(U) UPX-40 - Systems Development/Demonstration	1-2Q		
(U) UPX-40 - Test and Evaluation - AIMS Certification	1-3Q		
(U) AIMS Program Office Support	1-4Q	1-4Q	1-4Q

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.173	4.322	4.351	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
NATO Nato Coop R&D	4.173	4.322	4.351	0.000	0.000	0.000	0.000	0.000	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 and friendly foreign countries. 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	4.173	4.322	4.426
(U) Current PBR/President's Budget	4.173	4.322	4.351
(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>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0603790F NATO Cooperative R&D		PROJECT NUMBER AND TITLE NATO Nato Coop R&D	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
NATO Nato Coop R&D	4.173	4.322	4.351	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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 and friendly foreign countries. The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Network-Centric Strike Controller (AFRL and UK) - Cooperative project designing and developing 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 contract management systems, decision-aiding and automation algorithms, and advance collaboration interface technologies.	0.150	0.000	0.000
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research Program (AFRL and UK) - Cooperative project conducting technical research on blast mitigating to develop resilient structural systems for implementation into new construction and for retrofitting existing conventional facilities to increase the level of protection to national and coalition force troops in military facilities worldwide in the event of a terrorist bombing.	0.400	0.000	0.000
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft (AFRL and The Netherlands) - Cooperative project developing audio, visual, and tactile display symbology to increase situational awareness, decrease pilot workload, and reduce the risk of spatial disorientation in fast jet aircraft.	0.200	0.000	0.000
(U) 3-Dimensional Laser Radar Technology and Phenomenology (AFRL and Sweden) - Cooperative project developing FLASH a 3-Dimensional laser radar receiver technology and a sensor that captures the entire image with a single laser pulse .	0.200	0.000	0.000
(U) Policy Enabled Coalition Communication Environment (PECC) (AFRL and Australia, Canada, United Kingdom) -	0.100	0.000	0.000

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D		
(U) B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	
Cooperative project developing 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).				
(U) Material and Technologies for Laser Protection (AFRL and Sweden) - Cooperative project to 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.	0.103	0.000	0.000	
(U) Strike Information Displays (AFRL and UK) - Cooperative project focusing 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.	0.200	0.000	0.000	
(U) Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System Interoperability Analysis and Demonstration (ESC and NATO) - Cooperative project 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.	0.140	0.150	0.000	
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board (AFRL and Australia) - Cooperative project 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.	0.090	0.100	0.000	
(U) Development of Electro-Optic and Infrared Countermeasures and Protection Measures (AFRL and UK) - Cooperative project increasing capabilities in the area of Electro-Optic and Infrared (EO/IR) countermeasures and protection measures for enhancing survivability and force protection.	0.290	0.300	0.000	
(U) Engagement-level Modeling for HPM Weapons Applications (AFRL and UK) - Cooperative project developing useful engagement modeling "modules" that could be used with little or no modification in USAF battlefield modeling and simulation (M&S) exercises.	0.190	0.200	0.000	
(U) Hypersonic Flight Research and Development (AFRL and Australia) - Cooperative project researching: (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.	0.600	0.600	0.000	
(U) Study of Insensitive Explosives for High Speed Penetrators (AFRL and Germany) - Cooperative project to understanding the changes in the high explosive (HE) and the effects of those changes due to forces acting on the	0.365	0.375	0.000	

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Project NATO

Exhibit R-2a (PE 0603790F)

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D		
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	FY 2008	FY 2009	FY 2010	
explosive during hard impact.				
(U) Integrally Bladed Rotor Repair Validation (AFRL and UK) - Cooperative project to demonstrate to TRL-6 UK & US developed integrally bladed rotor repair (IBR) in US Provided spin pits and demonstrator engines.	0.050	0.200	0.000	
(U) Coalition Airspace Information Sharing (CAIS) (AFRL and NATO) - Cooperative project to demonstrate coalition collaborative airspace management by developing and demonstrating a machine-to-machine connection between the US Joint Airspace Management And Deconfliction (JASMAD) Net-centric Information Service and NATO's Airspace Manager (ASMAN) module with the Integrated Command and Control (ICC) system.	0.390	0.400	0.000	
(U) Distributed Collaboration for Network-Centric Command and Control (AFRL and Australia) - Cooperative project to develop network-centric warfare that a dense networking of sensor and shooter nodes to promote enhanced situation awareness (SA) and self-synchronization of forces.	0.140	0.200	0.000	
(U) Toxicity of Engineered Nanomaterials and Their Interaction with Biological systems (AFRL and India) - Cooperative project to develop nanotoxicoinformatics tools to support nanomaterials research and development across a wide range of applications.	0.050	0.100	0.000	
(U) Mission Planning and NATO Tasking Interoperability (MPNTI) (ESC and UK) - Cooperative project to develop a mission planning system that can read NATO message formats. US aircraft mission planning systems do not read nor parse NATO Air Tasking Order (ATO) and NATO Airspace Coordinations Order (ACO) message formats. US air combat tasking is published in the US Message Test Format (USMTF), while NATO uses the Allied Data Publication 3 (AdatP3) message format.	0.365	0.375	0.000	
(U) US Theater Battle Management Core Systems (TBMCS) (ESC and NATO) - Cooperative project to implement a process/system which will enable multiple C2 systems, each loaded on separate, multiple security networks/domains, to exchange air C2 mission data amongst each of the systems in near-real-time.	0.150	0.300	0.000	
(U) Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials (AFRL and Australia) - Cooperative project to research in vivo animal research in Australia with in vitro nanotoxicology research at AFRL to address the critical lack of existing knowledge concerning potential adverse biologic/toxic effects of nanomaterials.	0.000	0.100	0.100	
(U) Modulation of Immune Response by Inhaled Engineered Nanoparticles (AFRL and Sweden) - Cooperative project to research in vivo animal research in Sweden with in vitro nanotoxicology research at AFRL addressing the critical lack of existing knowledge concerning potential adverse biologic/toxic effects of nanomaterials.	0.000	0.100	0.100	
(U) Image Gyro (AFRL and Japan) - Cooperative project to develop a new image-based motion sensor known as the "Image Gyro". The Image Gyro will be a low-cost, lightweight and highly accurate device that will achieve equivalent or higher precision drift free capabilities than that of today's accurate and more expensive inertial navigation systems. In addition to GPS free precision navigation, the Image Gyro will provide capabilities such as:	0.000	0.300	0.350	

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Exhibit R-2a (PE 0603790F)

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009		
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) B. Accomplishments/Planned Program (\$ in Millions)		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
passive moving target indication (MTI), 3D scene reconstruction (3D structure from motion), obstacle/collision avoidance, and automatic target recognition.				
(U) Durability Assessment and Probabilistic Life Prediction of Titanium Alloys (AFRL and India) - Cooperative project to research technical areas as related to titanium alloys: (1) Fundamental information on the microstructure of titanium alloys as affected by the conditions of their fabrication and their composition to include simulation and modeling to allow prediction of their properties. (2) Methods for life prediction of titanium alloys in service as a function of exposure conditions and fatigue, fracture and damage models in order to fully utilize those alloys for aeronautical structures and components.		0.000	0.200	0.200
(U) Aging Systems Materials and Process Technologies (AFRL and Australia) - Cooperative project to develop and/or optimize techniques aimed at improving aircraft structural and electrical integrity. When implemented, these techniques will reduce life-cycle costs associated with legacy, emerging, and future aircraft as well as improve aircraft availability and safety. Project focus will be on bonded joints and aircraft wiring.		0.000	0.075	0.100
(U) Military Aircraft Survivability Through Improved Composite Structures (USAF 46th Test Wing and Germany) - Cooperative project will assess: the degradation of composite mechanical properties caused by brief fuel fires (e.g., aircraft dry-bay fires sustained during combat that are extinguished within seconds of initiation) and the damage resistance of aircraft skin-spar joints when subjected to high strain rate loading conditions.		0.000	0.247	0.376
(U) Flapping Wing Micro Air Vehicle Collaborative Development (AFRL and Korea) - Cooperative project to design, develop and test a prototype micro air vehicle.		0.000	0.000	0.400
(U) Ultrahigh Temperature Ceramics (AFRL and UK) - Cooperative project to accelerate understanding and development of ultrahigh temperature ceramic materials for system transition.		0.000	0.000	0.400
(U) Compact Penetrating Weapons for the Defeat of Hardened Targets (AFRL - UK) - Cooperative project to improve maximum penetration and lethal effectiveness capability in weapons for use with advanced fighter aircraft and other aircraft.		0.000	0.000	0.400
(U) Dynamic Network Visualization Techniques for Cyberspace (AFRL - Singapore) - Cooperative project to develop visualization and interaction techniques for showing dynamic network information for cyberspace operations.		0.000	0.000	0.400
(U) Assessment of Military Operations in Urban Terrain (AFRL - Germany) - Cooperative project to investigate the lethality of an array of munitions against military operations against urban terrain targets.		0.000	0.000	0.400
(U) Thermal Barrier Coating Health and Turbine Temperature Sensing (AFRL and UK) - Cooperative project to test thermal barrier coating in suitable environments where common nomenclature, test specification, data format, standardization, and interoperability can be established.		0.000	0.000	0.400
(U) Efficacy of Vibrotactile Stimulation in Simulated Operational Conditions (AFRL and The Netherlands) - Cooperative project to validate the efficacy of a vibrotactile landing aid for helicopter pilots under simulated		0.000	0.000	0.400

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Project NATO

Exhibit R-2a (PE 0603790F)

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			
operational conditions, i.e. after prolonged time-on-task and wearing full garment in a warm environment.			
(U) Next Generation Advanced Composite Processing Science (AFRL and Canada) - Cooperative project to develop and validate the next generation process models to aid in the manufacturing of advanced polymer matrix composite and hybrid materials in an effort to maximize their affordable and efficient use for aerospace applications.	0.000	0.000	0.325
(U) Management and administrative support and travel	0.000	0.000	0.000
(U) Total Cost	4.173	4.322	4.351

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) <u>C. Other Program Funding Summary (\$ in Millions)</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. Any new contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603790F NATO Cooperative R&D					NATO Nato Coop R&D			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
None											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
AFRL Hanscom AFB, MA	BA			0.500		0.600		0.100		Continuing	TBD	TBD
AFRL Eglin AFB, FL	BA			0.300		0.200		0.400		Continuing	TBD	TBD
ESC Hanscom, MA	BA							0.400		Continuing	TBD	TBD
AFRL Edwards AFB, CA	BA					0.134		0.400		Continuing	TBD	TBD
46th Test Wing Eglin AFB, FL	BA			0.400		0.300		0.300		Continuing	TBD	TBD
AFRL Tyndal AFB, FL	BA							0.400		Continuing	TBD	TBD
AFRL Meza, AZ	BA			0.600		0.300		0.400		Continuing	TBD	TBD
AFRL Rome, NY	BA			0.500		0.200		0.400		Continuing	TBD	TBD
AFRL WPAFB, OH	BA			1.525		2.000		1.000		Continuing	TBD	TBD
Subtotal Support			0.000	3.825		3.734		3.800		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Air Armaments Center, FL	BA			0.300		0.300		0.400		Continuing	TBD	TBD
Arnold Engineering Development Center, TN	BA			0.048		0.288		0.151		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.348		0.588		0.551		Continuing	TBD	TBD
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			0.000	4.173		4.322		4.351		Continuing	TBD	TBD

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Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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	
ICR&D Project	Fiscal Year	Start Date	End IA	PE	
Network-Centric Strike Controller	FY06	2007	2012	63790F	
Resilient Structural and Blast Suppression Systems for Blast Protection Research Program	FY06	2005	2010	63790F	
Multi-model Situational Awareness Displays for Maneuvering Aircraft	FY06	2007	2015	63790F	
3-Dimensional Laser Radar Technology and Phenomenology	FY06	2007	2011	63790F	
Policy Enables Coalition Communication Environment	FY06	2008	2011	63790F	
Material and Technologies for Laser Protection	FY06	2007	2011	63790F	
Strike Information Displays	FY06	2007	2013	63790F	
Theater Battle Management Core Systems and NATO Air Command and Control System Interoperability Analysis and Demonstration	FY07	2007	2014	63790F	
Coalition/Joint Force Air Component Commander	FY07	2007	2015	63790F	
Development of Electro-Optic and Infrared Countermeasures and Protection Measures	FY07	2007	2013	63790F	
Engagement-level Modeling for HPM Weapons Applications	FY07	2008	2015	63790F	
Hypersonic Flight Research and Development	FY07	2006	2013	63790F	
Study of Insensitive Explosives for High Sped Penetrators	FY08	2008	2012	63790F	
Integrally Bladed Rotor Repair Validation	FY08	2007	2011	63790F	
Coalition Airspace Information Sharing	FY08	2007	2012	63790F	
Distributed Collaboration for Network-Centric Command and Control	FY08	2008	2012	63790F	
Toxicity of Engineered Nanomaterials and their Interaction with Biological systems	FY08	2008	2012	63790F	
Mission Planning and NATO Tasking Interoperability	FY08	2007	2014	63790F	
US Theater Battle Management Core Systems	FY08	2007	2014	63790F	

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Exhibit R-4 (PE 0603790F)

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Exhibit R-4, RDT&E Schedule Profile	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials	FY09	2009	2013	63790F
Modulation of Immune Response by Inhaled Engineered Nanoparticles	FY09	2009	2013	63790F
Image Gyro	FY09	2009	2013	63790F
Durability Assessment and Probabilistic Life Prediction of Titanium Alloys	FY09	2009	2013	63790F
Aging Systems Materials and Process Technologies	FY09	2009	2013	63790F
Military Aircraft Survivability through Improved Composite Structures	FY09	2009	2013	63790F
Flapping Wing Micro Air Vehicle Collaboration Development	FY10	2010	2014	63790F
Ultrahigh Temperature Ceramics	FY10	2010	2014	63790F
Compact Penetrating Weapons for the Defeat of Hardened Targets	FY10	2010	2014	63790F
Dynamic Network Visualization Techniques for Cyberspace	FY10	2010	2014	63790F
Assessment of Military Operations in Urban terrain	FY10	2010	2014	63790F
Thermal Barrier Coating Health and Turbine Temperature Sensing	FY10	2010	2014	63790F
Efficacy of Vibrotactile Stimulation in Simulated Operational Conditions	FY10	2010	2014	63790F
Next Generation Advanced Composite Processing Science	FY10	2010	2014	63790F

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Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile				
(U) Policy Enabled Coalition Communication Environment		1Q		
(U) - Final Report		4Q		
(U) Network-Centric Strike Controller		1Q		
(U) - Final Report		4Q		
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research		1Q		
(U) - Final Report		4Q		
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft		1Q		
(U) - Final report		4Q		
(U) 3-Dimensional Laser Radar Technology and Phenomenology		1Q		
(U) - Final Report		4Q		
(U) Material and Technologies for Laser Protection		1Q		
(U) - Final Report		2Q		
(U) Strike Information Displays		1Q		
(U) - Final Report		4Q		
(U) US Theater Battle Management Core System and NATO ACCS signed		1Q		
(U) - Test and Analysis		1-4Q	1-2Q	
(U) - Final Report			3-4Q	
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board		1Q		
(U) - Testing and Analysis		1-4Q	1-2Q	
(U) - Final Report			3-4Q	
(U) Development of Electro-Optic & Infrared Countermeasures and Protection Measures		1Q		
(U) - Testing and Analysis		1-4Q	1-2Q	
(U) - Final Report			3-4Q	
(U) Engagement-level Modeling for HPM Weapons Applications		1Q		
(U) - Testing and Analysis		1-4Q	1-2Q	
(U) - Final Report			4Q	
(U) Hypersonic Flight Research and Development		1Q		
(U) - Testing and Analysis		1-4Q	1-2Q	
(U) - Final Report			4Q	
(U) US Theater Battle Management Core Systems (TBMCS)		1Q		
(U) - Testing and Analysis		1-4Q	1-2Q	
(U) - Final Report			3-4Q	

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Exhibit R-4a, RDT&E Schedule Detail		DATE
		May 2009
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) Coalition Airspace Information Sharing (CAIS)	1Q	
(U) - Testing and Analysis	1-4Q	1-2Q
(U) - Final Report		3-4Q
(U) Mission Planning and NATO Tasking Interoperability	1Q	
(U) - Testing and Analysis	1-4Q	1-2Q
(U) - Final Report		3-4Q
(U) Study of Insensitive Explosives for High-Speed Penetrators	1Q	
(U) - Testing and Analysis	1-4Q	1-2Q
(U) - Final Report		2-4Q
(U) Integrally Bladed Rotor Report Validation	1Q	
(U) - Testing and Analysis	1-4Q	1-3Q
(U) - Final Report		2-4Q
(U) Distributed Collaboration for Network-Centric Command and Control	1Q	
(U) - Testing and Analysis	1-4Q	1-2Q
(U) - Final Report		3-4Q
(U) Toxicity of Nano-Engineered Materials	1Q	
(U) - Testing and Analysis	1-4Q	1-2Q
(U) - Final Report		3-4Q
(U) Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials		1Q
(U) - Signed Agreement		2Q
(U) Modulation of Immune Response by Inhaled Engineered Nanoparticles		1Q
(U) - Signed Agreement		2Q
(U) Image Gyro		1Q
(U) - Signed Agreement		2Q
(U) Durability Assessment and Probabilistic Life Prediction of Titanium Alloys		1Q
(U) - Signed Agreement		2Q
(U) Aging Systems Materials and Process Technologies		1Q
(U) - Signed Agreement		2Q
(U) Military Aircraft Survivability Through Improved Composite Structures		1Q
(U) - Signed Agreement		4Q
(U) Flapping Wing Micro Air Vehicle Collaborative Development		1Q
(U) - Signed Agreement		2Q
(U) Ultrahigh Temperature Ceramics		1Q
(U) - Signed Agreement		2Q

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D

(U) Compact Penetrating Weapons for the Defeat of Hardened Targets		1Q
(U) - Signed Agreement		2Q
(U) Dynamic Network Visualization Techniques for Cyberspace		1Q
(U) - Signed Agreement		2Q
(U) Assessment of Military Operations in Urban Terrain		1Q
(U) - Signed Agreement		2Q
(U) Thermal Barrier Coating Health and Turbine Temperature Sensing		1Q
(U) - Signed Agreement		2Q
(U) Efficacy of Vibrotactile Stimulation in Simulated Operational Conditions		1Q
(U) - Signed Agreement		2Q
(U) Next Generation Advanced Composite Processing Science		1Q
(U) - Signed Agreement		2Q

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PE NUMBER: 0603791F
 PE TITLE: International Space Cooperative R&D

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.593	0.620	0.632	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5035 Intl Space Coop R&D	0.593	0.620	0.632	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(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 and friendly foreign countries. 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.593	0.620	0.643
(U) Current PBR/President's Budget	0.593	0.620	0.632
(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>			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5035 Intl Space Coop R&D	0.593	0.620	0.632	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**
 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 and friendly foreign countries. The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

<u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Forecasting Communication and Navigation Disruptions due to Inonspheric Disturbance During Solar Minumum (AFRL and Australia) - 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.	0.375	0.000	0.000
(U) Multidemsional Diffusion of High Energy Radiation Belt Electrons (AFRL and UK) - Cooperative project to study high energy electrons constituting the radiation belts are a primary hazard for USAF and other satellites. They are often enhanced during geomagnetic storms, but not in a reliably predictable way. Thus, understanding and forecasting their behavior is a major research goal. The physics of the radiation belts is believed to be largely controlled by electromajnetic waves, which casue diffusion in the otherwise constant particle energy, equatorial pitch angle, and radial distance.	0.218	0.220	0.000
(U) Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands (AFRL and Australia) - Cooperative project will advance imaging spectroscopy for military remote sensing in two ways. The first and initial focus of the effort will be the quantification of the military utility of space-based hyperspectral imagery in the reflective spectrum (0.38 to 2.5 microns) utilizing extensive datasets taken with the	0.000	0.400	0.400

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
TacSat-3/Advanced Responsive Tactically Effective Military Imaging Spectrometer over both U. S. and Australian sites.			
(U) Energy Transport by Neutral Winds During Magnetic Storms (AFRL and France) - Cooperative project to develop a database of neutral wind values in the Ionosphere-Thermosphere, using the Neutral Wind Meter on Comm/Nav outage Forcast System together with the STAR accelerometers on the CHAMP and GRACE spacecraft. This research will establish a set of unprecedented neutral wind values and allow for the first reliable estimate of neutral energy transport during storms.	0.000	0.000	0.232
(U) Management and administrative support and travel	0.000	0.000	0.000
(U) Total Cost	0.593	0.620	0.632

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603791F International Space Cooperative R&D					5035 Intl Space Coop R&D			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
NONE	TBD										0.000	TBD
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Support</u>												
AFRL, WPAFB	BA			0.100	Feb-08	0.127	Feb-09	0.143	Feb-10	Continuing	TBD	TBD
AFRL EDWARDS AFB, CA	BA			0.400	Feb-08	0.493	Feb-09	0.389	Feb-10	Continuing	TBD	TBD
Subtotal Support			0.000	0.500		0.620		0.532		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
AFRL EDWARDS AFB, CA	TBD			0.093	Mar-08			0.100	Mar-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.093		0.000		0.100		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
NONE	TBD										0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.593		0.620		0.632		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Forecasting Communication and Navigation Disruptions due to Inonspheric Disturbance During Solar Minumum	FY06	2007	2011	63791F
Multidemsional Diffusion of High Energy Radiation Belt Electrons	FY07	2008	2013	63791F
Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands	FY09	2009	2014	63791F
Energy Transport by Neutral Winds During Magnetic Storms	FY10	2010	2015	63791F

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile			
(U) Forecasting Comm. and Navigation Disruption due to Ionospheric Disturbances During Solar Minimum	1Q		
(U) - Final Report	4Q		
(U) Multidimensional Diffusion of High Energy Radiation Belt Electrons	1Q		
(U) - Study	1-4Q	1-2Q	
(U) - Final Report		4Q	
(U) Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands		1Q	
(U) - Technical development		1-4Q	
(U) - Test and anylisis			1-4Q
(U) - Final Report			
(U) Energy Transport by Neutral Winds During Magnetic Storms			1Q
(U) - Technical Development			1-4Q

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PE NUMBER: 0603845F
 PE TITLE: Transformational SATCOM (TSAT)

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	776.505	761.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,533.301
4944 ADVANCED WIDEBAND SYSTEM	776.505	761.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,533.301

In FY2010, Project #4944, Advanced Wideband System, was terminated.

(U) A. Mission Description and Budget Item Justification

Fiscal constraints have led the Department of Defense to terminate the Transformational Satellite Communications System (TSAT) program beginning FY10. The TSAT program office will conduct a controlled contract ramp down; focusing contractor on close-out tasks relevant to MILSATCOM future prior to contract termination. The measured contract close-out and termination activities will allow for a smoother transition for the industrial base and ensure vital artifact transfer from the contractors to the government.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	804.739	842.974	985.113
(U) Current PBR/President's Budget	776.505	761.285	0.000
(U) Total Adjustments	-28.234	-81.689	
(U) Congressional Program Reductions		-79.620	
Congressional Rescissions		-2.069	
Congressional Increases			
Reprogrammings	-10.000		
SBIR/STTR Transfer	-18.234		

(U) Significant Program Changes:

The Department terminated the TSAT program beginning FY10. While not reflected above, Congress approved sourcing \$152M FY09 and \$45M FY08 in an Omnibus reprogramming action

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)				PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4944 ADVANCED WIDEBAND SYSTEM	776.505	761.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,533.301	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY2010, Project #4944, Advanced Wideband System, was terminated.

(U) A. Mission Description and Budget Item Justification

Fiscal constraints have led the Department of Defense to terminate the Transformational Satellite Communications System (TSAT) program beginning FY10. The TSAT program office will conduct a controlled contract ramp down; focusing contractor on close-out tasks relevant to MILSATCOM future prior to contract termination. The measured contract close-out and termination activities will allow for a smoother transition for the industrial base and ensure vital artifact transfer from the contractors to the government.

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

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue TSAT Mission Operations System ground segment and network management/operations management software	134.524	112.256	
(U) Continue systems engineering and integration support	70.102	69.681	
(U) Continue engineering design activities including risk reduction, and focused system design for the first TSAT satellite	352.218	274.375	
(U) Award space segment contract and begin preliminary design development			
(U) Continue System Definition and technology development for key areas to include satellite simulator, critical government furnished property, independent laboratory testing, antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking protocols; conduct Integration/Concept of Operations (CONOPS) demonstrations	81.445	49.001	
(U) Continue Technical Support	59.779	60.254	
(U) Continue Program Support and related activities	12.384	21.476	
(U) Continue qualification and production of radiation-hardened components for USAF/DOD space programs	21.053	22.242	
(U) Reprogram for higher priorities (approved by Congress in Omnibus action)	45.000	152.000	
(U) Total Cost	776.505	761.285	0.000

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Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)	PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) RDT&E, PE 0603854F, Project 644870, CCS-C	20.992	12.343	18.321						Continuing	TBD
(U) MPAF, PE 0303600F, WGS	312.335	21.628	264.051						Continuing	TBD
(U) RDT&E, PE 0603854F, Project 644811, WGS	0.000	0.000	52.635						Continuing	TBD
(U) OPAF, PE 0303600F, CCS-C	8.335	0.000	0.000						Continuing	TBD
(U) OPAF, PE 0303600F, WGS	0.000	0.000	1.677						Continuing	TBD
(U) MILCON, PE 0303602F, TSAT	0.000	0.000	0.000						0.000	0.000
(U) OPAF, PE 0303602F, TSAT	0.000	0.000	0.000						0.000	0.000

(U) D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)	PROJECT NUMBER AND TITLE 4944 ADVANCED WIDEBAND SYSTEM
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value 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	461.899	176.109	Dec-07	137.188	Dec-08				775.196	
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA	461.899	176.109	Dec-07	137.188	Dec-08				775.196	
Booz Allen Hamilton: System Engineering & Integration / SE&I Follow-on Contractor TBD	Time & Materials w/ IF	El Segundo, CA	152.373	70.102	Dec-07	69.681	Dec-08				292.156	
TMOS PRDAs	FFP	Various	55.139								55.139	
TMOS: Lockheed Martin Integrated Systems and Solutions	CPAF	San Jose, CA	179.142	134.524	Dec-07	112.256	Dec-08				425.922	
Risk Reduction: Technology Maturation	Various	Various	422.225	81.445	Dec-07	49.001	Dec-08				552.671	
Risk Reduction: Technology Maturation (Space Segment) Lockheed Martin	CPFF	Sunnyvale, CA	27.651								27.651	
Risk Reduction: Technology Maturation (Space Segment) Boeing	CPFF	El Segundo, CA	27.651								27.651	
Space Segment Development	TBD	TBD	0.000								0.000	
Radiation Hardened Parts Developers	Various	Various	0.000	21.053		22.242	Dec-08				43.295	
Subtotal Product Development			1,802.879	659.342		527.555		0.000		0.000	2,989.777	0.000
Remarks:												
<u>(U) Support</u>												
Technical Support	Various		157.663	59.779	Dec-07	60.254	Dec-08				277.696	
Program Support	Various		34.968	12.384	Dec-07	21.476	Dec-08	0.000			68.828	
Subtotal Support			192.631	72.163		81.730		0.000		0.000	346.524	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Reprogram for higher Air Force priorities				45.000		152.000					197.000	
Subtotal Management			0.000	45.000		152.000		0.000		0.000	197.000	0.000
Remarks:												
<u>(U) Total Cost</u>			1,995.510	776.505		761.285		0.000		0.000	3,533.301	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0603845F Transformational SATCOM
(TSAT)**

PROJECT NUMBER AND TITLE

**4944 ADVANCED WIDEBAND
SYSTEM**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM
(TSAT)

PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND
SYSTEM

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U)

UNCLASSIFIED
TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0603845F	644944	3600	776.505	0	761.285	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0

Effort Title

Transformational Satellite Communications System (TSAT)

Program Description

The TSAT will provide worldwide, secure satellite communications to U.S. strategic and tactical forces during all levels of conflict. It will sustain the Military Satellite Communications (MILSATCOM) architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare; special operations; strategic nuclear operations; strategic defense; homeland security; theater operations; and space operations and intelligence.

Status to Date

The TSAT program was initiated in FY03. In October 2003, a Systems Engineering and Integration contract was awarded. In January 2006, a single TSAT Mission Operations System (TMOS) contract was awarded. In January 2004, the TSAT program entered Phase B, Risk Reduction and Design Development. Phase B Risk Reduction and System Definition contracts were awarded to two contractors in late January 2004. However, in June 2006, the Milestone Decision Authority rescinded Key Decision Point B approval in order to appropriately align TSAT program activity with revised National Security Space Acquisition Policy (NSS 03-01). A successful System Design Review was completed in 2007. On 6 April 2009, the SECDEF deemed the TSAT program unaffordable and recommended its termination. Measured contract close-out and termination activities have begun.

Rationale for Termination

Fiscal constraints led the Department of Defense to cancel the TSAT program beginning FY10.

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

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.873	21.020	20.739	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4778 Integrated Broadcast Service	20.873	21.020	20.739	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors. This PE funds IBS system development as described below.

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

Activities also include studies and analysis to support both current program planning and execution and future program planning.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast Service (DEM/VAL)

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	20.873	21.105	21.094
(U) Current PBR/President's Budget	20.873	21.020	20.739
(U) Total Adjustments	0.000	-0.085	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.085	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)				PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4778 Integrated Broadcast Service	20.873	21.020	20.739	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors. This PE funds IBS system development as described below.

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

Activities also include studies and analysis to support both current program planning and execution and future program planning.

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

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue systems engineering, including development of architectures, system of systems management through the Joint Broadcast Configuration Control Board (JBCCB), and risk reduction studies using Simulation Based Acquisition (SBA) tools	2.422	1.184	1.650
(U) Continue the Phase II/System Development and Demonstration of the GINS and TINs	13.335	14.981	15.034
(U) Continue Test & Evaluation	0.771	1.128	1.250
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution	1.545	1.910	2.105
(U) Joint Tactical Radio System (JTRS) Modular Advanced TRanslation and Interchange with XML (MATRIX)	2.100	1.220	

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT NUMBER AND TITLE 4778 Integrated Broadcast Service
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Reformatter			
(U) Enterprise Systems Engineering/CMF Integration/CIB Integration	0.700	0.597	0.700
(U) Total Cost	20.873	21.020	20.739

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) OPAF/PE 0305179F	20.634	18.382	12.653						Continuing	TBD
(U) O&M/PE 0305179F	17.601	17.406	16.284						Continuing	TBD

(U) **D. Acquisition Strategy**

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

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603850F Integrated Broadcast Service (DEM/VAL)					4778 Integrated Broadcast Service			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Phase 2 Spiral II - N	C/CPAF	BTG, Inc./Titan/L-3 Comm (Reston, VA)		13.335	Jan-08	14.981	Jan-09	15.034	Jan-10	Continuing	TBD	TBD
JTRS MATRIX Reformatter	C/FFP	L-3 Comm, ISD (Greenville, TX)	4.672	2.100	Mar-08	1.220	Mar-09			0.000	7.992	7.992
Subtotal Product Development			4.672	15.435		16.201		15.034		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u> Interoperability and Developmental Testing	MIPR/Project Order	JITC (Ft Huachuca, AZ) & 46th OSS (Eglin AFB, FL)		0.771	Jan-08	1.128	Jan-09	1.250	Jan-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.771		1.128		1.250		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> SPO/Professional Acquisition Support Service (PASS)	Various	Local Area (Bedford, MA)/Washington DC Area		1.545	Mar-08	1.910	Mar-09	2.105	Mar-10	Continuing	TBD	TBD
MITRE	SS/CPFF (FFRDC)	Bedford, MA		2.422	Oct-07	1.184	Oct-08	1.650	Oct-09	Continuing	TBD	TBD
Enterprise Engineering/CMF Integration/CIB Integration	SS/CPFF	L-3 Comm, IS (Greenville, TX)		0.700	Mar-08	0.597	Mar-09	0.700	Mar-10		1.997	
Subtotal Management			0.000	4.667		3.691		4.455		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			4.672	20.873		21.020		20.739		Continuing	TBD	TBD

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Project 4778

Exhibit R-3 (PE 0603850F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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



IBS Broadcast Segment Schedule

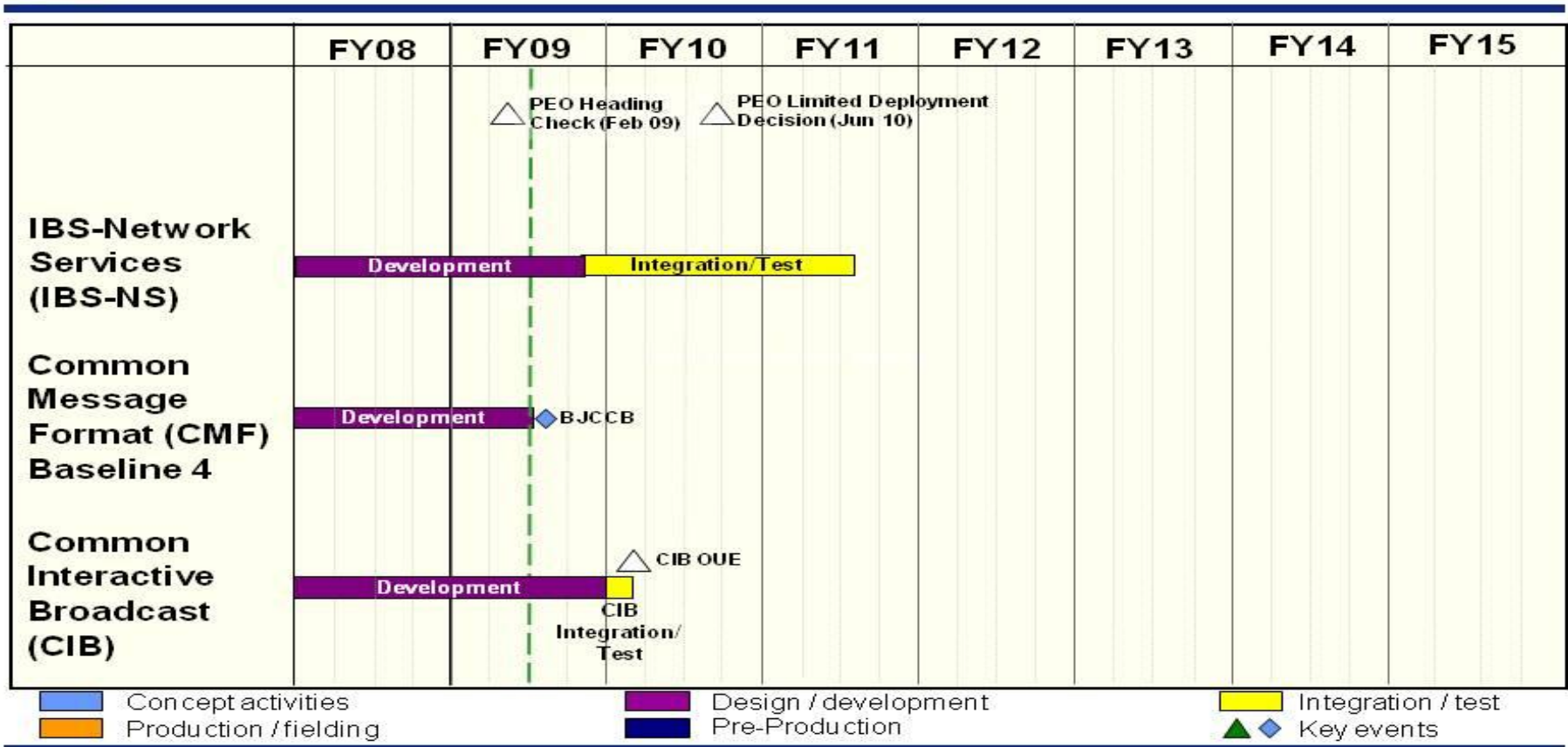


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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) Schedule Profile

(U) IBS-NS Development

(U) IBS-NS Integration/Test

(U) IBS-NS PEO Heading Check

(U) CMF BJCCB Configuration Control

(U) CIB Development/Test

(U) CIB Operational Utility Event (OUE)

(U) PEO Limited Deployment Decision

FY 2008

1-4Q

FY 2009

1-4Q

4Q

2Q

3Q

1-4Q

FY 2010

1-4Q

1Q

1Q

3Q

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

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.069	70.237	66.079	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1020 ICBM Guidance Applications	7.185	22.722	16.387	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1021 ICBM Propulsion Applications	9.456	34.422	41.365	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	3.932	5.398	5.471	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1023 Rocket System Launch Program	0.026	0.027	0.026	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4209 Long Range Planning (LRP)	5.470	7.668	2.830	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**
 This program ensures a responsive design and development engineering infrastructure to address emerging issues and technology insertion within the current Intercontinental Ballistic Missile (ICBM) force and other common mission areas, where appropriate, to develop enhanced multi-use capabilities. Efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, and ensure strategic missile viability. Demonstration and validation projects include guidance applications, reentry vehicles, assessment of current and future propulsion systems, development of enhanced command/control capabilities, and Long Range Planning efforts.

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

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	31.121	65.629	67.089
(U) Current PBR/President's Budget	26.069	70.237	66.079
(U) Total Adjustments	-5.052	4.608	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.192	
Congressional Increases		4.800	
Reprogrammings	-3.172		
SBIR/STTR Transfer	-1.880		

(U) **Significant Program Changes:**
 FY09: \$4.8M Congressional Increase for Conventional Strike Mission Integration Demo//FY09: -\$6M BTR not reflected in docs

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1020 ICBM Guidance Applications		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1020 ICBM Guidance Applications	7.185	22.722	16.387	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Guidance Applications Program ensures the development of strategic capability in response to the Nuclear Posture Review, recommendations of the United States Strategic Command (USSTRATCOM) Strategic Advisory Group, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts are focused on current and future requirements and technologies, reduced life cycle costs, and increased nuclear surety and safety. Activities leverage the efforts of the Science and Technology community and are coordinated with the Navy strategic application program to enhance synergy and avoid duplication. Key elements include developing responsive technologies with common applications for future strategic guidance capabilities.

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

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop, prototype, and test solid-state instrument technologies (accelerometers and gyros)	4.429	14.318	7.575
(U) Develop, analyze, evaluate, prototype, and test advanced solid-state inertial measurement unit concepts	1.800	4.513	6.585
(U) Continue assessment, evaluation, and test of radiation hard electronics for strategic guidance applications	0.180	0.500	0.365
(U) Conduct precision inertial navigation system experiment to demonstrate future strategic system concepts	0.000	1.000	0.000
(U) Conduct assessment, development, and implementation of test options to demonstrate future strategic system concepts	0.000	1.000	0.730
(U) Program Office Support	0.776	1.391	1.132
(U) Total Cost	7.185	22.722	16.387

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None.										

(U) D. Acquisition Strategy

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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL					1020 ICBM Guidance Applications				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Develop, analyze, evaluate, prototype, test instrument technologies; IMU concepts	Various	AFRL, Kirtland AFB NM; Honeywell, Redmond WA, Clearwater FL, Phoenix AZ; Orbital Sciences, Chandler AZ	0.000	6.229	Feb-08	18.831	Nov-08	14.160	Jan-10	Continuing	TBD	TBD	
Assess, develop and implement precision inertial navigation system experiment						1.000	Nov-08	0.000	N/A		1.000	1.000	
Assess, evaluate and test of radiation hard electronics			0.000	0.180	Jan-08	0.500	Jan-09	0.365	Jan-10	Continuing	TBD	TBD	
Subtotal Product Development			0.000	6.409		20.331		14.525		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u> Other Program Support	Various	SMC, Los Angeles CA; 526 ICBMSG, Hill AFB UT	0.000	0.776	Jan-08	1.391	Jan-09	1.132	Jan-10	Continuing	TBD	TBD	
Subtotal Support			0.000	0.776		1.391		1.132		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test & Evaluation</u> Test	C/CPAF	Northrop Grumman, Clearfield UT	0.000	0.000	Jan-08	1.000	Jan-09	0.730	Jan-10	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		1.000		0.730		Continuing	TBD	TBD	
Remarks:													
(U) <u>Reprogrammed for higher priorities</u>											0.000		
Subtotal Reprogrammed for higher priorities			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			0.000	7.185		22.722		16.387		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

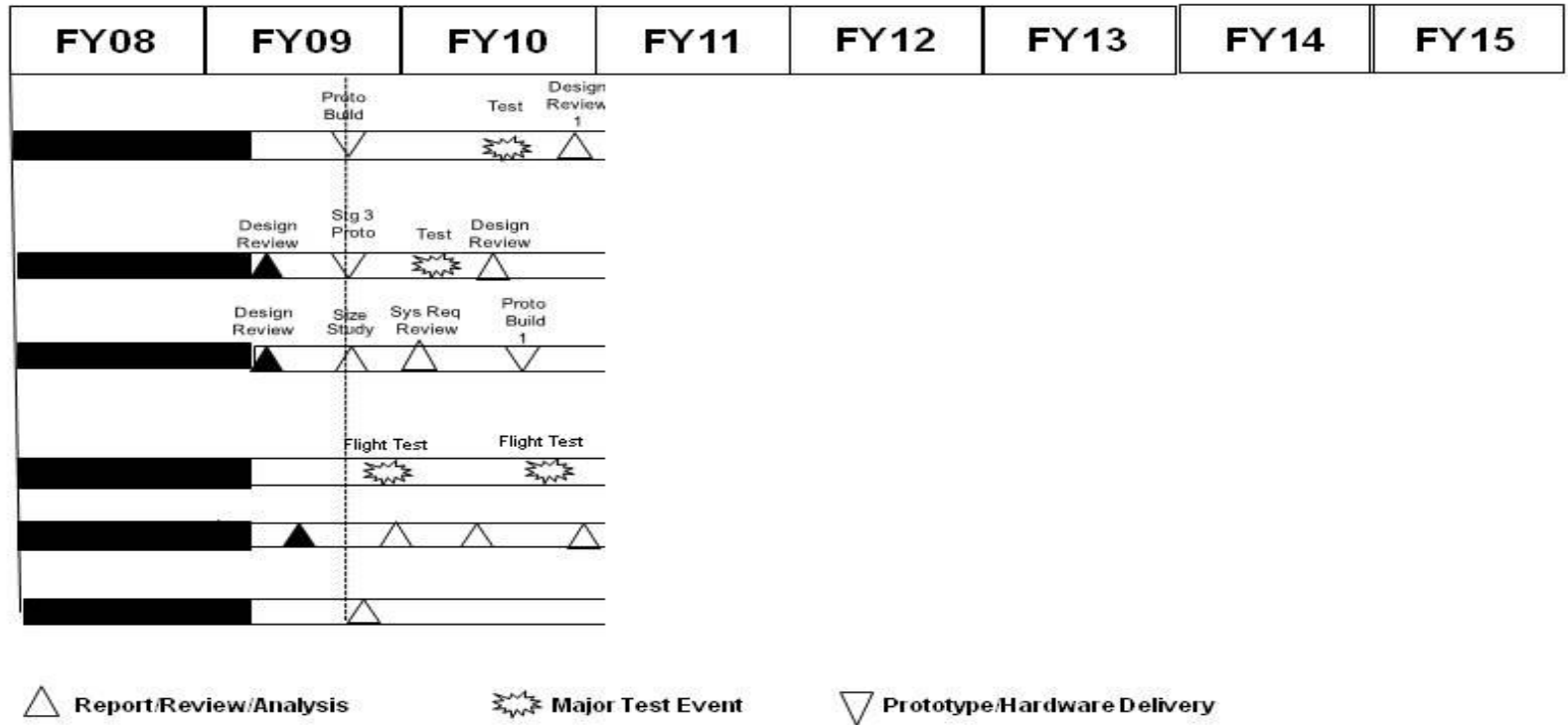
DATE
May 2009

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

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE
1020 ICBM Guidance Applications

Guidance Applications Program



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile			
(U) IMU Prototype Build		4Q	
(U) IMU Test			3Q
(U) IMU Design Reviews			4Q
(U) Gyro/Accelerometer Prototypes		4Q	4Q
(U) Gyro/Accelerometer Design Reviews		2Q	1,3Q
(U) Gyro/Accelerometer Tests			1Q
(U) Flight/Sled Tests		4Q	4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1021 ICBM Propulsion Applications		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1021 ICBM Propulsion Applications	9.456	34.422	41.365	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) The ICBM Propulsion Application Program develops strategic propulsion capability through projects exploring improvements and/or alternatives to current propulsion systems, conducting studies assessing application of new technologies to meet future common propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM, submarine-launched ballistic missile (SLBM) propulsion systems, and other solid rocket motor propulsion capabilities to demonstrate a potential family of motors 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. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Assess, develop, evaluate, integrate, and demonstrate common solid propulsion technology and manufacturing leading to static fire/test launch	6.417	31.547	35.079
(U) Continue assessment and demonstration of ordnance and post-boost technology development	2.850	1.500	3.600
(U) Continue evaluation of hazard classification methods for common propulsion system motors	0.000	0.000	1.000
(U) Program Office Support	0.189	1.375	1.686
(U) Total Cost	9.456	34.422	41.365

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL					1021 ICBM Propulsion Applications			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Evaluation and test of solid propulsion technologies	Various	AFRL, Edwards AFB CA; Aerojet, Sacramento CA; ATK Thiokol, Corrinne UT; Navy	0.000	6.891	Jan-08	32.447	Jan-09	20.279	Jan-10	Continuing	TBD	TBD
Assess and demonstrate ordnance and post-boost components		Aerojet, Sacramento CA	0.000	2.350	Jan-08	0.000	N/A	3.600	N/A	Continuing	TBD	TBD
Evaluation of hazard classification methods		TBD	0.000	0.000	Jan-08	0.000	N/A	1.000	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	9.241		32.447		24.879		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Other Program Support	Various	AFRL, Edwards AFB CA; 526 ICBMSG, Hill AFB UT	0.000	0.189	Jan-08	1.375	Jan-09	1.686	Jan-10	Continuing	TBD	TBD
Subtotal Support			0.000	0.189		1.375		1.686		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u> Static Fire (Edwards/AEDC)	C/CPAF	Edwards/AED C	0.000	0.026	Nov-07	0.600	Nov-08	14.800	Jan-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.026		0.600		14.800		Continuing	TBD	TBD
Remarks:												
(U) <u>Reprogrammed for higher priorities</u>											0.000	
Subtotal Reprogrammed for higher priorities			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	9.456		34.422		41.365		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

Propulsion Apps Program

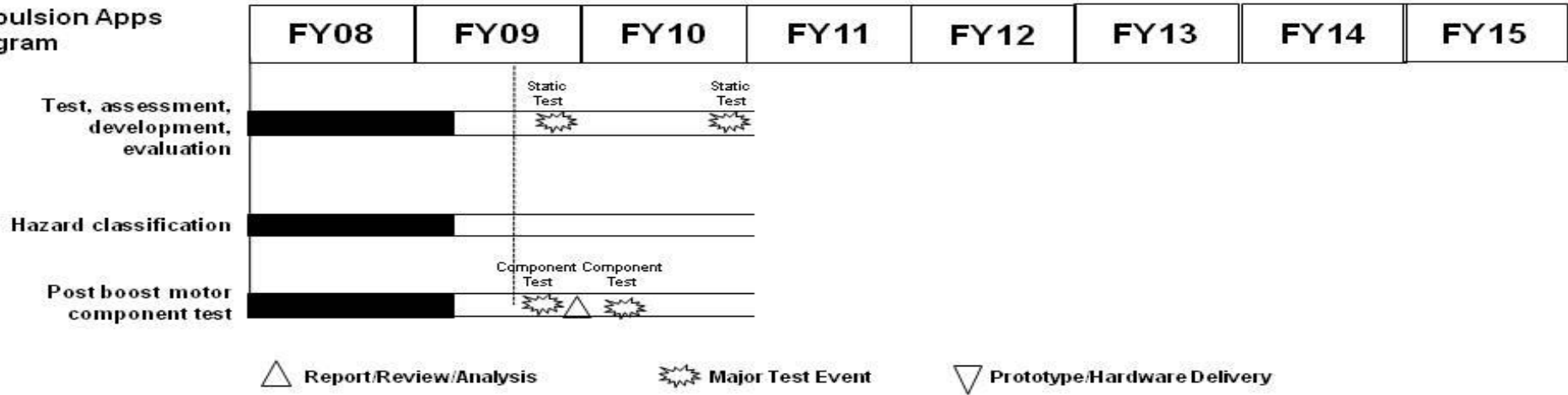


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Solid rocket motor static test fire

4Q

4Q

(U) Post Boost Motor Component test

3Q

2Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1022 ICBM Reentry Vehicle Applications		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1022 ICBM Reentry Vehicle Applications	3.932	5.398	5.471	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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

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

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development, evaluation and testing of Reentry Vehicle materials and technologies	3.269	4.709	4.768
(U) Program Office Support	0.663	0.689	0.703
(U) Total Cost	3.932	5.398	5.471

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Continue development, evaluation and testing of Reentry Vehicle materials and technologies	Various	Northrop Grumman, Clearfield UT; FMI/Boeing	0.000	2.569	Dec-07	2.111	Nov-08	3.655	Nov-09	Continuing	TBD	TBD	
Subtotal Product Development			0.000	2.569		2.111		3.655		Continuing	TBD	TBD	
Remarks:										Continuing	TBD	TBD	
(U) <u>Support</u> SPO/Other Program Support	Various	526 ICBMSG, Hill AFB UT	0.000	0.663	Jan-08	0.689	Jan-09	0.703	Jan-10	Continuing	TBD	TBD	
Subtotal Support			0.000	0.663		0.689		0.703		Continuing	TBD	TBD	
Remarks:										Continuing	TBD	TBD	
(U) <u>Test & Evaluation</u> Materials & Arc Jet Test	MIPR	AFRL Materials Lab, Wright-Patterson AFB;	0.000	0.700	Dec-07	1.000	Dec-08	1.000	Dec-09	Continuing	TBD	TBD	
Ground Testing	PO	Arnold Engineering & Development Center	0.000		N/A	0.110	Jan-09	0.113	Jan-10	Continuing	TBD	TBD	
TPS Testing	MIPR	Dryden Flight Research Center	0.000	0.000	N/A	1.488	Feb-09	0.000	N/A		1.488		
Subtotal Test & Evaluation			0.000	0.700		2.598		1.113		Continuing	TBD	TBD	
Remarks:													
(U) <u>Reprogrammed for higher priorities</u>											0.000		
Subtotal Reprogrammed for higher priorities			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			0.000	3.932		5.398		5.471		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

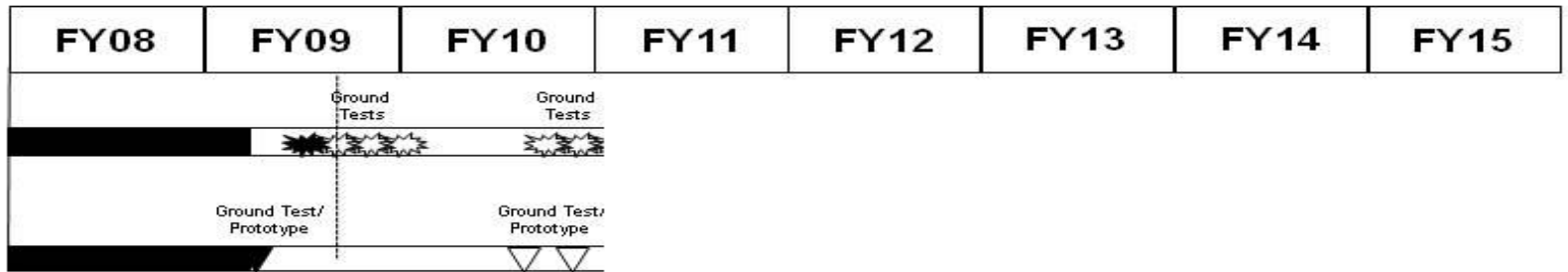
PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications

Reentry Vehicle Program



△ Report/Review/Analysis

⚡ Major Test Event

▽ Prototype/Hardware Delivery

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Reentry Vehicle Thermal Protection Material Testing

1-4Q

2-4Q

3,4Q

(U) Fuze Prototype Testing

2Q

2Q

3,4Q

(U) Flight Tests

4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program	0.026	0.027	0.026	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The purpose of the ICBM Rocket System Launch Program is to perform studies and analyses that determine the most constructive and cost effective use of missile assets after they are deactivated or considered excess and added to the RSLP inventory.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.026	0.027	0.026
(U) Total Cost	0.026	0.027	0.026

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL					1023 Rocket System Launch Program			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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>												
Engineering Support	Various	Space Development and Test Wing, Kirtland AFB NM	0.000	0.026	Jan-08	0.027	Jan-09	0.026	Jan-10	Continuing	TBD	TBD
Subtotal Support			0.000	0.026		0.027		0.026		Continuing	TBD	TBD
Remarks:												
(U) <u>Reprogrammed for higher priorities</u>												
Subtotal Reprogrammed for higher priorities			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.026		0.027		0.026		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

Rocket System Launch Program	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
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Analyze, evaluate concepts



△ Report/Review/Analysis

☼ Test Event

▽ Prototype/Hardware Delivery

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Annual Study/Analysis

4Q

4Q

4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4209 Long Range Planning (LRP)	5.470	7.668	2.830	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Long Range Planning (LRP) task analyzes systems to identify common 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 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue support of the consolidated long range plan	0.160	0.160	0.171
(U) Continue feasibility and life extension studies	0.307	2.000	1.946
(U) Conduct Conventional Strike Missile capability demonstration (Cong. Add)	4.718	0.000	0.000
(U) Conduct Conventional Strike Mission integration demonstration (Cong. Add)	0.000	4.800	0.000
(U) Program Office Support	0.285	0.708	0.713
(U) Total Cost	5.470	7.668	2.830

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL					4209 Long Range Planning (LRP)			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Long range plan	C/CPAF	Northrop Grumman, Clearfield UT	0.000	0.160	Jan-08	0.160	Jan-09	0.171	Jan-10	Continuing	TBD	TBD
Conventional Strike Missile capability demo	C/CPAF	Northrop Grumman, San Bernardino CA	0.000	4.718	Oct-08	0.000	N/A	0.000	N/A	0.000	4.718	11.185
Conventional Strike Mission integration demo	Various	Various	0.000	0.000	N/A	4.800	May-09	0.000	N/A	0.000	4.800	5.000
Studies	Various	Various	0.000	0.307	Jan-08	2.000	Jan-09	1.946	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	5.185		6.960		2.117		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Other program support	Various	526 ICBMSG, Hill AFB UT	0.000	0.285	Jan-08	0.708	Jan-09	0.713	Jan-10	Continuing	TBD	TBD
Subtotal Support			0.000	0.285		0.708		0.713		Continuing	TBD	TBD
Remarks:												
(U) <u>Reprogrammed for higher priorities</u>											0.000	
Subtotal Reprogrammed for higher priorities			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	5.470		7.668		2.830		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

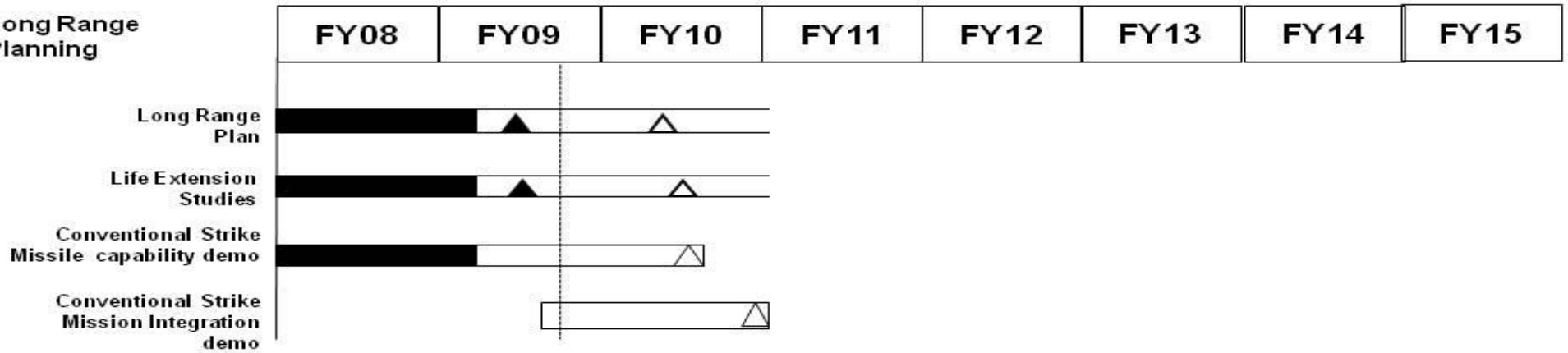
PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

Long Range Planning



△ Report/Review/Analysis

⚡ Major Test Event

▽ Prototype/Hardware Delivery

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)
--	---	---

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Long Range Plan	2Q	2Q	2Q
(U) Studies	2Q	2Q	2Q
(U) Conventional Strike Missile Capability Demo -- Mission Planning, C2 Architecture, and CONOPS Delivered			2Q
(U) Conventional Strike Mission Integration Demo -- Mission Integration/Planning and C2 Demo			4Q

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PE NUMBER: 0603854F
 PE TITLE: Wideband MILSATCOM (Space)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.992	52.080	70.956	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4811 Wideband Gapfiller	0.000	39.737	52.635	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4870 Command & Control System Consolidated (CCSC)	20.992	12.343	18.321	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

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

The first and second WGS satellites were successfully launched on 10 Oct 07 and 3 Apr 09, respectively. The third satellite launch is scheduled for Aug 09.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for Oct 11 and Oct 12, respectively.

A United States-Australia WGS partnership was codified 14 Nov 07. Australia will provide funds needed to buy WGS-6 in exchange for access to constellation-wide resources. Launch for satellite 6 is scheduled for Mar 13.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system provides integrated launch and on-orbit command and control (C2) functionality for MILSATCOM satellites as the capability provided by the Air Force Satellite Control Network (PE0305110F) for MILSATCOM satellites has phased out according to plan. CCS-C uses modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include Milstar, DSCS, WGS, and the Advanced Extremely High Frequency (AEHF) system, at reduced operating and maintenance costs.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	19.091	12.422	13.201
(U) Current PBR/President's Budget	20.992	52.080	70.956
(U) Total Adjustments	1.901	39.658	
(U) Congressional Program Reductions		-0.200	
Congressional Rescissions		-0.142	
Congressional Increases		40.000	
Reprogrammings	1.901		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress added FY09 funds for WGS program sustainment and evolution. Not reflected above, \$30M of the \$40M FY09 congressional add has been reprogrammed as Missile Procurement, Air Force (MPAF) to address WGS sustainment. FY10 funds added for WGS Block II Extension Non Recurring Engineering and increased CCS-C development costs due to delay in AEHF launches.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT NUMBER AND TITLE 4811 Wideband Gapfiller		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4811 Wideband Gapfiller	0.000	39.737	52.635	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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

The first and second WGS satellite were successfully launched on 10 Oct 07 and 3 Apr 09, respectively. The third satellite launch is scheduled for Aug 09.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY12: Oct 11 and Oct 12.

A United States-Australia WGS partnership was codified 14 Nov 07. Australia will provide funds needed to buy WGS-6 in exchange for access to constellation-wide resources. Launch for satellite 6 is scheduled for Mar 13.

Congress appropriated \$40M FY09 funds for WGS sustainment and evolution. In order to address sustainment, \$30M of the congressional add has been internally reprogrammed to Missile Procurement, Air Force funds. The remainder will fund evolutionary study efforts to include lasercom and other potential study efforts.

FY10 funds, but is not limited to, Block II Extension non-recurring engineering.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Perform efforts such as payload/evolutionary studies, parts obsolescence and other potentially related studies	0.000	39.737	0.000
(U) Perform, but not limited to, non-recurring engineering for integration, tests, and support development of WGS control system	0.000	0.000	47.372
(U) Provide Program Office support and other related activities	0.000	0.000	5.263
(U) Total Cost	0.000	39.737	52.635

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)	PROJECT NUMBER AND TITLE 4811 Wideband Gapfiller
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) MPAF, PE 0303600F, WGS, P-19,20	312.335	21.628	264.051						Continuing	TBD
(U) OPAF, PE 0303600F, WGS PIPs	0.000	0.000	1.677						Continuing	TBD
(U) OPAF, PE 0303600F, CCS-C	8.335	0.000	0.000						Continuing	TBD

(U) D. Acquisition Strategy

The WGS program made considerable use of commercial practices and technology in its FAR Part 12, Firm Fixed Price (FFP) acquisition for satellites 1-3. The WGS program received MS II/III approval in November 2000 and awarded a FFP contract in January 2001 (three satellites and options for an additional three). Options for satellites 4-6 were not exercised prior to the 31 December 2003 expiration date.

Since WGS-type capabilities were no longer being offered commercially, it was no longer appropriate to use a Firm Fixed Price contract for satellites 4-6. A Fixed Price Incentive Fee contract, which balances uncertainty of parts obsolescence/production gap with experience gained from WGS 1-3 production, was approved. The Not-to-Exceed letter contract was awarded for satellites 4 and 5 (with unfunded priced option for 6th satellite) in 2nd Qtr FY06. The contract definitized on 17 October 2006. All satellites are purchased with procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603854F Wideband MILSATCOM (Space)					4811 Wideband Gapfiller			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Parts Obsolescence Redesign	FPIF	Boeing, El Segundo CA	91.737								91.737	
WGS Satellite EMD (satellites 1-3)	FFP	Boeing, El Segundo CA	143.013								143.013	
UAV Bypass NRE	FFP	Boeing, El Segundo CA	14.000								14.000	
Payload/Production Studies Design/Development NRE	Various FPIF	Various TBD	30.937			39.737	Jun-09	47.372	Mar-10	Continuing	70.674	TBD
Subtotal Product Development			279.687	0.000		39.737		47.372		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Joint Terminals Engineering Office Pre-EMD	PR Form 277	McLean, VA Various	6.618								6.618	
Program Support	Various	Various	5.579					5.263	Feb-10	Continuing	5.579	TBD
Subtotal Support			10.392			0.000		5.263		Continuing	TBD	0.000
Remarks:			22.589	0.000								
<u>(U) Test & 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>(U) Total Cost</u>			302.276	0.000		39.737		52.635		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

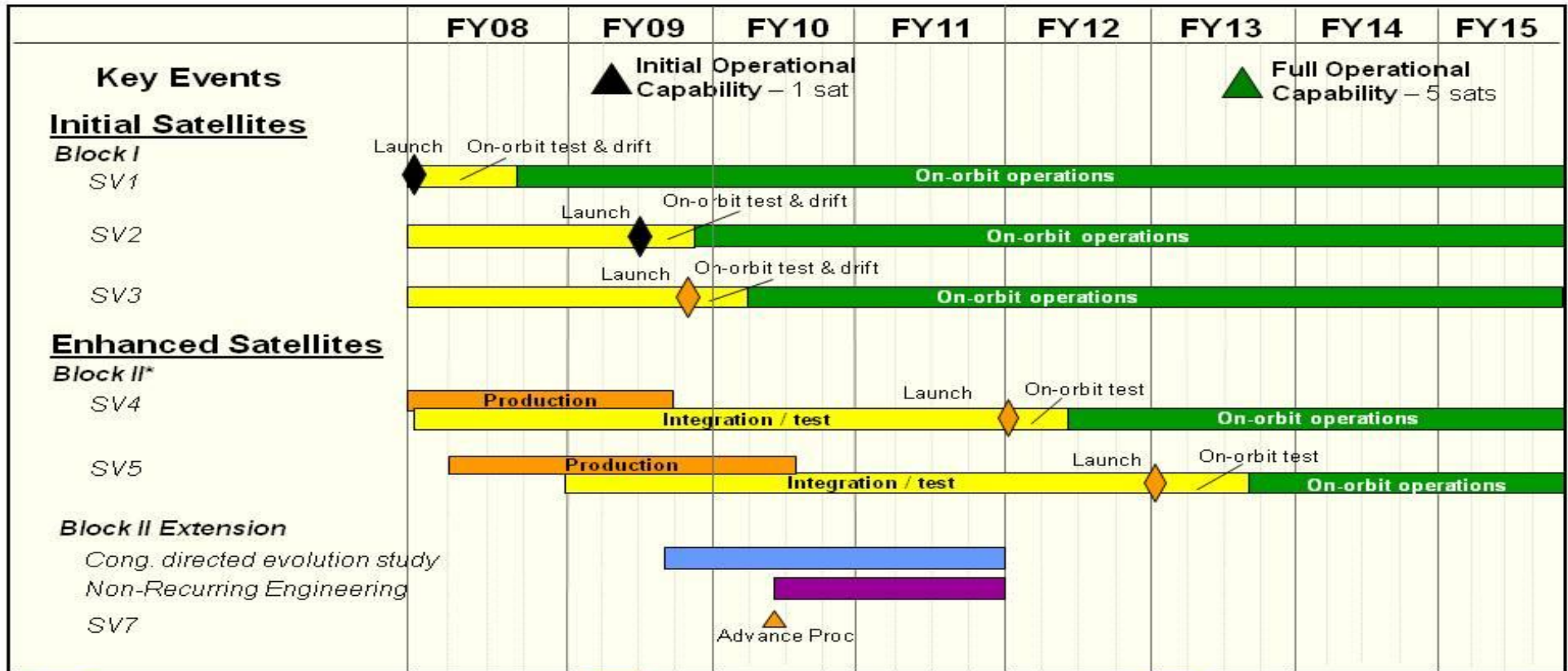
DATE

May 2009

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

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE
4811 Wideband Gapfiller



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

*SV6 funded by AUS. Advance Proc FY08, Full Procurement FY09, Launch Mar 13

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Evolutionary Study Efforts

3Q

(U) Initiate Block II Extension non-recurring engineering

2Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT NUMBER AND TITLE 4870 Command & Control System Consolidated (CCSC)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4870 Command & Control System Consolidated (CCSC)	20.992	12.343	18.321	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) Command and Control System-Consolidated (CCS-C) system provides 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) has phased out according to plan. CCS-C uses modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Global SATCOM (WGS), and the Advanced Extremely High Frequency (AEHF) system, at reduced operating and maintenance costs. CCS-C will also support the implementation of new C2 training systems.

FY10 funds provide required command and control capability to launch AEHF satellites.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of command and control functionality for WGS and AEHF satellites. Completed command and control functionality Milstar (1QFY06)	18.524	9.500	15.224
(U) Continue Program Office and other related support activities, to include Systems Engineering and Integration	2.468	2.843	3.097
(U) Total Cost	20.992	12.343	18.321

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other APPN										
(U) OPAF, PE 0303600F, CCS-C	8.335	0.000	0.000						Continuing	TBD

(U) D. Acquisition Strategy

Competitive contracts with cost plus award fee options, were awarded in February 2001 to two teams to demonstrate capabilities for the concept demonstration phase. A downselect to a single team was awarded in March 2002 to develop the system for the development phase.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603854F Wideband MILSATCOM (Space)					4870 Command & Control System Consolidated (CCSC)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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	100.482	18.524	Oct-07	9.500	Oct-08	15.224	Oct-09	Continuing	TBD	
Subtotal Product Development			107.282	18.524		9.500		15.224		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
CCSC Program Support Cost			20.528	2.468	Oct-07	2.843	Oct-08	3.097	Oct-09	Continuing	TBD	
Subtotal Support			20.528	2.468		2.843		3.097		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			127.810	20.992		12.343		18.321		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

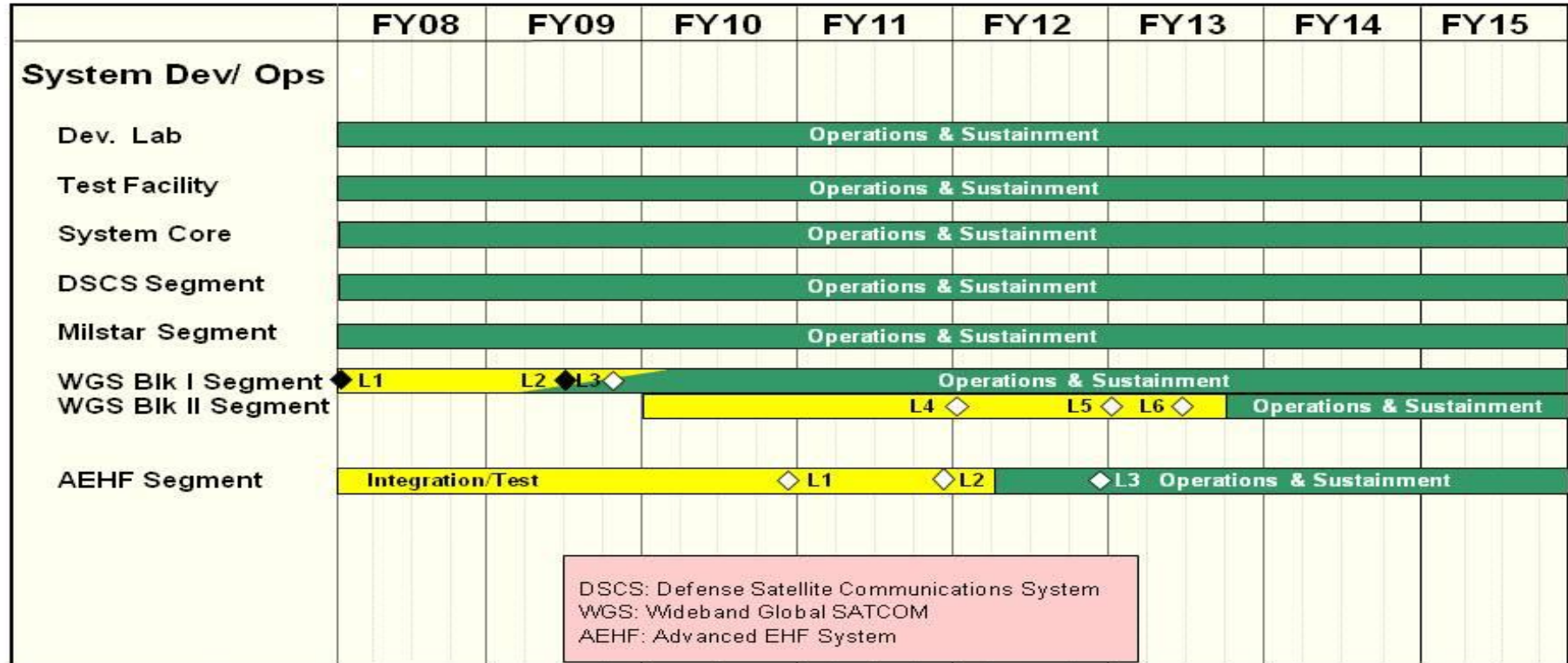
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System Consolidated (CCSC)



DSCS: Defense Satellite Communications System
 WGS: Wideband Global SATCOM
 AEHF: Advanced EHF System

Design / development
 Integration / test
 Operations / sustainment

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM
(Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System
Consolidated (CCSC)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) WGS 1 launch	1Q		
(U) Continue WGS Integration & Test	1-4Q		
(U) Continue AEHF Integration & Test	1-4Q	1-4Q	1-4Q
(U) WGS 2 launch		2Q	
(U) WGS 3 launch		4Q	
(U) Transition WGS into Sustainment		4Q	
(U) AEHF 1 launch			4Q

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PE NUMBER: 0603859F
 PE TITLE: Pollution Prevention

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603859F Pollution Prevention
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.660	11.645	2.896	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4852 Pollution Prevention	10.660	11.645	2.896	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system manufacturing, remanufacturing, and maintenance materials and processes that reduce or eliminate hazardous chemicals, materials and waste streams through cost-effective programs and practices, while improving energy efficiency and reducing greenhouse gas emissions.

Specifically, funds target pollution prevention technologies that reduce or eliminate chromium, cadmium, and nickel, as well as reduce or eliminate Hazardous Air Pollutants (HAPS), Volatile Organic Compounds (VOCs), and Class I and II Ozone Depleting Substances (ODS), global warmers and biochemical oxygen demand (BOD) and to increase the use of renewable and alternative fuels.

This effort is in Budget Activity 04, Advanced Component Development and Prototypes, because the emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	11.038	2.877	2.945
(U) Current PBR/President's Budget	10.660	11.645	2.896
(U) Total Adjustments	-0.378	8.768	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	-0.070	-0.032	
Congressional Increases	0.000	8.800	
Reprogrammings	0.000	0.000	
SBIR/STTR Transfer	-0.308	0.000	

(U) Significant Program Changes:

Program increased in FY09 due to 2 Congressional Increases

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603859F Pollution Prevention			PROJECT NUMBER AND TITLE 4852 Pollution Prevention		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4852 Pollution Prevention	10.660	11.645	2.896	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system manufacturing, remanufacturing, and maintenance materials and processes that reduce or eliminate hazardous chemicals, materials and waste streams through cost-effective programs and practices, while improving energy efficiency and reducing greenhouse gas emissions.

Specifically, funds target pollution prevention technologies that reduce or eliminate chromium, cadmium, and nickel, as well as reduce or eliminate Hazardous Air Pollutants (HAPS), Volatile Organic Compounds (VOCs), and Class I and II Ozone Depleting Substances (ODS), global warmers and biochemical oxygen demand (BOD) and to increase the use of renewable and alternative fuels.

This effort is in Budget Activity 04, Advanced Component Development and Prototypes, because the emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	0.804	0.831	0.883
(U) Clean Air Act Compliance Burden Reduction	1.143	1.189	1.217
(U) Clean Water Act Compliance Burden Reduction	0.794	0.825	0.796
(U) Congressional Insert	7.919	8.800	0.000
(U) Total Cost	10.660	11.645	2.896

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

(U) D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0603859F Pollution Prevention					4852 Pollution Prevention				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Air Force Research Lab	Various	Various	14.024	6.822	Jun-08	7.453	May-09	0.775	May-10	Continuing	TBD	TBD	
Subtotal Product Development			14.024	6.822		7.453		0.775		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u>													
Air Force Research Lab	Various	Various	7.316	1.599	May-08	1.747	May-09	0.667	May-10	Continuing	TBD	TBD	
Subtotal Support			7.316	1.599		1.747		0.667		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u>													
Air Force Research Lab	Various	Various	1.438	0.533	Sep-08	0.582	Sep-09	0.158	Sep-10	Continuing	TBD	TBD	
Subtotal Management			1.438	0.533		0.582		0.158		Continuing	TBD	TBD	
Remarks:													
(U) <u>Prototype</u>													
Air Force Research Lab	Various	Various	15.503	1.706	Jul-08	1.863	May-09	1.296	May-10	Continuing	TBD	TBD	
Subtotal Prototype			15.503	1.706		1.863		1.296		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			38.281	10.660		11.645		2.896		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

Pollution Prevention Demonstration Schedules

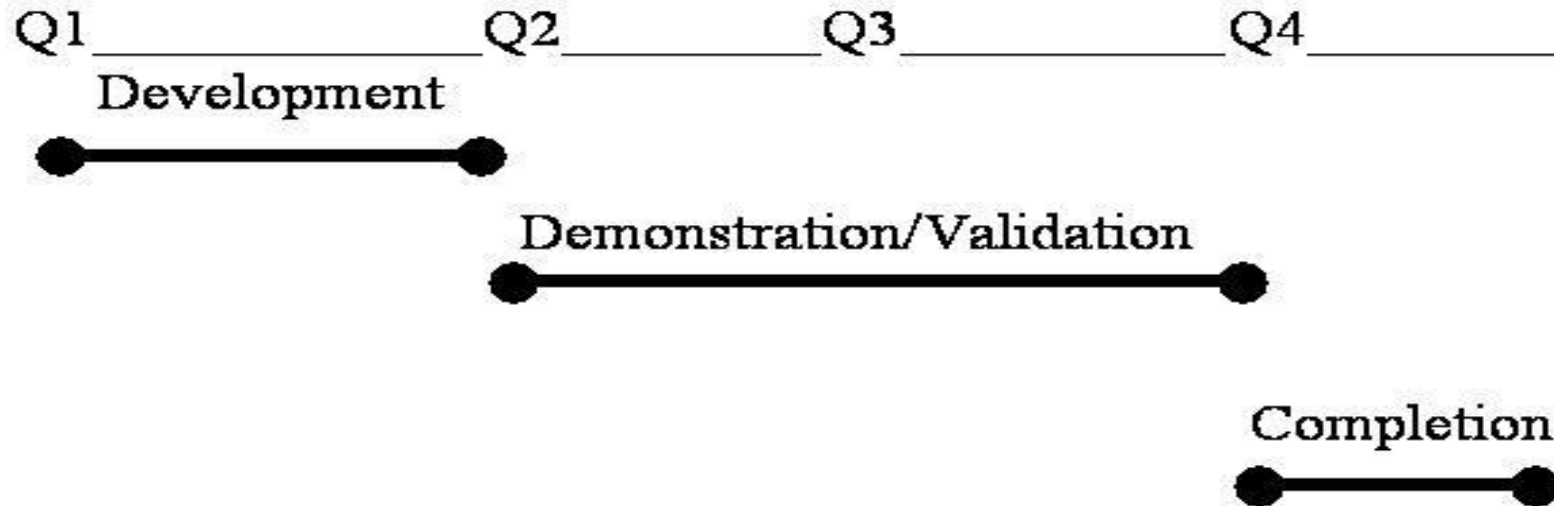


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603859F Pollution Prevention	PROJECT NUMBER AND TITLE 4852 Pollution Prevention
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development	1Q	1Q	1Q
(U) Prototype	2-3Q	2-3Q	2-3Q
(U) Contract Completion	4Q	4Q	4Q

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PE NUMBER: 0603860F

PE TITLE: Joint Precision Approach and Landing Systems (SDD)

Exhibit R-2, RDT&E Budget Item Justification									DATE May 2009	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems (SDD)					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.216	7.358	23.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4652 Precision Landing Systems	6.216	7.358	23.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The Air Force is responsible for developing the common system architecture for the Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Development Document (CDD) for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibilities to the Navy. JPALS is the future precision approach and landing system for the Department of Defense (DOD). It will provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Land-Based JPALS will provide DOD civil interoperability with the Federal Aviation Administration's (FAA) Local Area Augmentation System (LAAS). JPALS is participating in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS will close capability gaps identified in the 2005 JPALS Analysis of Alternatives (AoA) update. These gaps are interoperability for naval aircraft landing at shore-based airfields operated by other services, interoperability for Navy/Marine Corps and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS AoA update identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments. The AoA also identified Enhanced Vision Systems (EVS) as the best choice for mitigating the capability gaps for the Special Operations environment.

JPALS must provide needed guidance quality in the presence of GPS jamming. The JPALS architecture must be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Finally, because a cornerstone of the JPALS implementation strategy is worldwide military and civil interoperability, JPALS must harmonize with US and international civil Global Navigation Satellite Systems. Avionics in over 13,000 DOD aircraft will be modified to integrate JPALS technology.

Technology Development and DOD 5000 Milestone B entry requirements for JPALS Land-Based Increment 2 (Fixed-Base and Tactical JPALS systems) will complete in FY09. FY10 efforts will focus on the start of Land-Based JPALS System Development and Demonstration (SDD) which will complete in FY14. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603860F Joint Precision Approach and Landing Systems (SDD)

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	7.451	7.479	7.872
(U) Current PBR/President's Budget	6.216	7.358	23.174
(U) Total Adjustments	-1.235	-0.121	
(U) Congressional Program Reductions		-0.101	
Congressional Rescissions		-0.020	
Congressional Increases			
Reprogrammings	-1.028		
SBIR/STTR Transfer	-0.207		

(U) **Significant Program Changes:**

JPALS System Development and Demonstration (SDD) fully funded in FYDP. Funding ramp through FY11 reflects SDD contract award and contractor development of fixed and mobile ground systems.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems (SDD)			PROJECT NUMBER AND TITLE 4652 Precision Landing Systems		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4652 Precision Landing Systems	6.216	7.358	23.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The Air Force is responsible for developing the common system architecture for the Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Development Document (CDD) for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibilities to the Navy. JPALS is the future precision approach and landing system for the Department of Defense (DOD). It will provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Land-Based JPALS will provide DOD civil interoperability with the Federal Aviation Administration's (FAA) Local Area Augmentation System (LAAS). JPALS is participating in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS will close capability gaps identified in the 2005 JPALS Analysis of Alternatives (AoA) update. These gaps are interoperability for naval aircraft landing at shore-based airfields operated by other services, interoperability for Navy/Marine Corps and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS AoA update identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments. The AoA also identified Enhanced Vision Systems (EVS) as the best choice for mitigating the capability gaps for the Special Operations environment.

JPALS must provide needed guidance quality in the presence of GPS jamming. The JPALS architecture must be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Finally, because a cornerstone of the JPALS implementation strategy is worldwide military and civil interoperability, JPALS must harmonize with US and international civil Global Navigation Satellite Systems. Avionics in over 13,000 DOD aircraft will be modified to integrate JPALS technology.

Technology Development and DOD 5000 Milestone B entry requirements for JPALS Land-Based Increment 2 (Fixed-Base and Tactical JPALS systems) will complete in FY09. FY10 efforts will focus on the start of Land-Based JPALS System Development and Demonstration (SDD) which will complete in FY14. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems (SDD)	PROJECT NUMBER AND TITLE 4652 Precision Landing Systems
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Perform anti-jam and threat analysis	0.160	0.395	
(U) Perform architecture trade studies and analyses	0.507	1.595	1.489
(U) Perform aircraft requirements and integration studies	0.266	0.100	1.000
(U) Requirements development and system design, analysis, engineering, test and evaluation	1.308	0.200	6.245
(U) Planning/Development of future JPALS increments	2.361	2.371	2.039
(U) Milestone B Preparation	1.614	2.697	2.000
(U) JPALS Increment 2 Engineering, and Manufacturing Development Phase Contract			10.401
(U) Total Cost	6.216	7.358	23.174

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>

(U) Other APPN

(U) **D. Acquisition Strategy**

Increment 2 System Development and Demonstration (SDD) contracts for development of Fixed-Base and Tactical JPALS systems will be competitively awarded.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0603860F Joint Precision Approach and Landing Systems (SDD)					4652 Precision Landing Systems			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Aircraft Anti-jam & Threat Analyses	C/T&M	AES, California, MD		0.160	Feb-08	0.395	Jul-09			Continuing	TBD	TBD
Architecture Trade Studies & Analyses	C/CPFF	Honeywell, Albuquerque, NM		0.507	Dec-08	1.595	Apr-09	1.489	Dec-09	Continuing	TBD	TBD
Aircraft Requirements & Integration Studies	C/T&M	AES, California, MD		0.266	Sep-08	0.100	May-09	1.000	Jan-10	Continuing	TBD	TBD
Requirements Development, System Design, Analysis, Engineering, Test and Evaluation	C/T&M	AES, California, MD		1.308	Sep-08	0.200	Feb-09	6.245	Jan-10	Continuing	TBD	TBD
Planning/Development of Future JPALS Increments	C/T&M	ESC / ETASS / PASS / (Various), Bedford, MA		2.361	Aug-08	2.371	Jan-09	2.039	Jan-10	Continuing	TBD	TBD
Milestone B preparation	C/T&M	ESC / ETASS / PASS / (Various), Bedford, MA		1.614	Mar-08	2.697	Apr-09	2.000	Jan-10	Continuing	TBD	TBD
JPALS Increment 2 Engineering, Manufacturing and Development Phase Contract	TBD	TBD						10.401	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	6.216		7.358		23.174		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	6.216		7.358		23.174		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

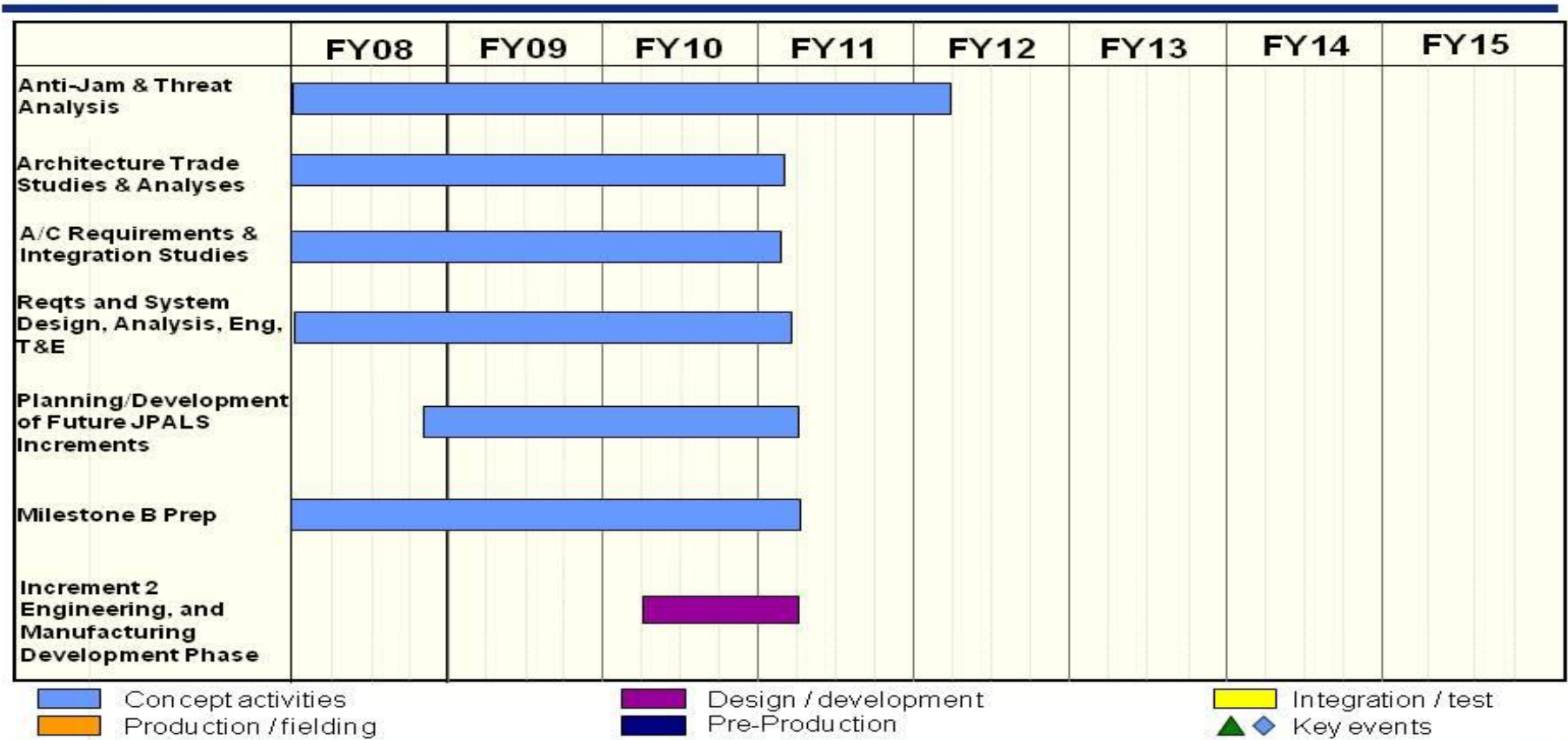
0603860F Joint Precision Approach and Landing Systems (SDD)

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems



JPALS



PB10 R-Docs

Depicted by installation/production flow

1

R-1 Line Item No. 49

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Exhibit R-4 (PE 0603860F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems (SDD)	PROJECT NUMBER AND TITLE 4652 Precision Landing Systems
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(U) Schedule Profile	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Anti-Jam & Threat Analysis Tests	1-4Q	1-4Q	1-4Q
(U) Architecture Trade Studies and Analyses	1-4Q	1-4Q	1-4Q
(U) Aircraft Requirements & Integration Studies	1-4Q	1-4Q	1-4Q
(U) Requirements & System Design, Analysis, Engineering, and Test and Evaluation	1-4Q	1-4Q	1-4Q
(U) Planning/Development of Future JPALS Increments	4Q	1-4Q	1-4Q
(U) Milestone B Preparation	1-4Q	1-4Q	1-4Q
(U) Increment 2 Engineering, Manufacturing and Development Phase			2-4Q

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PE NUMBER: 0604015F

PE TITLE: Next Generation Long Range Strike (NGLRS)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3308 Next Generation Bomber	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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. Activities include design tradeoffs and analyses, requirements definition, requirements review, operational and system architecture development, and integrated system development and demonstration. 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	7.000	0.000	0.000
(U) Total Adjustments	7.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	7.000		
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY08 \$7.0M funding received from AF source to initiate Phase 2 of Automated Aerial Refueling, an associated technology demonstration program supporting Long Range Strike. FY11 funding reprogrammed.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)			PROJECT NUMBER AND TITLE 3308 Next Generation Bomber		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3308 Next Generation Bomber	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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. Activities include design tradeoffs and analyses, requirements definition, requirements review, operational and system architecture development, and integrated system development and demonstration. 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Technology Maturation & Risk Mitigation	7.000		
(U) Requirements Definition			
(U) Design tradeoffs and analyses			
(U) System Requirements Review			
(U) Preliminary system development and demonstration			
(U) Program Support			
(U) Total Cost	7.000	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E, PE 0604830F, Automated Air-to-Air Refueling		9.862	43.898	47.454	14.515					
Associated RDT&E funding provided by PE 0604830F, Automated Air-to-Air Refueling, develops, demonstrates and validates the ability to air refuel an aircraft without pilot intervention, in support of Next Generation Long Range Strike development strategies.										

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

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0604015F Next Generation Long Range Strike (NGLRS)	3308 Next Generation Bomber

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2010</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>Long Range Strike</u>												
Concept Exploration and Refinement	Various	Various	90.461	7.000	Nov-08	0.000		0.000			97.461	
Technology Maturation & Risk Reduction	TBD	WPAFB	0.000	0.000		0.000		0.000		Continuing	TBD	
Design Tradeoffs & Analyses	TBD	TBD	0.000	0.000		0.000		0.000		Continuing	TBD	
Requirements Definition	TBD	TBD	0.000	0.000		0.000		0.000		Continuing	TBD	
System Requirements Review	TBD	TBD	0.000	0.000		0.000		0.000			0.000	
System Development and Demonstration	TBD	TBD	0.000	0.000		0.000		0.000		Continuing	TBD	
Program Support	TBD	TBD	0.000	0.000		0.000		0.000		Continuing	TBD	
Subtotal Long Range Strike			90.461	7.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			90.461	7.000		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

FOR OFFICIAL USE ONLY

NGB Schedule	FY08				FY09				FY10				FY11				FY12				FY13				FY14				FY15							
Fiscal Year	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
NGLRS Concept Refinement	■																																			
Automated Aerial Refueling Phase 1 Demonstration	■																																			
Automated Aerial Refueling Phase 2 Demonstration	▲	■																																		

Note: Detailed programmatic information not available

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604015F Next Generation Long Range Strike (NGLRS)	PROJECT NUMBER AND TITLE 3308 Next Generation Bomber
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AAR Phase II Initiation (continued in FY09-12 in PE 0604830F)	1Q		

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PE NUMBER: 0604283F
 PE TITLE: BMC2 Sensor Development

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604283F BMC2 Sensor Development
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5363 MP-RTIP	0.000	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In FY 2010, Project 5363, MP-RTIP, efforts were transferred from PE 0207581F, PE Joint STARS, Project 0003, in order to continue risk reduction on a Wide Area Surveillance (WAS) radar and supporting Battle Management Command and Control (BMC2).

(U) A. Mission Description and Budget Item Justification

Program Element (PE) 0207450F (E-10 Squadrons) developed a family of advanced Multi Platform-Radar Technology Insertion Program (MP-RTIP) airborne sensors for multiple platform applications. The MP-RTIP large array Wide Area Surveillance (WAS) version of this sensor, and its intended platform the E-10A, were included in this effort. The E-10A was terminated Feb 07, but termination direction allowed a bridge effort to accomplish WAS radar hardware verification. Additional funding was provided in FY08 and FY09 in PE 0207581F, Joint STARS, to continue WAS radar risk reduction and analysis.

Direction to terminate did not impact the smaller version of the Radar, MP-RTIP on Global Hawk Block 40.

PE 0604283F funds investigation and development of improved WAS capabilities to support future potential platforms including, but not limited to, E-8C Joint STARS. This includes risk reduction and technology maturation in areas such as Cruise Missile Defense (CMD), improved Kill Chain performance, and improved and concurrent Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR). This also includes installed air mode capabilities, electronic protection, technology refresh and assessment, antenna scaling design, mode software development and installed system performance assessments.

Battle Management Command and Control (BMC2) activities under this PE will focus on operation and control of any sensor (e.g., WAS or Global Hawk). These activities include risk reduction, architecture analysis, modeling and simulation, and prototype designs related to sensor and data management, data fusion and security, and computing architecture analysis to support mission execution capabilities. Modifications to large WAS radar platforms require risk reduction and technology maturation associated with the sensor, operation and control of the sensor, and integration of the sensor. Specific platform integration activity (e.g., E-8C Joint STARS) will focus on weapon system integration analysis and risk reduction to address airframe areas such as thermal analysis, electrical power analysis, structural analysis and sensor radome design, and power generation baseline assessment.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity (BA) 4 which requires proving components and subsystem maturity prior to integration into major/complex systems.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604283F BMC2 Sensor Development

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	22.612
(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>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604283F BMC2 Sensor Development				PROJECT NUMBER AND TITLE 5363 MP-RTIP		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5363 MP-RTIP	0.000	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2010, Project 5363, MP-RTIP, efforts were transferred from PE 0207581F, PE Joint STARS, Project 0003, in order to continue risk reduction on a Wide Area Surveillance (WAS) radar and supporting Battle Management Command and Control (BMC2).

(U) A. Mission Description and Budget Item Justification

Program Element (PE) 0207450F (E-10 Squadrons) developed a family of advanced Multi Platform-Radar Technology Insertion Program (MP-RTIP) airborne sensors for multiple platform applications. The MP-RTIP large array Wide Area Surveillance (WAS) version of this sensor, and its intended platform the E-10A, were included in this effort. The E-10A was terminated Feb 07, but termination direction allowed a bridge effort to accomplish WAS radar hardware verification. Additional funding was provided in FY08 and FY09 in PE 0207581F, Joint STARS, to continue WAS radar risk reduction and analysis.

Direction to terminate did not impact the smaller version of the Radar, MP-RTIP on Global Hawk Block 40.

PE 0604283F funds investigation and development of improved WAS capabilities to support future potential platforms including, but not limited to, E-8C Joint STARS. This includes risk reduction and technology maturation in areas such as Cruise Missile Defense (CMD), improved Kill Chain performance, and improved and concurrent Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR). This also includes installed air mode capabilities, electronic protection, technology refresh and assessment, antenna scaling design, mode software development and installed system performance assessments.

Battle Management Command and Control (BMC2) activities under this PE will focus on operation and control of any sensor (e.g., WAS or Global Hawk). These activities include risk reduction, architecture analysis, modeling and simulation, and prototype designs related to sensor and data management, data fusion and security, and computing architecture analysis to support mission execution capabilities. Modifications to large WAS radar platforms require risk reduction and technology maturation associated with the sensor, operation and control of the sensor, and integration of the sensor. Specific platform integration activity (e.g., E-8C Joint STARS) will focus on weapon system integration analysis and risk reduction to address airframe areas such as thermal analysis, electrical power analysis, structural analysis and sensor radome design, and power generation baseline assessment.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity (BA) 4 which requires proving components and subsystem maturity prior to integration into major/complex systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Risk Reduction Effort	0.000	0.000	19.162
(U) Program Management	0.000	0.000	3.450
(U) Total Cost	0.000	0.000	22.612

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604283F BMC2 Sensor Development

PROJECT NUMBER AND TITLE

5363 MP-RTIP

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0207581F, Project 0003	85.000	20.000								

(U) **D. Acquisition Strategy**

This acquisition strategy implements risk reduction and technology maturation efforts to produce analyses, reports, and software that can be leveraged if/when any future development program is approved.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604283F BMC2 Sensor Development					5363 MP-RTIP			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Risk Reduction Effort	TBD	TBD						19.162	Jan-10		19.162	
Subtotal Product Development			0.000	0.000		0.000		19.162		0.000	19.162	0.000
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 & 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	
Program Management Support								3.450	Oct-09		3.450	
Subtotal Management			0.000	0.000		0.000		3.450		0.000	3.450	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		22.612		0.000	22.612	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604283F BMC2 Sensor Development

PROJECT NUMBER AND TITLE

5363 MP-RTIP



Program Schedule

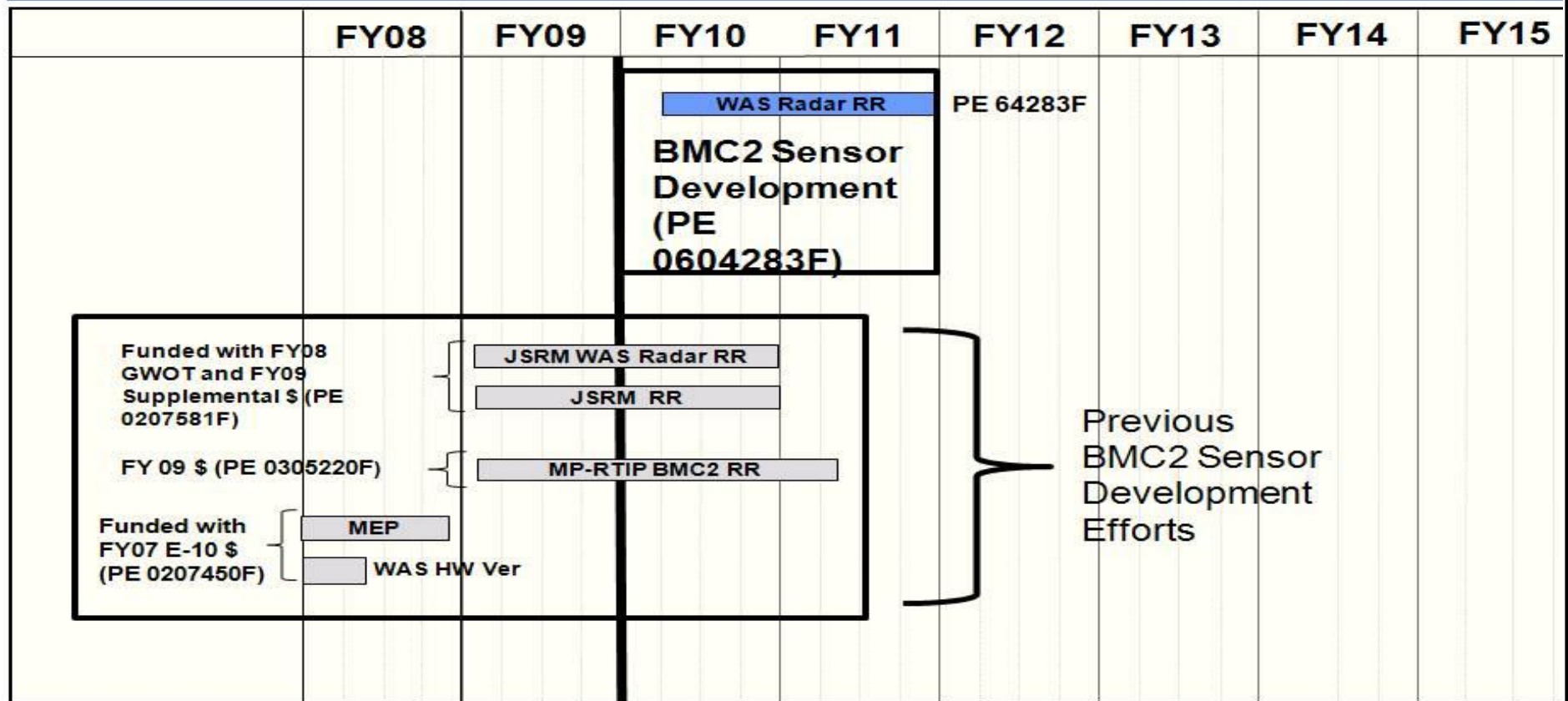


Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604283F BMC2 Sensor Development

PROJECT NUMBER AND TITLE

5363 MP-RTIP

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Risk Reduction Contract Award

2Q

(U) Risk Reduction

2-4Q

Note: Efforts funded by PEs 0207581F and 0207450F and annotated on the chart are not reflected in this listing. The efforts in these PEs are provided for reference only to show a continuity in the work being performed.

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PE NUMBER: 0604327F
 PE TITLE: Hardened Target Munitions

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	20.891	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5341 Direct Strike Penetrator Systems	0.000	0.000	20.891	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Hard and Deeply Buried Target Defeat System (HDBTDS) program is an effort to hold at risk those highest priority assets essential to enemy's war with multiple layers of reinforced concrete, rock rubble, and/or earth overburden. Other hardened targets include operations within caves, tunnels, and mountains built using rapidly improving construction equipment exported by allies and adversaries on a large scale. (Examples include enemy command and control facilities, air defense facilities, facilities for production, storage, and deployment of weapons including weapons of mass destruction, surface to surface missile launch sites, aircraft storage sites, artillery sites.) Potential solutions include (but are not limited to) Special Forces, conventional short or long range ballistic missiles (land or sea launched), cruise missiles, direct attack munitions, and standoff weapons.

Direct Strike Penetrator Systems includes development of an advanced precision guided penetrator munition that will provide the Air Force with an improved capability using air-to-surface conventional munitions to attack HDBTs, such as bunker and tunnel facilities, with fewer weapons and number of missions necessary to defeat targets and increase overall survivability. The system will hold at risk those highest priority assets essential to the enemy's warfighting ability, which are heavily defended and protected, providing a critical global strike capability not currently met by inventory conventional weapons.

This program is in Budget Activity 4 , Advanced Component Development and Prototypes because RDT&E include advanced component development activities.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	20.891
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	0.000	0.000	
Congressional Increases	0.000	0.000	
Reprogrammings	0.000	0.000	
SBIR/STTR Transfer	0.000	0.000	

(U) Significant Program Changes:

New Start - Project 5341: Funding added in FY10 for Direct Strike Penetrator Systems.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0604327F Hardened Target Munitions		PROJECT NUMBER AND TITLE 5341 Direct Strike Penetrator Systems	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5341 Direct Strike Penetrator Systems	0.000	0.000	20.891	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Hard and Deeply Buried Target Defeat System (HDBTDS) program is an effort to hold at risk those highest priority assets essential to enemy's war with multiple layers of reinforced concrete, rock rubble, and/or earth overburden. Other hardened targets include operations within caves, tunnels, and mountains built using rapidly improving construction equipment exported by allies and adversaries on a large scale. (Examples include enemy command and control facilities, air defense facilities, facilities for production, storage, and deployment of weapons including weapons of mass destruction, surface to surface missile launch sites, aircraft storage sites, artillery sites.) Potential solutions include (but are not limited to) Special Forces, conventional short or long range ballistic missiles (land or sea launched), cruise missiles, direct attack munitions, and standoff weapons.

Direct Strike Penetrator Systems includes development of an advanced precision guided penetrator munition that will provide the Air Force with an improved capability using air-to-surface conventional munitions to attack HDBTs, such as bunker and tunnel facilities, with fewer weapons and number of missions necessary to defeat targets and increase overall survivability. The system will hold at risk those highest priority assets essential to the enemy's warfighting ability, which are heavily defended and protected, providing a critical global strike capability not currently met by inventory conventional weapons.

This program is in Budget Activity 4 , Advanced Component Development and Prototypes because RDT&E include advanced component development activities.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Massive Ordnance Penetrator (MOP) Weapon Development	0.000	0.000	11.171
(U) Warhead Forging Process Development	0.000	0.000	4.420
(U) Qualification Testing	0.000	0.000	3.700
(U) System Test & Evaluation	0.000	0.000	0.000
(U) Flight Test Assets Fabrication	0.000	0.000	0.000
(U) Residual MOP Weapon Fabrication	0.000	0.000	0.000
(U) Program Office Support	0.000	0.000	1.600
(U) Total Cost	0.000	0.000	20.891

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0604240F B-2 Advanced Technology Bomber	10.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions	PROJECT NUMBER AND TITLE 5341 Direct Strike Penetrator Systems
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) PE 0101127F B-2 Squadrons	0.000	0.000	18.300	0.000	0.000	0.000	0.000	0.000	0.000	TBD
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(U) **D. Acquisition Strategy**

Quick reaction capability with a sole source firm fixed price contract to a single contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604327F Hardened Target Munitions					5341 Direct Strike Penetrator Systems			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Weapon Development	Sole Source FFP	Boeing (St Louis)						11.171	Dec-09		11.171	TBD
Warhead Forging Process Development	Sole Source FFP	Boeing (St Louis)						4.420	Dec-09		4.420	TBD
Qualification Testing	Sole Source FFP	Boeing (St Louis)						3.700	Dec-09		3.700	TBD
Subtotal Product Development			0.000	0.000		0.000		19.291		0.000	19.291	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
System Test & Evaluation	N/A	Eglin AFB, FL									0.000	TBD
Flight Test Assets Fabrication	Sole Source FFP	Boeing (St Louis)									0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Residual Weapons</u>												
Residual MOP Fabrication	Sole Source FFP	Boeing (St Louis)									0.000	TBD
Subtotal Residual Weapons			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Management</u>												
AAC/XR	N/A	Eglin AFB, FL						1.600			1.600	TBD
Subtotal Management			0.000	0.000		0.000		1.600		0.000	1.600	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		20.891		0.000	20.891	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

5341 Direct Strike Penetrator Systems

MOP Schedule

Current funding in FY10 only for design modification and qualification testing of the DTRA developed weapon. Schedule in FY11 and beyond TBD

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions	PROJECT NUMBER AND TITLE 5341 Direct Strike Penetrator Systems
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design Modification & Qualification Testing			2-4Q

UNCLASSIFIED

PE NUMBER: 0604330F

PE TITLE: Joint Dual-Role Air Dominance Missile (JDRADM)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604330F Joint Dual-Role Air Dominance Missile (JDRADM)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	6.882	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5342 Concept Development	0.000	0.000	6.882	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: This effort was a new start in FY09 in AMRAAM PE 0207163F.

(U) A. Mission Description and Budget Item Justification

The Joint Dual Role Air Dominance Missile (JDRADM) is envisioned as a multi-role (air-to-air & air-to-ground) missile for the 5th generation fighter force structure. It will provide increased flexibility, standoff range, and lethality to defeat 2020+ air and surface threats. It is intended for internal carriage on the F-22A and F-35, and external carriage on selected legacy aircraft.

The FY10 PB funding request is critical to ensuring JDRADM requirements, concepts and critical technologies are adequately assessed to support the next phase of the program.

Note: The JDRADM effort was a new start in FY09 under PE 0207163F.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	6.882
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

This is a new PE with initial program funding used for risk reduction studies and Materiel Solution Analysis . This was a new start effort in FY 09 for \$7M in the AMRAAM PE 0207163F.

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604330F Joint Dual-Role Air Dominance Missile (JDRADM)			PROJECT NUMBER AND TITLE 5342 Concept Development			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5342 Concept Development	0.000	0.000	6.882	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Note: FY09 funding of \$7M resides in the AMRAAM PE (0207163F).

(U) A. Mission Description and Budget Item Justification

The Joint Dual Role Air Dominance Missile (JDRADM) is envisioned as a multi-role (air-to-air & air-to-ground) missile for the 5th generation fighter force structure. It will provide increased flexibility, standoff range, and lethality to defeat 2020+ air and surface threats. It is intended for internal carriage on the F-22A and F-35, and external carriage on selected legacy aircraft.

The FY10 PB funding request is critical to ensuring JDRADM requirements, concepts and critical technologies are adequately assessed to support the next phase of the program.

Note: The JDRADM effort was a new start in FY09 under PE 0207163F.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Risk Reduction Studies	0.000	0.000	2.000
(U) Materiel Solution Analysis (MSA)	0.000	0.000	4.482
(U) Program Management and Support	0.000	0.000	0.400
(U) Total Cost	0.000	0.000	6.882

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0207163F, AMRAAM		7.000								7.000

(U) D. Acquisition Strategy

JDRADM is in the pre-Materiel Solution Analysis (MSA) phase of acquisition. Risk reduction and critical technology maturity efforts supported by the Air Force Research Lab (AFRL) are on-going. Development of the JDRADM acquisition/contract strategy and formalizing requirements are also in work. These efforts will lead to MSA, Technology Development (TD), and Engineering and Manufacturing Development (EMD).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604330F Joint Dual-Role Air Dominance Missile (JDRADM)					5342 Concept Development			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Risk Reduction Studies								2.000	Dec-09		2.000	
Materiel Solution Analysis								4.482	Mar-10		4.482	
Subtotal Product Development			0.000	0.000		0.000		6.482		0.000	6.482	0.000
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 & 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>											0.400	
Program Management and Admin	T&M	Various						0.400			0.400	
Subtotal Management			0.000	0.000		0.000		0.400		0.000	0.400	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		6.882		0.000	6.882	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604330F Joint Dual-Role Air Dominance Missile (JDRADM)

PROJECT NUMBER AND TITLE

5342 Concept Development

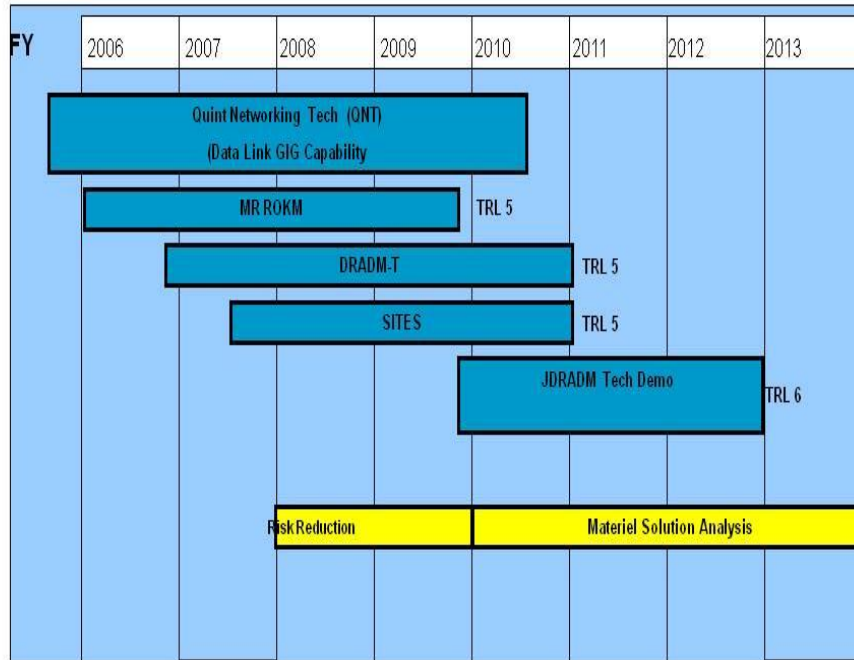


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604330F Joint Dual-Role Air Dominance Missile (JDRADM)

PROJECT NUMBER AND TITLE

5342 Concept Development

(U) **Schedule Profile**

FY 2008

FY 2009

FY 2010

(U) Risk reduction study contract award

2Q

(U) Material Solution Analysis Contract Award

1Q

(U) Material Solution Analysis

2-4Q

Note: Initial risk reduction efforts shown on the R-4 schedule profile in FY08 are funded through the lab (6.3 funds).

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PE NUMBER: 0604337F
 PE TITLE: Requirements Analysis and Maturation

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	35.533	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5349 Non-Space Systems Requirements Analysis & Maturation	0.000	0.000	28.651	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A024 Space Systems Requirements Analysis & Maturation	0.000	0.000	6.882	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**
 The Requirements Analysis and Maturation (RAM) program executes integrated materiel studies and analyses across the AF enterprise (air, space, cyber, and weapons) in support of AF corporate structure processes for formulating, planning and coordinating technology maturation and pre-acquisition program development activities. This effort is in Budget Activity 4, Advanced Component Development and Prototypes, since it involves system specific efforts that expedite technology transition from the laboratory to operational use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	35.533
(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>			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation				PROJECT NUMBER AND TITLE 5349 Non-Space Systems Requirements Analysis & Maturation		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5349 Non-Space Systems Requirements Analysis & Maturation	0.000	0.000	28.651	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Non-Space Systems Requirements Analysis and Maturation (RAM) program addresses a critical need for decision-quality acquisition information prior to committing to a program new start. A number of DoD, GAO, and industry studies point to a need for more disciplined, up-front development planning to produce the detailed acquisition information that previously did not surface until after the initiation of a program. RAM executes integrated materiel studies and analyses across the AF enterprise in support of AF corporate structure processes for formulating, planning and coordinating pre-acquisition development activities. This program is also responsible for: analyzing published and draft capability needs and requirements to identify potential materiel issues and opportunities; devising materiel solution options to address AF enterprise capability needs and shortfalls; executing cross domain studies and analyses to optimize materiel solution options for the AF; and conducting directed studies and analyses to respond to warfighter capability shortfalls.

This effort will perform a range of activities, including solution analysis, requirements definition, acquisition strategy base-lining, modeling and simulation, and cost analysis. Efforts will focus on delivering improved integrated materiel solution options.

RAM integrated development planning efforts define preferred materiel concepts and develop acquisition strategies for systems that support those preferred concepts. RAM becomes engaged when a materiel solution is required to fulfill a capability gap or deficiency. It applies appropriate engineering, costing, program management, logistics, and contracting expertise to support the development of warfighting materiel solution options that can be delivered within identified cost, schedule and performance requirements.

This effort is not represented by any other current program within the major force program structure elements. This new and comprehensive approach will ensure adequate oversight and coordination of previously unconsolidated materiel studies, analyses and development. This ensures efficient and effective systems of systems development planning via consolidation of previously unique system capabilities resident only within individualized program elements.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MAJOR THRUST: Conduct RAM activities supporting Force Application capabilities -- the ability to integrate the use of maneuver and engagement in all environments to create the effects necessary to achieve mission objectives.	0.000	0.000	5.174
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities. Efforts include the Combat Air Forces Directed Energy (CAF DE) Roadmap supporting the foundation and justification of FY12 DE-related POM			

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation	PROJECT NUMBER AND TITLE 5349 Non-Space Systems Requirements Analysis & Maturation

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
initiatives; the Chief of Staff Air Force (CSAF) directive to the DE Task Force; and the Next Generation Air Dominance (NGAD) concept exploration of a system or system-of-systems to provide the next generation air dominance capability; and Joint Future Theater Lift (JFTL) concept analysis for recapitalization efforts to replace/supplement the aging theater airlift fleet.			
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include the CAF DE Roadmap supporting the foundation and justification of FY12 DE-related POM initiatives; the CSAF directive to the DE Task Force; the NGAD concept exploration of a system or system-of-systems to provide the next generation air dominance capability; and the JFTL concept analysis for recapitalization efforts to replace/supplement the aging theater airlift fleet.			
(U) MAJOR THRUST: Conduct RAM activities supporting Command and Control capabilities -- the ability to exercise authority and direction by a properly designated commander or decision maker over assigned and attached forces and resources in the accomplishment of the mission.	0.000	0.000	4.446
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: E-4B Replacement and Presidential Aircraft Recapitalization (PAR) support for pre-acquisition activities.			
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: E-4B Replacement and PAR support for pre-acquisition activities.			
(U) MAJOR THRUST: Execute RAM activities supporting Battlespace Awareness -- the ability to understand dispositions and intentions as well as the characteristics and conditions of the operational environment that bear on national and military decision-making.	0.000	0.000	5.014
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities to include: Next Generation Unmanned Aerial System (UAS) system engineering studies and requirements documentation support.			

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation	PROJECT NUMBER AND TITLE 5349 Non-Space Systems Requirements Analysis & Maturation

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Next Generation UAS system engineering studies and requirements documentation support.			
(U) MAJOR THRUST: Conduct RAM activities supporting Net Centric operations -- the ability to provide a framework for full human and technical connectivity and interoperability that allows all DoD users and mission partners to share the information they need, when they need it, in a form they can understand and act on with confidence, and protect information from those who should not have it.	0.000	0.000	5.014
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Interoperable Multi-functional Advanced Datalink (IMADL) for the F-35, F-22, B-2, Objective Gateway, and other Global Strike assets that support planning for an interoperable datalink that allows low observable (LO) platforms to exchange threat, target and sensor information to provide situational awareness (SA) and target identification and geo-location.			
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Interoperable Multi-functional Advanced Datalink (IMADL) for the F-35, F-22, B-2, Objective Gateway, and other Global Strike assets that support planning for an interoperable datalink that allows low observable (LO) platforms to exchange threat, target and sensor information to provide SA and target identification and geo-location.			
(U) MAJOR THRUST: Conduct RAM activities supporting Protection -- the ability to prevent/mitigate adverse effects of attacks on combatant and non-combatant personnel and physical assets of the United States, allies and friends.	0.000	0.000	3.978
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Common Vertical Lift Support (CVLSP) program that will replace the aging UH-1N fleet to accomplish nuclear convoy escort, tactical security response, and AF VIP transport missions.			
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities to include: Common Vertical Lift			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation	PROJECT NUMBER AND TITLE 5349 Non-Space Systems Requirements Analysis & Maturation
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Support (CVLSP) program that will replace the aging UH-1N fleet to accomplish nuclear convoy escort, tactical security response, and AF VIP transport missions.			
(U) MAJOR THRUST: Conduct RAM activities supporting Force Support -- the ability to establish, develop, maintain and manage a mission ready Total Force, and provide, operate, and maintain capable installation assets across the total force to ensure needed capabilities are available to support national security.	0.000	0.000	5.025
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Advance Trainer Replacement Program (T-X) requirements definition to explore solutions to fill significant operational capability gaps due to the T-38C approaching the end of service life in 2018.			
(U) In FY 2011: Continue executing integrated materiel studies and analyses across the AF corporate structure process for formulating, planning and coordinating pre-acquisition development activities, to include: Advance Trainer Replacement Program (T-X) requirements definition to explore solutions to fill significant operational capability gaps due to the T-38C approaching the end of service life in 2018.			
(U) Total Cost	0.000	0.000	28.651

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) D. Acquisition Strategy
All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Communication with industry will be open and encouraged.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0604337F Requirements Analysis and Maturation				5349 Non-Space Systems Requirements Analysis & Maturation				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Force Application Development Planning								5.174	Dec-09	Continuing	TBD	TBD
Command and Control Development Planning								4.446	Feb-09	Continuing	TBD	TBD
Battlespace Awareness Development Planning								5.014	Feb-09	Continuing	TBD	TBD
Net Centric Development Planning								5.014	Feb-09	Continuing	TBD	TBD
Protection Development Planning								3.978	Apr-09	Continuing	TBD	TBD
Force Support Development Planning								5.025	Apr-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		28.651		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		28.651		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0604337F Requirements Analysis and Maturation

PROJECT NUMBER AND TITLE
5349 Non-Space Systems Requirements Analysis & Maturation

Non-Space Systems Requirements, Analysis, and Maturation (RAM) Master Schedule

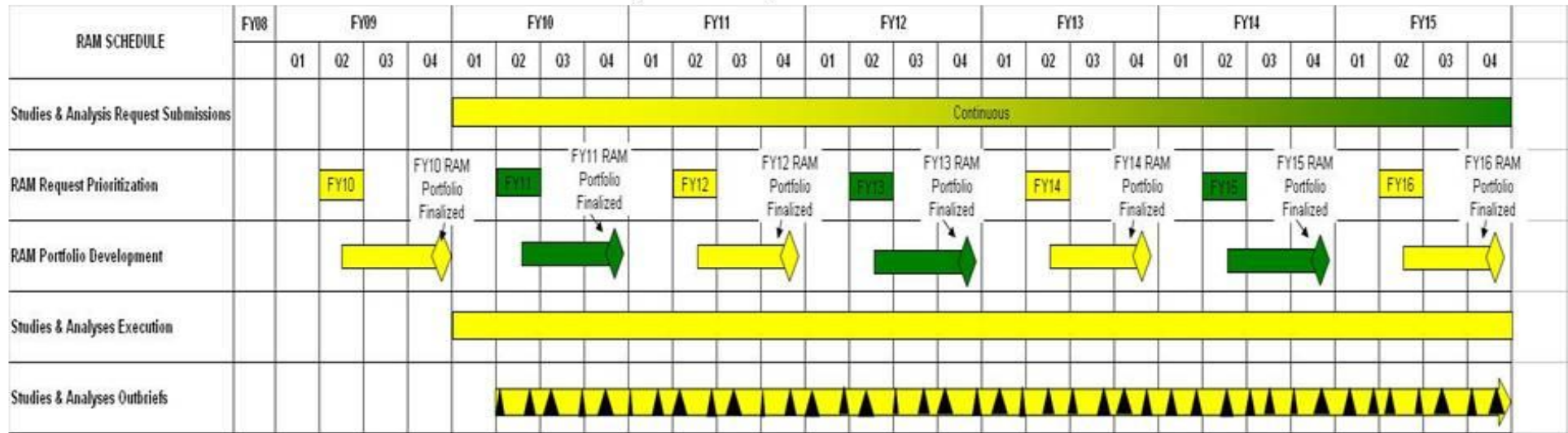


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604337F Requirements Analysis and Maturation

PROJECT NUMBER AND TITLE

5349 Non-Space Systems Requirements Analysis & Maturation

(U) Schedule Profile

(U) FY10 RAM Prioritization

(U) FY11 RAM Prioritization

(U) FY10 RAM Portfolio Development Finalized

(U) FY11 RAM Portfolio Development Finalized

(U) Studies & Analysis

(U) Studies & Analysis Outbriefs

FY 2008

FY 2009

FY 2010

2Q

2Q

4Q

4Q

1-4Q

2-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation				PROJECT NUMBER AND TITLE A024 Space Systems Requirements Analysis & Maturation			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
A024 Space Systems Requirements Analysis & Maturation	0.000	0.000	6.882	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Space Systems Requirements Analysis and Maturation (RAM) program addresses a critical need for decision-quality acquisition information prior to committing to a program new start. A number of DoD, GAO, and industry studies point to a need for more disciplined, up-front development planning to produce the detailed acquisition information that previously did not surface until after the initiation of a program. The Space Systems RAM program provides a disciplined, deliberate planning process to analyze requirements, schedule, cost, technology, and acquisition strategy. The objective is to provide critical decision-quality cost, schedule and technical information for Air Force and DoD senior leaders to support their acquisition decisions for the \$10B annual space investment portfolio and initiating high-confidence acquisition programs.

RAM activities will include science and technology planning, concept and architecture development, acquisition strategy baselining, modeling and simulation, cost analysis, and the pre-planning required for successful demonstration and validation of prototypes and system-of-systems demonstrations. Activities will focus on delivering long-term, integrated, permanent space warfighting capabilities to the COCOMS.

The Space Systems RAM will provide the capability to assess the performance, or cost reduction potential, of advanced technology in a near-realistic operational environment, and a rapid transition of capabilities to the warfighter. RAM will assess technology readiness levels for systems prior to key acquisition decision points. Specifically, RAM will mitigate risk before a program is sent to Engineering and Manufacturing Development/Systems Design and Development and will provide the government a cost baseline prior to commitment to a full acquisition program.

RAM is a new and comprehensive approach that will ensure adequate oversight and coordination of previously unconsolidated materiel studies, analyses, and development. System-of-systems development will support consolidation of previously unique system capabilities resident only within unique program elements.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MAJOR THRUST: Conduct RAM activities supporting Space Situational Awareness (SSA) and Command and Control (C2) Development Planning. The SSA portfolio provides data, information and knowledge to the C2 systems which assure use of space by friendly forces and deny that medium to the enemy. C2 capabilities are the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Specifically this thrust assists in the development of SSA and C2 capabilities to meet Joint Force Component Commander (JFCC) Space mission needs and supports the NORAD/USSTRATCOM Integrated Tactical Warning and Attack Assessment (ITW/AA) missions (Air Warning & Battle Management, Missile Warning, Space Surveillance/Warning, and core ITW/AA C2) and the Combatant Commander's Integrated	0.000	0.000	0.350

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation	PROJECT NUMBER AND TITLE A024 Space Systems Requirements Analysis & Maturation		
		FY 2008	FY 2009	FY 2010
(U) B. Accomplishments/Planned Program (\$ in Millions)				
C2 System (CCIC2S).				
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Execute space enterprise development planning efforts to streamline and exploit information dissemination through the existing and emerging space command and control architecture.				
(U) In FY 2011: Continue executing space enterprise development planning efforts to streamline and exploit information dissemination through the existing and emerging space command and control architecture.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Space Protection (SP) and Information Operations (IO) Development Planning. The SP and IO portfolio secures the space domain and provides USSTRATCOM the means to achieve desired effects. It will establish and maintain assured access and freedom of action in space by developing capabilities and techniques to deter, dissuade, degrade, deny, disrupt and destroy adversary space systems in support of joint warfighters and national decision makers.	0.000	0.000	0.350	
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Execute space enterprise development planning efforts to formulate materiel responses to the increasing space threat environment.				
(U) In FY 2011: Continue executing space enterprise development planning efforts to formulate materiel responses to the increasing space threat environment.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Missile Warning/Missile Defense (MW/MD) Development Planning. The MW/MD portfolio is built from a family of global space-based infrared systems, electro-optical and radar systems, and multi-mission radars, all designed to provide critical missile warning, missile defense, technical intelligence, and battlespace awareness to military, National Intelligence and civil personnel to successfully accomplish their missions. This includes but is not limited to overhead surveillance and reconnaissance capabilities-based operations and space-based surveillance and reconnaissance systems within the context of Air Force processes (e.g., the Joint Capabilities Integration and Development System (JCIDS)). Specific activities include Overhead Non-Imaging Infrared (ONIR) systems and data and environmental programs, satellite-sensed environmental systems (atmosphere, land, space environment, ocean, and climate), and their data destined for military and civil users worldwide.	0.000	0.000	2.100	
(U) In FY 2008: Not Applicable				

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)	0604337F Requirements Analysis and Maturation	A024 Space Systems Requirements Analysis & Maturation		
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Execute space enterprise analyses of alternatives investigating future mission architectures, to include the feasibility of disaggregating submissions to simpler, lower cost system of system elements.				
(U) In FY 2011: Continue executing space enterprise analyses of alternatives investigating future mission architectures, to include the feasibility of disaggregating submissions to simpler, lower cost system of system elements.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Deterrence and Strike Development Planning . The Deterrence and Strike portfolio is based on ballistic missile operational requirements to meet AF, USSTRATCOM, DoD, and national objectives. These programs provide for nuclear and/or conventional destruction of adversary targets, as well as life extension efforts for the Intercontinental Ballistic Missile (ICBM) system, providing stability through deterrence.		0.000	0.000	0.350
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Formulate materiel roadmaps that transition the mission architecture from sustainment to the development of next generation nuclear deterrence and conventional strike capabilities.				
(U) In FY 2011: Continue formulation of materiel roadmaps that transition the mission architecture from sustainment to the development of next generation nuclear deterrence and conventional strike capabilities.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Positioning, Navigation and Timing (PNT) Development Planning. The PNT portfolio is designed to ensure sustainment and operations of space-based, global, 24/7, precise, reliable 3D PNT services to support the Joint Force Commander and meet civil capabilities in accordance with national policy.		0.000	0.000	1.050
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Formulate materiel approaches to produce a more robust mission architecture to counter growing enemy attempts to deny US and coalition partners PNT capabilities.				
(U) In FY 2011: Continue formulation of materiel approaches to produce a more robust mission architecture to counter growing enemy attempts to deny US and coalition partners PNT capabilities.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Military Satellite Communications (MILSATCOM) Development Planning. The MILSATCOM portfolio provides connectivity for key military, civil and commercial		0.000	0.000	1.050

Exhibit R-2a, RDT&E Project Justification		DATE May 2009		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)	0604337F Requirements Analysis and Maturation	A024 Space Systems Requirements Analysis & Maturation		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) B. Accomplishments/Planned Program (\$ in Millions)				
personnel and components. The portfolio is based on systems providing nuclear protected, anti-jam, Low Probability of Detection/Intercept/Exploitation, wide-band, and other space-based communications capabilities for joint, allied, coalition and international partners. The MILSATCOM portfolio ensures critical parties can be connected for key decision making and execution of military activities and underpins the efficient and safe delivery of information and C2 for its users.				
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Formulate materiel approaches to recapitalizing wideband and protected satellite communications capabilities beyond the next generation programs in light of an increasingly cost-constrained fiscal environment.				
(U) In FY 2011: Continue formulation of materiel approaches to recapitalizing wideband and protected satellite communications capabilities beyond the next generation programs in light of an increasingly cost-constrained fiscal environment.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Launch, Range and Networks Development Planning. The Launch, Range and Networks portfolio provides capabilities needed to launch critical space assets to and through space, when required, and provide on-demand access to these assets from pre-launch through disposal/recovery to obtain mission objectives. They are a family of enabling capabilities supporting the other major thrusts in this Budget Activity.		0.000	0.000	0.700
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				
(U) In FY 2010: Explore standards-based, open mission architecture approaches to reduce stovepiped infrastructure elements for more cost efficient, effective, flexible and assured operations.				
(U) In FY 2011: Continue exploring standards-based, open mission architecture approaches to reduce stovepiped infrastructure elements for more cost efficient, effective, flexible and assured operations.				
(U)				
(U) MAJOR THRUST: Conduct RAM activities supporting Operationally Responsive Space (ORS) Development Planning. ORS systems provide capability-based services to assure space power is focused on timely satisfaction of Joint Force Commander needs. ORS systems focus resources towards satisfying on-demand warfighting capabilities and reducing the associated cost and time required to supply space-based warfighting support services.		0.000	0.000	0.350
(U) In FY 2008: Not Applicable				
(U) In FY 2009: Not Applicable				

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604337F Requirements Analysis and Maturation	PROJECT NUMBER AND TITLE A024 Space Systems Requirements Analysis & Maturation
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) In FY 2010: Execute development of materiel responses to combatant commanders' emerging urgent need requests.			
(U) In FY 2011: Continue executing development of materiel responses to combatant commanders' emerging urgent need requests.			
(U) MAJOR THRUST: Conduct RAM activities supporting AF-wide Enterprise Development Planning: AF-wide Enterprise programs organize, relate, and integrate the other major thrust areas in this Budget Activity amongst themselves and support their integration into the larger AF, and DoD warfighting systems of systems. They also provide architectural continuity and best value of services to meet the full range of National Security Space requirements by integrating across systems, linking them in novel and surprising ways which complicate our adversaries' plans and execution.	0.000	0.000	0.700
(U) In FY 2008: Not Applicable			
(U) In FY 2009: Not Applicable			
(U) In FY 2010: Execute AF enterprise studies to integrate air, cyber, and space system of system elements to provide more efficient and effective mission architectures.			
(U) In FY 2011: Continue executing AF enterprise studies to integrate air, cyber, and space system of system elements to provide more efficient and effective mission architectures.			
(U) Total Cost	0.000	0.000	7.000

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) D. Acquisition Strategy
 All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Communication with industry will be open and encouraged.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604337F Requirements Analysis and Maturation				A024 Space Systems Requirements Analysis & Maturation			

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Space Situational Awareness and Command & Control Development Planning								0.350	Dec-09	Continuing	TBD	TBD
Space Protection and Information Operations Development Planning								0.350	Dec-09	Continuing	TBD	TBD
Missile Warning / Missile Defense Development Planning								2.100	Dec-09	Continuing	TBD	TBD
Deterrence and Strike Development Planning								0.350	Dec-09	Continuing	TBD	TBD
Positioning, Navigation and Timing Development Planning								1.050	Dec-09	Continuing	TBD	TBD
Military Satellite Communications Development Planning								1.050	Dec-09	Continuing	TBD	TBD
Launch, Ranges and Networks Development Planning								0.700	Dec-09	Continuing	TBD	TBD
Operationally Responsive Space Development Planning								0.350	Dec-09	Continuing	TBD	TBD
AF-Wide Enterprise Development Planning								0.700	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		7.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		7.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

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

PE NUMBER AND TITLE
0604337F Requirements Analysis and Maturation

PROJECT NUMBER AND TITLE
A024 Space Systems Requirements Analysis & Maturation

Space Systems Requirements, Analysis, and Maturation (RAM) Master Schedule

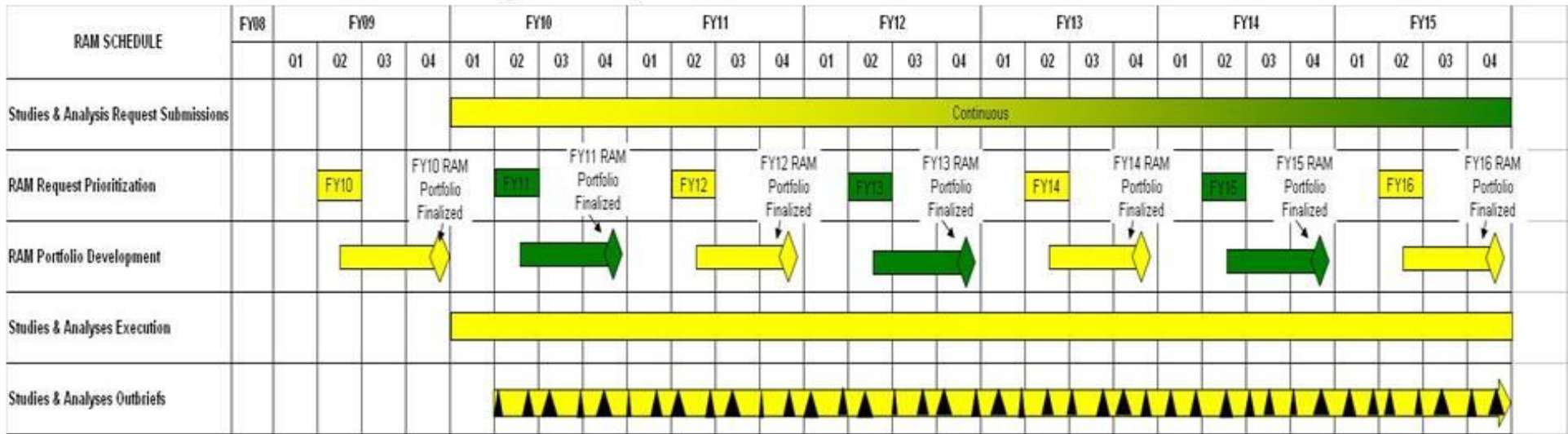


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604337F Requirements Analysis and Maturation

PROJECT NUMBER AND TITLE

A024 Space Systems Requirements Analysis & Maturation

(U) **Schedule Profile**

(U) FY10 RAM Prioritization

(U) FY11 RAM Prioritization

(U) FY10 RAM Portfolio Development Finalized

(U) FY11 RAM Portfolio Development Finalized

(U) Studies & Analyses

(U) Studies & Analyses Outbriefs

FY 2008

FY 2009

FY 2010

2Q

2Q

4Q

4Q

1-4Q

2-4Q

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PE NUMBER: 0604635F
 PE TITLE: Ground Attack Weapons Fuze Development

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604635F Ground Attack Weapons Fuze Development
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	18.778	0.000	0.000	0.000	0.000	0.000	0.000	85.800
5312 Hard Target Void Sensing Fuze	0.000	0.000	18.778	0.000	0.000	0.000	0.000	0.000	0.000	85.800

In FY 2010, Project 645312, Hard target Void Sensing Fuze is a new start effort

(U) A. Mission Description and Budget Item Justification

The Hard Target Void Sensing Fuze (HTVSF) is an advanced system designed to provide fuzing and void sensing functions for a weapon to penetrate and destroy hardened targets protected by multiple layers of soil and/or reinforced concrete. The HTVS Fuze shall also provide in-flight cockpit programmability, safing and arming, multi-function (time delay and void sensing) and multi-delay arming.

This Program Element was created to include the whole spectrum of fuze development and is positioned in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	18.778
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY 2010 and FY 2011 funding includes follow-on effort to the the Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD) previously funded in PE 0604602F, Armament Ordnance Development.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0604635F Ground Attack Weapons Fuze Development		PROJECT NUMBER AND TITLE 5312 Hard Target Void Sensing Fuze	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5312 Hard Target Void Sensing Fuze	0.000	0.000	18.778	0.000	0.000	0.000	0.000	0.000	0.000	85.800
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2010, Project 645312, Hard target Void Sensing Fuze is a new start effort

(U) A. Mission Description and Budget Item Justification

The Hard Target Void Sensing Fuze (HTVSF) is an advanced system designed to provide fuzing and void sensing functions for a weapon to penetrate and destroy hardened targets protected by multiple layers of soil and/or reinforced concrete. The HTVS Fuze shall also provide in-flight cockpit programmability, safing and arming, multi-function (time delay and void sensing) and multi-delay arming.

This Program Element was created to include the whole spectrum of fuze development and is positioned in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Development and Demonstration: conduct SDD follow-on effort to HTVSF Joint Capability Technology Demonstration -- engineering, prototype hardware, test and evaluation	0.000	0.000	17.194
(U) Management/analysis support: including Critical Design Reviews			0.798
(U) Test: build "hard" targets/prep for sled/flight test range events			0.000
(U) External Support (ManTech, StratCom, AFOTEC, Safety)			0.000
(U) ECO & GFE: data recorders, bomb cases/warheads, tailkits, telemetry sets			0.786
(U) Total Cost	0.000	0.000	18.778

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

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) RDT&E AF, PE 0604602F, Armament Ordnance Development, R-1 Line Item No. 72	4.111	0.000	10.100	0.000	0.000	0.000	0.000	0.000	11.600	25.811
(U) PAAF, PE 0208030F, WRM Ammunition	0.000	0.000	0.000	0.000	0.000	18.750	37.500	38.500	Continuing	TBD

PAAF dollars fund initial procurement of 250/500/500 units FY 2013/FY 2014/FY 2015.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604635F Ground Attack Weapons
Fuze Development

PROJECT NUMBER AND TITLE

5312 Hard Target Void Sensing Fuze

(U) **D. Acquisition Strategy**

SDD – Sole Source Contract to JCTD Winner:

Cost Plus Fixed Fee W/ Incentives for Cost, Schedule, and Performance (small FF, larger incentive at end)

Estimated Contract Length - 33 months

Starting at contract award: 6 month Delta CDRs start July 10

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0604635F Ground Attack Weapons Fuze Development	5312 Hard Target Void Sensing Fuze

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Alliant Techsystems or Thales Missile Electronics	CPFF w/ Incentives	Minneapolis, MN, or Basingstroke, UK						17.194	Jul-10	24.170	41.364	TBD
Subtotal Product Development			0.000	0.000		0.000		17.194		24.170	41.364	TBD
Remarks:												
<u>(U) Support</u> A&AS	In-house	Eglin AFB, FL						0.172		0.900	1.072	
External (ManTech, StratCom, AFOTEC, Safety support)	In-house	Various						0.000		0.400	0.400	
ECO & GFE	In-house	Eglin AFB, FL						0.786		0.330	1.116	
Subtotal Support			0.000	0.000		0.000		0.958		1.630	2.588	0.000
Remarks:												
<u>(U) Test & Evaluation</u> 46th Test Wing	In-house	Various						0.000		6.700	6.700	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		6.700	6.700	0.000
Remarks:												
<u>(U) Management</u> 679 ARSS	In-house	Eglin AFB, FL						0.626		0.800	1.426	
Subtotal Management			0.000	0.000		0.000		0.626		0.800	1.426	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		18.778		33.300	52.078	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

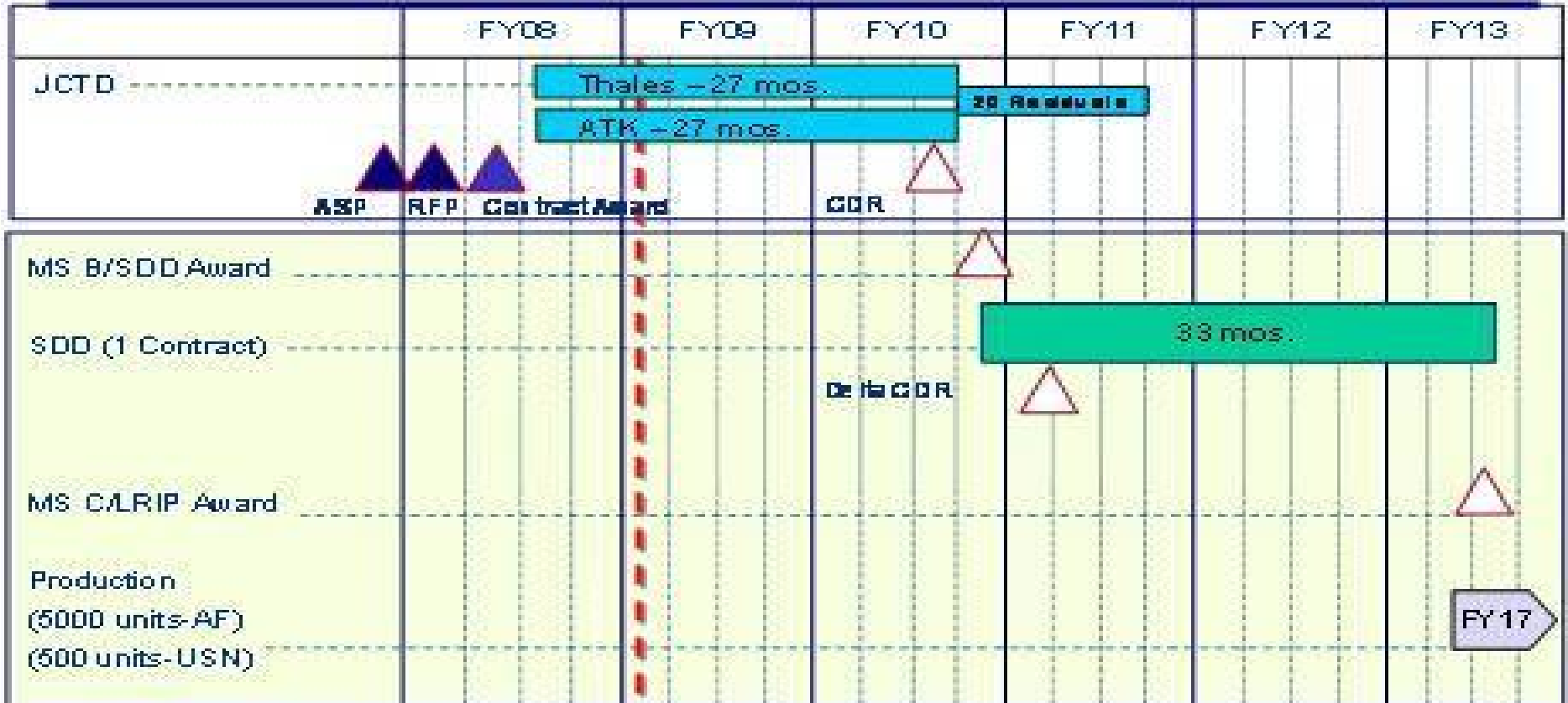
PE NUMBER AND TITLE
0604635F Ground Attack Weapons
Fuze Development

PROJECT NUMBER AND TITLE
5312 Hard Target Void Sensing Fuze

For Official Use Only



Hard Target Void Sensing Fuze Top-Level Schedule



Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604635F Ground Attack Weapons Fuze Development	PROJECT NUMBER AND TITLE 5312 Hard Target Void Sensing Fuze
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) CDR (JCTD event; feeds 1st Delta CDR)			4Q
(U) Order & Build Test Hardware			
(U) Delta CDRs			
(U) MS B / SDD Award			4Q
(U) Start of Fuze Qualification			

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604796F Alternative Fuels
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	54.217	89.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5287 Assured Fuels	0.000	54.217	89.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: PE 0604796F is a new PE in FY 2009. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE 0605011F and the "Aircraft Engine Component Improvement Program" PE 0207268F.

(U) A. Mission Description and Budget Item Justification

The Alternative Fuels program provides certification for the operational use of alternative fuels in all legacy and future weapons systems, appropriate support equipment, and fuel delivery and storage infrastructure. The alternative fuel types planned for investigation and transition include various synthetic fuels, bio-mass derived fuels, and fuel blend technologies. This effort includes complete system evaluations, studies and analysis, subsystem and system-level testing, safety, environmental analysis, fuel stock purchase, fuel storage and transport and other USAF certification costs. Scope of activities include interaction with all USAF weapon system single managers to accomplish complete certification activities for applicable weapon systems. In sum, this initiative provides assured fuels by decreasing US dependence on foreign oil and securing additional fuel-types on which to conduct world-wide operations.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P) because effort involves advanced fuels development and certification.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget		28.464	47.202
(U) Current PBR/President's Budget	0.000	54.217	89.020
(U) Total Adjustments	0.000	25.753	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.147	
Congressional Increases		25.900	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY 2009 funding provides initial funding for this new PE and includes a \$25.9M congressional realignment done at the request of the AF to realign associated O&M funds to RDT&E funds to accommodate the purchase of alternative fuel for test and evaluation.

FY 2010 increase reflects full AF funding to the requirement and the realignment of \$17.2M of associated O&M funds to RDT&E funds to accommodate the purchase of alternative fuel for test and evaluation.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604796F Alternative Fuels			PROJECT NUMBER AND TITLE 5287 Assured Fuels		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5287 Assured Fuels	0.000	54.217	89.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Note: PE 0604796F is a new PE in FY 2009. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE 0605011F and the "Aircraft Engine Component Improvement Program" PE 0207268F.

(U) A. Mission Description and Budget Item Justification

The Alternative Fuels program provides certification for the operational use of alternative fuels in all legacy and future weapons systems, appropriate support equipment, and fuel delivery and storage infrastructure. The alternative fuel types planned for investigation and transition include various synthetic fuels, bio-mass derived fuels, and fuel blend technologies. This effort includes complete system evaluations, studies and analysis, subsystem and system-level testing, safety, environmental analysis, fuel stock purchase, fuel storage and transport and other USAF certification costs. Scope of activities include interaction with all USAF weapon system single managers to accomplish complete certification activities for applicable weapon systems. In sum, this initiative provides assured fuels by decreasing US dependence on foreign oil and securing additional fuel-types on which to conduct world-wide operations.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P) because effort involves advanced fuels development and certification.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Certify Air Force weapon systems (to include appropriate support equipment and base-level fuel delivery and storage infrastructure) to operate using any number of alternative fuel stocks. Includes costs to purchase/store/transport/analyze fuel, perform system analysis/testing, assess safety impacts, and complete required certification activities (to include toxicity, fire protection and ESOH evaluations).		52.331	87.094
(U) Determine compatibility/operability of materials, valves, fuel pumps, Automated Tank Gauging (ATG), distribution pipelines, Fuels Mobility Support Equipment (FMSE) and other applicable storage stability, refueling and full scale filtration equipment evaluations. Determine environmental impacts and requirements satisfaction for new fuel delivery to base storage.		0.724	0.739
(U) Mission Support Costs - costs required to support and manage the program, to include travel and supplies		1.162	1.187
(U) Total Cost	0.000	54.217	89.020

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Civ Pay - O&M		1.838	1.551							
Alternative Fuels O&M Civ Pay above included in PE 0702806F (Acquisition and Command Support).										

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604796F Alternative Fuels

PROJECT NUMBER AND TITLE

5287 Assured Fuels

(U) **D. Acquisition Strategy**

Funding may be executed internally within the 77th Aeronautical Systems Wing via full and open competition or released to other organizations for alternative fuel certification projects for which they are the Office of Primary Responsibility (OPR). OPRs will determine the most appropriate contract vehicle.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604796F Alternative Fuels					5287 Assured Fuels			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Support</u> Certify Air Force weapon Systems to operate using a variety of alternative fuel stocks, purchase/store/transport/analyze fuel, perform system analysis/testing, assess safety impacts, and complete all other certification requirements	Various	77th AESW/AF				52.331		87.094		Continuing	TBD	
Determine compatibility/operability of materials, valves, fuel pumps, Automated Tank Gauging (ATG), distribution pipelines, Fuels Mobility Support Equipment (FMSE) and other applicable storage stability, refueling and full scale filtration equipment evaluations. Determine environmental impacts and requirements satisfaction for new fuel delivery to base storage.	Various	AFPET				0.724		0.739		Continuing	TBD	
Subtotal Support			0.000	0.000		53.055		87.833		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> Management and support costs associated with the Alternative Fuels effort to include travel and supplies	Various					1.162		1.187		Continuing	TBD	
Subtotal Management			0.000	0.000		1.162		1.187		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		54.217		89.020		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0604796F Alternative Fuels

PROJECT NUMBER AND TITLE
5287 Assured Fuels



Alternative Fuels Certification Office Summary Certification Schedule/Status



Maximizing War-winning Capabilities For... Every Airman... Every Aircraft

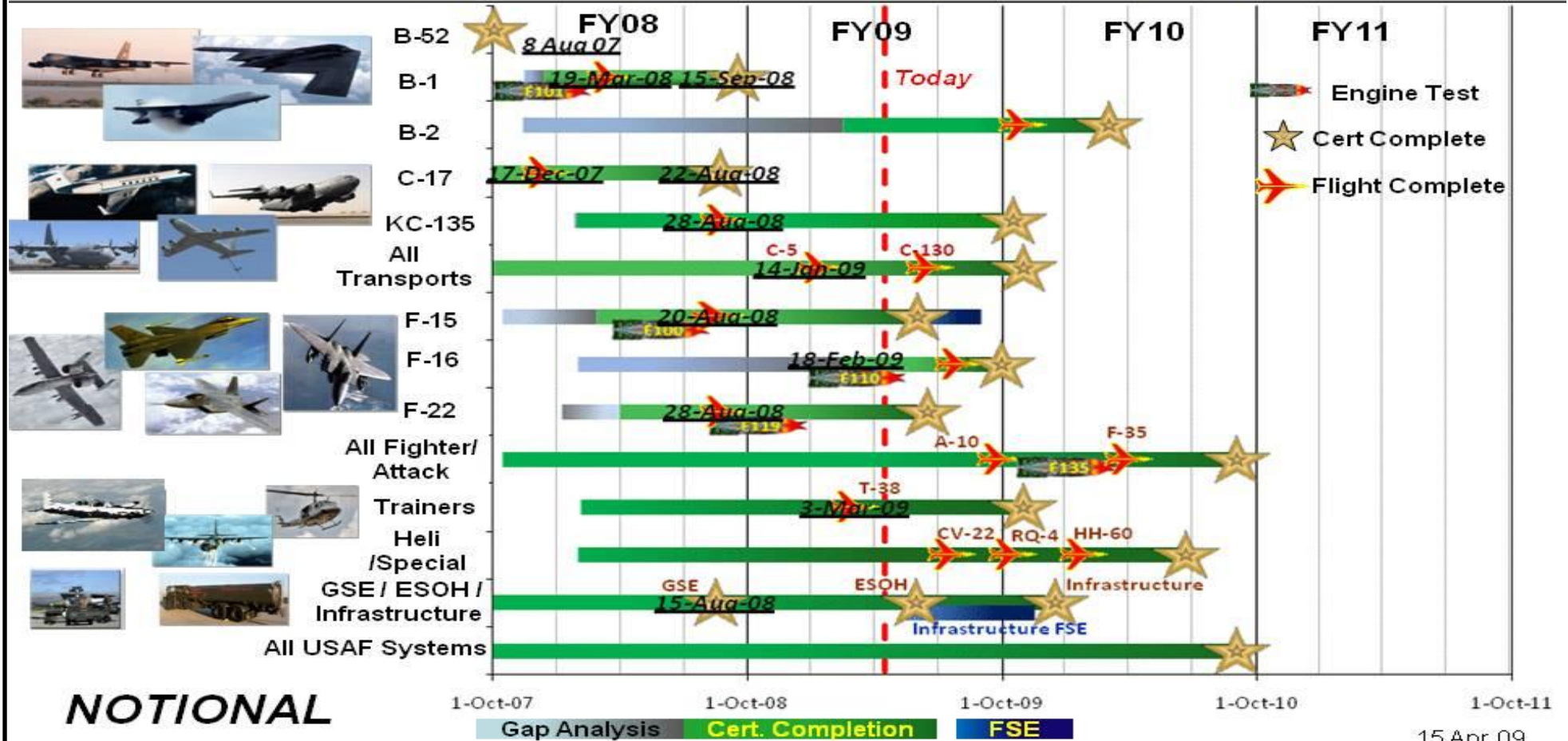


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604796F Alternative Fuels

PROJECT NUMBER AND TITLE

5287 Assured Fuels

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Certification Efforts

1-4Q

1-4Q

(U) Flight Tests

1-4Q

1-3Q

(U) Engine Tests

1-3Q

1-2Q

UNCLASSIFIED

PE NUMBER: 0604830F
 PE TITLE: Automated Air-to-Air Refueling

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604830F Automated Air-to-Air Refueling
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	9.862	43.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2214 Optionally Unmanned Development	0.000	9.862	43.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

This program develops, demonstrates, and validates the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS. Program efforts support the Next Generation Long Range Strike capability and the Next Generation Bomber (NGB) development strategies.

Capability improvements result from extending the operating range and in-flight endurance of current and future manned, unmanned, and optionally unmanned systems.

This funding supports development, demonstration, and validation of technologies for precision navigation and flight control with redundancy to ensure safety of flight. It continues with development and demonstration of technologies for sensors and flight controls to ensure collision avoidance and contingency management; modeling and simulation for technique development and risk reduction; and development and demonstration of command and control strategies, including at beyond-line-of-sight distances. This includes design and demonstration of an AAR-related datalink capability, which enables net-centric sensor technologies to correlate information among multiple platforms and precisely locate time-critical targets.

This effort is not a New Start because it received funding in prior years under PE 0604015F and in FY09 under this PE 0604830F. From FY04-08, the Next Generation Bomber PE 0604015F funded critical technology maturation and risk reduction efforts that could feed into a long-range strike platform in the future. AAR Phase II is a critical technology for future manned and unmanned long-range strike operations. AAR Phase I technology has been demonstrated, but it requires additional maturation, development, and integration to be demonstrated for operational utility.

Automated Air-to-Air Refueling is categorized as a Budget Activity 4, Advanced Component Development, and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604830F Automated Air-to-Air Refueling

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	9.889	44.448
(U) Current PBR/President's Budget	0.000	9.862	43.158
(U) Total Adjustments	0.000	-0.027	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.027	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604830F Automated Air-to-Air Refueling				PROJECT NUMBER AND TITLE 2214 Optionally Unmanned Development		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2214 Optionally Unmanned Development	0.000	9.862	43.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**
 This program develops, demonstrates, and validates the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS. Program efforts support the Next Generation Long Range Strike capability and the Next Generation Bomber (NGB) development strategies.

Capability improvements result from extending the operating range and in-flight endurance of current and future manned, unmanned, and optionally unmanned systems.

This funding supports development, demonstration, and validation of technologies for precision navigation and flight control with redundancy to ensure safety of flight. It continues with development and demonstration of technologies for sensors and flight controls to ensure collision avoidance and contingency management; modeling and simulation for technique development and risk reduction; and development and demonstration of command and control strategies, including at beyond-line-of-sight distances. This includes design and demonstration of an AAR-related datalink capability, which enables net-centric sensor technologies to correlate information among multiple platforms and precisely locate time-critical targets.

This effort is not a New Start because it received funding in prior years under PE 0604015F and in FY09 under this PE 0604830F. From FY04-08, the Next Generation Bomber PE 0604015F funded critical technology maturation and risk reduction efforts that could feed into a long-range strike platform in the future. AAR Phase II is a critical technology for future manned and unmanned long-range strike operations. AAR Phase I technology has been demonstrated, but it requires additional maturation, development, and integration to be demonstrated for operational utility.

Automated Air-to-Air Refueling is categorized as a Budget Activity 4, Advanced Component Development, and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) In FY 2009: Develop flight control and precision navigation (PGPS) systems for initial capability of automated air-to-air refueling (AAR).		9.862	
(U) In FY 2010: Integrate and start testing automated air-to-air refueling flight controls and precision navigation initial capability using a KC-135 tanker and a limited test aircraft. Prepare test resources for automated air-to-air refueling systems to allow for receiving aircraft to take on fuel from tanker aircraft. Start evaluation of Non-GPS/Hybrid AAR positioning system enhancements to allow for a full AAR capability.			43.158
(U) Total Cost	0.000	9.862	43.158

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604830F Automated Air-to-Air Refueling

PROJECT NUMBER AND TITLE

2214 Optionally Unmanned Development

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Appn 28, PE 0604015F, Next Generation Bomber	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		7.000

(U) **D. Acquisition Strategy**

Principal acquisitions to be performed through Broad Area Announcements (BAA) resulting in competitive Cost Plus Fixed Fee contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604830F Automated Air-to-Air Refueling					2214 Optionally Unmanned Development			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Precision GPS Development	CPFF	Northrop Grumman, Woodland Hills, CA	0.000			4.000	Oct-08	6.000		Continuing	TBD	
Tactical Targeting Network Technology (TTNT)	CPFF	Rockwell Collins, Cedar Rapids IA	0.000			0.100	Oct-08	0.200		Continuing	TBD	
Phase II System Development and Demonstration	CPFF	TBD (released BAA in Apr 08)	0.000			3.900	Oct-08	20.260		Continuing	TBD	
Sensor Augmented Navigation Development	CPFF	TBD	0.000	0.000		0.000		2.000	Dec-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		8.000		28.460		Continuing	TBD	0.000
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 & Evaluation</u>												
Precision GPS Testing			0.000			0.100		0.500		Continuing	TBD	
Tanker Modification Development	T&M	Rockwell Collins, Oklahoma City, OK				0.300	Sep-08	1.500		Continuing	TBD	
Refueling Receiver Development	CPFF	Calspan, Buffalo, NY				0.200	Sep-08	4.000		Continuing	TBD	
VISTA F-16 Development	CPFF	Lockheed Martin, Ft Worth, TX				0.000		2.000	Dec-09	Continuing	TBD	
Flight Test						0.350		4.198		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.950		12.198		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Program Management			0.000			0.912		2.500		Continuing	TBD	
Subtotal Management			0.000	0.000		0.912		2.500		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		9.862		43.158		Continuing	TBD	0.000

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Project 2214

Exhibit R-3 (PE 0604830F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0604830F Automated Air-to-Air Refueling

PROJECT NUMBER AND TITLE
2214 Optionally Unmanned Development

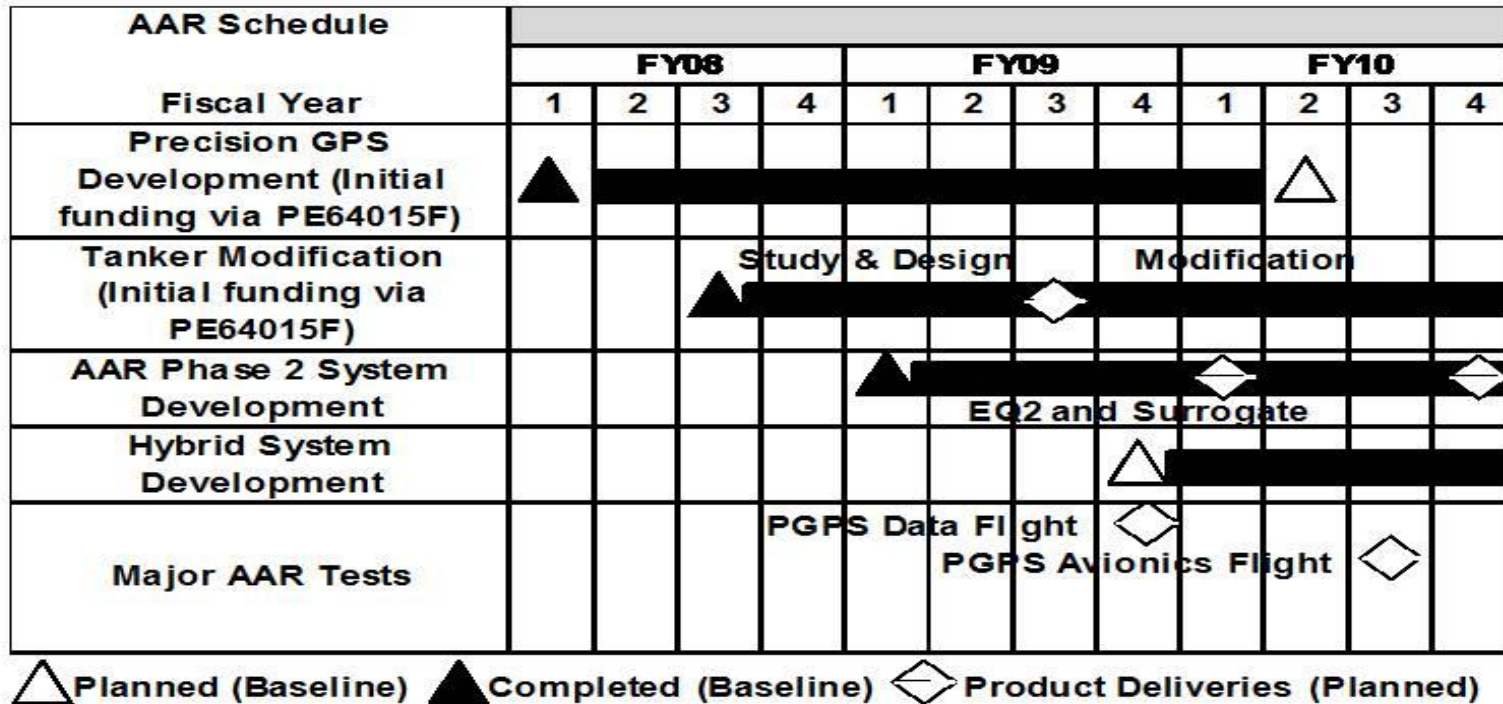


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604830F Automated Air-to-Air Refueling

PROJECT NUMBER AND TITLE

2214 Optionally Unmanned Development

(U) Schedule Profile

(U) Phase II SDD Integrator Contract Award

(U) Tanker Modification Critical Design Review

(U) Precision GPS Data Collection Flight Test

(U) Precision GPS Avionics Flight Test

FY 2008

FY 2009

FY 2010

1Q

2Q

3Q

3Q

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PE NUMBER: 0604856F
 PE TITLE: Common Aero Vehicle

Exhibit R-2, RDT&E Budget Item Justification									DATE May 2009	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604856F Common Aero Vehicle					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.695	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A012 Common Aerospace Vehicle	3.695	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

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

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office, named Falcon, to accelerate the advanced technology efforts that could be leveraged for PGS. As a result of FY2005 Appropriations language prohibiting weaponization, CAV was redesignated the Hypersonic Technology Vehicle (HTV). The CAV PE funds the Air Force cost share for the HTV program culminating with two flight tests in 2009.

The FY2008 Appropriations and Authorizations Acts noted the value of developing conventional prompt global strike technologies using a synergistic approach. Both Acts directed the consolidation of Navy & AF FY2008 PGS funding into a defense-wide PGS PE (0604165D8Z) under the cognizance of OSD AT&L. The FY2009 PB remained consistent with this direction by transferring all outyear funding from PE 0604856F into PE 0604165D8Z.

The FY2008 Appropriations Act added funds to PE 0604856F in FY2008 for Ballistic Missile Technology development. BMT funds were added directly to PE 0604856F and were not transferred to the defense-wide PE.

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&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604856F Common Aero Vehicle

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.695	0.000	0.000
(U) Current PBR/President's Budget	3.695	0.000	0.000
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	0.000		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604856F Common Aero Vehicle			PROJECT NUMBER AND TITLE A012 Common Aerospace Vehicle		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A012 Common Aerospace Vehicle	3.695	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office, named Falcon, to accelerate the advanced technology efforts that could be leveraged for PGS. As a result of FY2005 Appropriations language prohibiting weaponization, CAV was redesignated the Hypersonic Technology Vehicle (HTV). The CAV PE funds the Air Force cost share for the HTV program culminating with two flight tests in 2009.

The FY2008 Appropriations and Authorizations Acts noted the value of developing conventional prompt global strike technologies using a synergistic approach. Both Acts directed the consolidation of Navy & AF FY2008 PGS funding into a defense-wide PGS PE (0604165D8Z) under the cognizance of OSD AT&L. The FY2009 PB remained consistent with this direction by transferring all outyear funding from PE 0604856F into PE 0604165D8Z.

The FY2008 Appropriations Act added funds to PE 0604856F in FY2008 for Ballistic Missile Technology development. BMT funds were added directly to PE 0604856F and were not transferred to the defense-wide PE.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Ballistic Missile Technology development (Congressional Add)	3.695		
(U) Total Cost	3.695	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
(U) Defensewide RDT&E, PE 0604165D8Z, PGS	99.364	74.572	169.022	112.975	81.000	82.300	83.946	85.625	Continuing	TBD
(U) Defensewide RDT&E, PE 0603285E, Falcon	23.900	11.000								34.900

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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

FY2009 Congressional Reduction PE 0604165D8Z -- \$43M

(U) D. Acquisition Strategy

HTV efforts will be executed by the joint AF/DARPA Falcon Program Office.

BMT Congressional Add will be executed by SMC/XR and will, as much as possible, coordinate efforts with existing programs:

- BMT Strategic Resonating Beam Accelerometer (SRBA) effort is coordinated with the ICBM Dem/Val Guidance Applications Program (PE - 0603851F)
- BMT InfraLynx efforts are coordinated with ICBM Dem/Val Command and Control Applications (PE - 0603851F) Infralynx Program
- BMT Missile Site Security Efforts are coordinated with the BMT Infralynx security effort

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604856F Common Aero Vehicle					A012 Common Aerospace Vehicle			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Phase II contract	OTA	Lockheed-Mart in, Palmdale, CA	23.585			0.000				0.000	23.585	23.585
Subtotal Product Development			23.585	0.000		0.000		0.000		0.000	23.585	23.585
Remarks:												
(U) <u>Development Support and Management</u> Perform analysis and assess alternative HTV concepts/requirements & program support	various	various	2.212			0.000				0.000	2.212	2.212
Perform PGS AoA	various	AFSPC, Peterson AFB, CO	5.726			0.000				0.000	5.726	5.726
Subtotal Development Support and Management			7.938	0.000		0.000		0.000		0.000	7.938	7.938
Remarks:												
(U) <u>Technology Development</u> Ballistic Missile Technology	various	Naval Research Lab, Wash DC; Assurance Technology Corp, Carlisle, MA; Honeywell, Clearwater, FL; AFRL Hanscom AFB, MA			3.695	Mar-08				0.000	3.695	3.974
Subtotal Technology Development			0.000	3.695		0.000		0.000		0.000	3.695	3.974
Remarks:												
(U) Total Cost			31.523	3.695		0.000		0.000		0.000	35.218	35.497

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

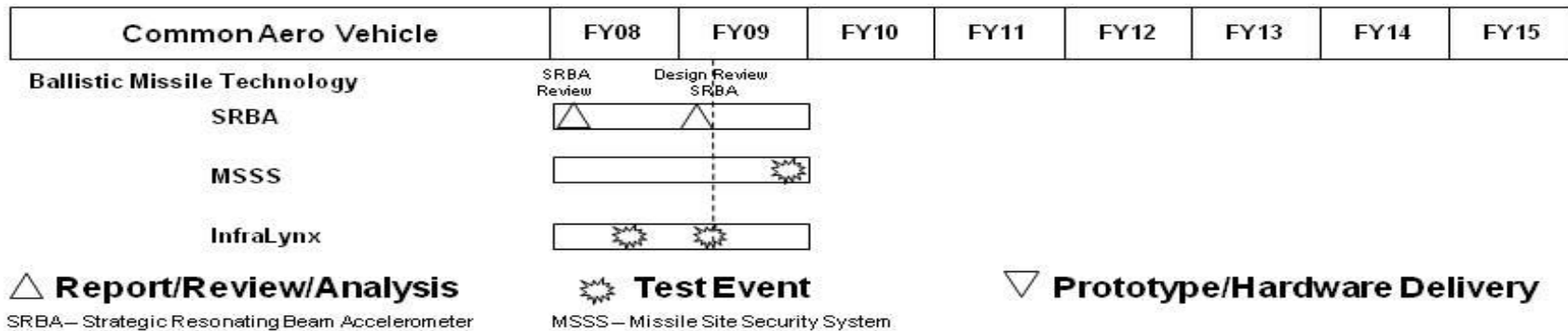


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) BMT Strategic Resonating Beam Accelerometer (SRBA) Reviews

1Q

1Q

(U) BMT InfraLynx Communications Tests

2Q

1Q

(U) BMT Missile Site Security Systems Test

4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	86.985	196.561	112.861	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A015 ORS COMMON SERVICES	85.180	12.749	10.815	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A016 Operationally Responsive Lift	1.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A020 AF-funded ORSSats	0.000	183.812	102.046	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY2009, Project 64A020, AF-funded ORSSats was established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements.

In FY2009, Project 64A015 was renamed ORS Common Services from Tactical Satellites. This was to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

(U) A. Mission Description and Budget Item Justification

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in dramatically increased demand for and dependence upon space capabilities. As a result, U.S. Strategic Command (USSTRATCOM) identified three needs: 1) to rapidly augment existing space capabilities when needed to expand operational capability; 2) to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; 3) to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

ORS is defined as "assured space power focused on timely satisfaction of Joint Force Commanders' needs." The ORS goals are to: 1) Improve robustness--provide a focused, limited capability to augment and reconstitute, with assured warfighter access and control. 2) Respond to urgent needs--deliver effects to joint warfare in response to an urgent or previously unanticipated need. 3) Reduce development/deployment time and cost--complement existing space capabilities with an element focused on increased value and timely delivery. 4) Capitalize on emerging/innovative capabilities--adopt new capabilities from advanced technologies and innovative operational concepts.

When enabling responsiveness conditions are fully established, commanders will have three "tiers" of ORS capabilities for meeting urgent needs. Tier 1 involves employing existing, fielded space capabilities in a new and novel fashion within hours to days. Tier 1 solutions will not typically involve the design, engineering, or fabrication of new materiel items. Tier 2 involves deploying field-ready capabilities within days to weeks through rapid assembly, integration, testing, and deployment of small, low-cost satellites. Tier 3 involves developing new capabilities within a months-to-one-year timeframe. Tier 3 activities typically involve hardware and software design, engineering, fabrication, and integration. Insertion of advanced technology into Tier 3 systems must be consistent with the targeted timeframe for the solution.

The first ORS satellite (ORS-1) is an intelligence, surveillance and reconnaissance satellite to satisfy an urgent and compelling Combatant Commander requirement validated by USSTRATCOM. This project will directly support USCENTCOM and the on-going war on terrorism.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

ORS program funds (along with other Service and Agency funds) are programmed to systematically mature ORS enabling elements to meet the responsiveness timelines required by the USSTRATCOM CONOPS (hours, days, weeks, months...not years) and the price points established in the 2007 NDAA (\$40M satellite vehicles, \$20M launches). This includes the development of a modular open system architecture, including plug and play concepts, to enhance the rapid assembly and integration of mission-specific elements into operational satellites. The focus for ORS efforts will be the rapid satellite integration and test facility.

ORS funds will also aid in the leadership, coordination, and integration of Tier 1, 2, and 3 activities; fund TacSat and ORS launch vehicles and operations support; fund transition of TacSat demos to operational capabilities; and acquire and deploy operational satellites in response to USSTRATCOM urgent needs. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

This program is Budget Activity 04, Advanced Component Development and Prototypes, because it involves operational experimentation and evaluating integrated technologies to assess the performance or cost reduction potential of advanced technology.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	96.516	110.032	115.394
(U) Current PBR/President's Budget	86.985	196.561	112.861
(U) Total Adjustments	-9.531	86.529	
(U) Congressional Program Reductions		-0.136	
Congressional Rescissions		-0.535	
Congressional Increases		87.200	
Reprogrammings	-8.788		
SBIR/STTR Transfer	-0.743		

(U) **Significant Program Changes:**

FY2008: Reprogrammed -\$1.9M to RSLP for Minotaur Life Extension Aging Surveillance; -\$0.897M to O&M for civilian pay; and -\$5.991M to higher DoD priorities.

FY2009: Congressional increases of \$75.0M for IR sensor payload development, \$5.0M for Low Earth Orbit Nanosatellite Integrated Defense Autonomous System, \$2.4M for Chip Scale Atomic Clock, \$2.4M for Ballistic Missile Technology, \$1.6M for Florida National Guard (FLANG) Missile Range Safety Technology, and \$0.8M for Micro-Satellite Serial Manufacturing.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)							PE NUMBER AND TITLE 0604857F Operationally Responsive Space		PROJECT NUMBER AND TITLE A015 ORS COMMON SERVICES		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
A015 ORS COMMON SERVICES	85.180	12.749	10.815	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY2009, Project 64A015 was renamed ORS Common Services from Tactical Satellites to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

(U) A. Mission Description and Budget Item Justification

ORS Common Services supports the entire ORS partnership (Services, Intelligence Community, Reserve Component, NASA, and our Allies). These activities include studies and analysis to maintain the ORS investment roadmap and coordination and planning activities across the ORS Enterprise. ORS Common Services works with Joint Force Commanders (JFC) and the Services to identify the most likely emergent space needs, make plans and preparations to meet those needs, evaluate results of operational experimentation, and prepare plans and procedures for operational employment and transition. These foundational activities ensure ORS enabler investments are optimally targeted to quickly mature ORS's ability to execute rapid responses to time-critical needs when they arise. Common Services identifies and presents options for concepts/solutions and experimentation including international efforts, conducts concepts development, solutions assessment, rapid evaluation of alternatives, experimentation planning, modeling and simulation, and develops budgetary recommendations for ORS solutions.

Prior to FY09, Common Services supported Tier 1 employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities and leveraged the TacSat investments from other sources by providing launch vehicles, lift, integration, and interim transitions to an operational capability in accordance with USSTRATCOM priorities/requests. Additionally, Common Services funded ORS ground processing, dissemination and command and control enabling capabilities to include software development, demonstrations, and modeling and simulation test beds.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Modeling, simulation, analysis, costing and assess utility for operationally responsive space concepts/requirements & program support	13.677	12.749	10.815
(U) TacSat integration and support, launch vehicle, range operations, and related launch support	29.140		
(U) JFC Needs	5.787		
(U) Rapid development, integration, and launch demo on Falcon-1 (Jumpstart)	10.885		
(U) Bus and payload enablers	6.705		
(U) Launch and range enablers	0.814		
(U) Responsive application of existing capabilities (Tier I)	1.472		
(U) Demonstration/integration/transition into common ground processing, dissemination, and command and control systems	6.700		
(U) Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS)	4.000		
(U) Classified effort (per FY2008 congressional add)	6.000		
(U) Total Cost	85.180	12.749	10.815

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A015 ORS COMMON SERVICES

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) None

(U) **D. Acquisition Strategy**

Competitively award contracts through ORS Office or partner organizations.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0604857F Operationally Responsive Space	A015 ORS COMMON SERVICES

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2010</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>			
(U) <u>Product Development</u>												
Jumpstart	various	various		10.885	Mar-08						10.885	10.885
JFC Needs	various	various		5.787	Dec-07						5.787	5.787
Responsive application of existing capabilities (Tier I)	MIPR	SPAWAR		1.472	Nov-07						1.472	1.472
Enablers for ground processing, dissemination and command and control	MIPR	SDTW, Kirtland AFB, NM		6.700	Nov-07						6.700	6.700
ORS support to RADARSAT-2	SS-FFP	MacDonald Dettwiler Assoc. Richmond, British Columbia	10.000								10.000	10.000
Bus & payload enablers	BAA	various		6.705	Jul-08						6.705	6.705
Launch & range enablers	BAA	various		0.814	Jul-08						0.814	0.814
LEONIDAS	MIPR	Sandia Nat'l Lab, Albq, NM		4.000	Mar-08						4.000	4.000
Classified effort (per FY2008 congressional add)				6.000							6.000	6.000
Subtotal Product Development			10.000	42.363		0.000		0.000		0.000	52.363	52.363
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 & Evaluation</u>												
TacSat Launch Vehicle and Operations	C-FPIF	Orbital, Chandler AZ	9.100	29.140	Mar-08						38.240	TBD
Subtotal Test & Evaluation			9.100	29.140		0.000		0.000		0.000	38.240	TBD
Remarks:												
(U) <u>Management</u>												
Perform modeling, simulation, analysis and assess alternative concepts/requirements & program support	various	various	3.434	13.677	Jan-08	12.749	Oct-08	10.815	Oct-09	Continuing	TBD	TBD
Subtotal Management			3.434	13.677		12.749		10.815		Continuing	TBD	TBD
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000

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Exhibit R-3 (PE 0604857F)

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A015 ORS COMMON SERVICES

Remarks:
(U) Total Cost

22.534	85.180	12.749	10.815	Continuing	TBD	TBD
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Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE
A015 ORS COMMON SERVICES



U.S. AIR FORCE

Operationally Responsive Space BPAC A015 Schedule

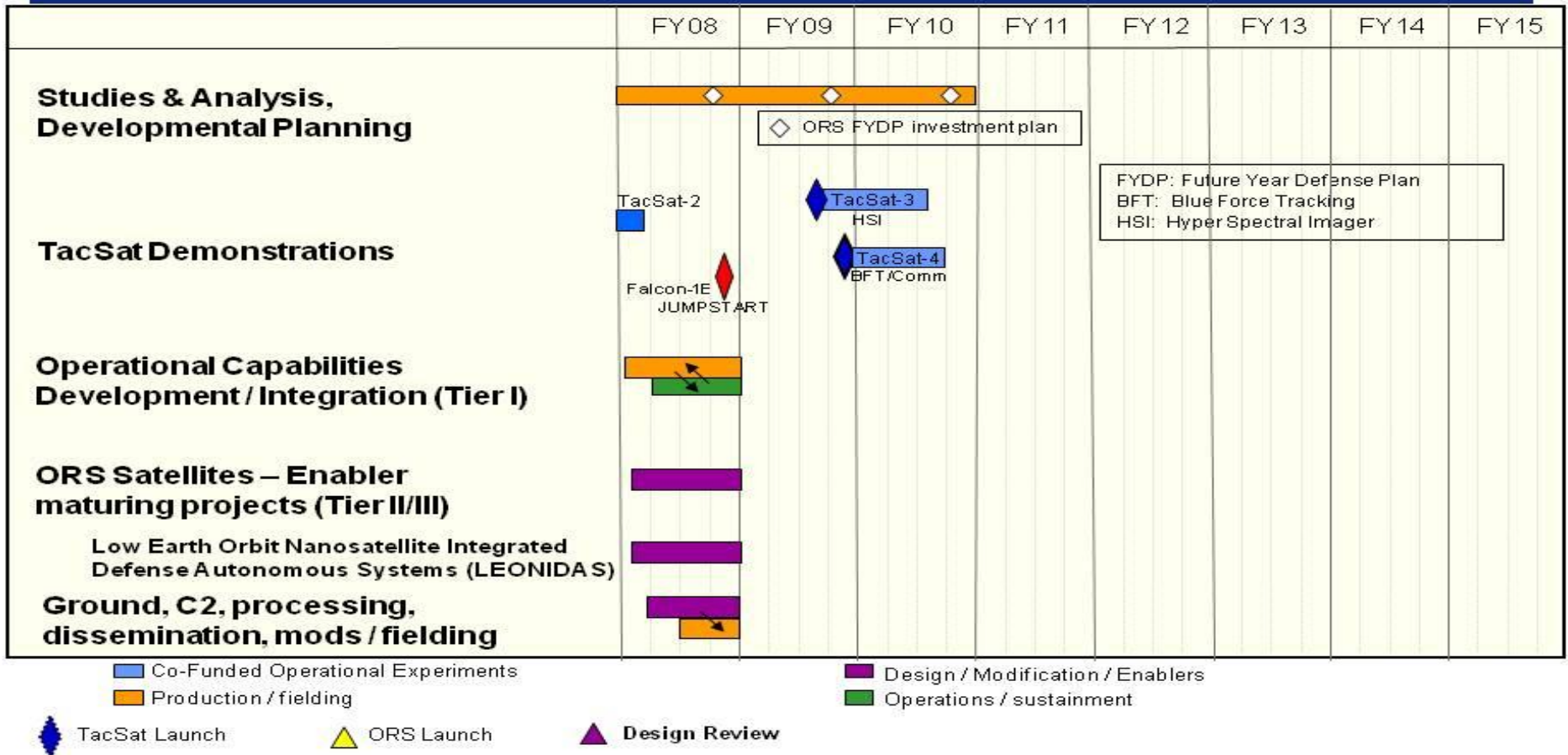


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A015 ORS COMMON SERVICES
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) TacSat-3 Launch		3Q	
(U) TacSat-4 Launch		4Q	
(U) Falcon-1E Jumpstart	4Q		
(U) Tier 1 Capabilities Development	1-4Q		
(U) Modeling, simulation, analysis and assessment of alternative concepts/requirements & program support	1-4Q	1-4Q	1-4Q
(U) ORS FYDP investment plan update	4Q	4Q	4Q

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A016 Operationally Responsive Lift
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A016 Operationally Responsive Lift	1.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

<u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Small Launch Vehicle (SLV) system design and development, systems engineering and engine static firings			
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support			
(U) TacSat-3&4 launch	1.805		
(U) Total Cost	1.805	0.000	0.000

<u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) **D. Acquisition Strategy**
 Complete TacSat-3&4 launch operations in FY09 on existing contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0604857F Operationally Responsive Space					A016 Operationally Responsive Lift			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Falcon Phase II contractors:	OTA	Air Launch, Kirkland, WA	5.600							0.000	5.600	5.600
Classified effort (per FY 2007 congressional direction)	TBD	TBD	7.500								7.500	7.500
Subtotal Product Development			13.100	0.000		0.000		0.000		0.000	13.100	13.100
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 & Evaluation</u> TacSat-3&4 launch	C-FPI	Orbital, Chandler, AZ	3.100	1.805						0.000	4.905	TBD
Subtotal Test & Evaluation			3.100	1.805		0.000		0.000		0.000	4.905	TBD
Remarks:												
(U) <u>Management</u> Perform analysis and assess alternative concepts/requirements & program support	various	various	3.397							0.000	3.397	3.397
Subtotal Management			3.397	0.000		0.000		0.000		0.000	3.397	3.397
Remarks:												
(U) Total Cost			19.597	1.805		0.000		0.000		0.000	21.402	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

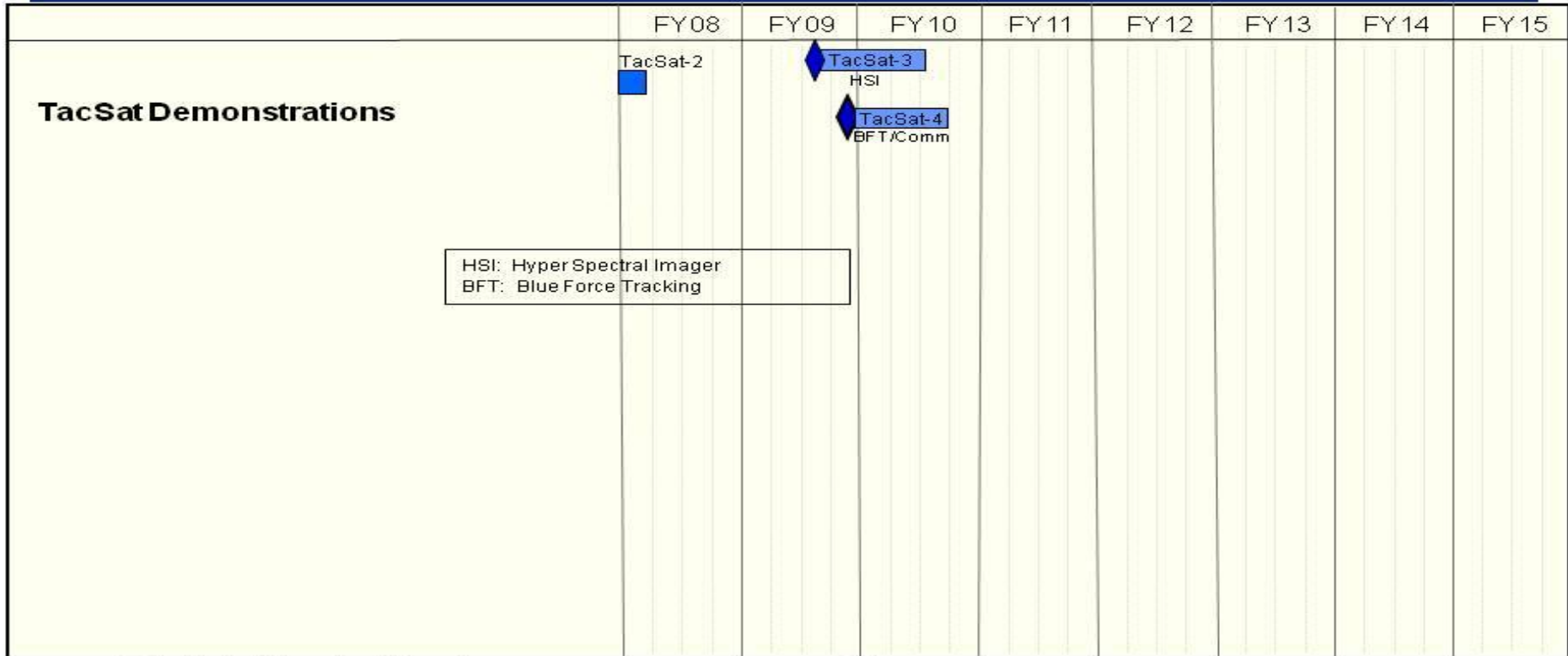
PE NUMBER AND TITLE
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE
A016 Operationally Responsive Lift



U.S. AIR FORCE

Operationally Responsive Space BPAC A016 Schedule



HSI: Hyper Spectral Imager
BFT: Blue Force Tracking

- Co-Funded Operational Experiments
- Production / fielding
- Design / Modification / Enablers
- Operations / sustainment
- TacSat Launch
- ORS Launch
- Design Review
- Delivered Beyond FYDP

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A016 Operationally Responsive Lift

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) TacSat-3 Launch

3Q

(U) TacSat-4 Launch

4Q

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)		0604857F Operationally Responsive Space						A020 AF-funded ORSSats		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A020 AF-funded ORSSats	0.000	183.812	102.046	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2009, Project 64A020, AF-funded ORSSats was established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements.

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

AF-funded Operational Responsive Space projects are optimized for prioritized theater use and/or surge, augmentation and replenishment of traditional space capabilities. The ORS Concepts of Operation (CONOPS) drive the need for satellites featuring high degrees of modularity, standard interface vehicles, and the use of plug and play payloads and buses. Responsive satellites will be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.

ORS projects 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 (ISR). The highest priority project is ORS-1 being fielded to respond to CENTCOM's urgent need to rapidly provide ISR for theater users. The remainder of the funding is for TacSat-4, to continue maturing the enabling elements for ORS-2, and to satisfy high priority needs for augmentation and reconstitution, such as Space Situational Awareness, Counterspace, ISR, and Missile Warning.

The capabilities planned for TacSat-4 and ORS-2 were selected to systematically mature the ORS enabling elements to fully meet the USSTRATCOM-specified responsiveness timelines and 2007 NDAA cost targets. This includes the development of a modular open system architecture employing plug and play standards, a rapid satellite integration and test facility, and integration with the Multi-Mission Satellite Operations Center.

Additionally, these funds will support on-going analyses, employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities (Tier 1) and quick reaction opportunities such as the Jumpstart rapid development, integration and launch demonstrations. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

ORS Satellite Blocks include satellite vehicle(s), launch, integration, operational experimentation, and interim transitions from ORS derived solutions to operational capabilities. Each block also includes enabler investments to improve the responsiveness and lower the cost of designing, fabricating, launching, and operating ORS space capabilities. These blocks culminate in on-orbit capabilities ready for operational experimentation and, when desired, transition to enduring operations.

ORS is working in conjunction with Third Generation Infrared Surveillance system (3GIRS) to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP), including payload development, on-orbit testing, and algorithm development.

ORS is working with the University of Hawaii's (U of H) Hawaii Space Flight Laboratory (HSFL) and Sandia National Laboratory on the Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS) program. LEONIDAS is to design, fabricate, launch, and perform on-orbit operation of small- and micro-satellites for early detection of missile launches by hostile forces

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A020 AF-funded ORSSats
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Launch vehicles, range operations, and related launch support		29.952	20.000
(U) Tier 1 operational capabilities, development, and integration		7.182	7.203
(U) Bus and payload enablers		6.960	13.900
(U) Rapid Response Space Capability			7.500
(U) ORS-1 (ISR, JFC need #3)		46.033	31.885
(U) JFC needs (#1 & #2)		2.800	2.500
(U) Innovation Cell & TacSat Planning			1.000
(U) Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS)		5.000	
(U) Infrared Sensor Payload (CHIRP)		75.000	
(U) Systems Engineering, launch & range, C ² , TPED enablers		3.685	18.058
(U) Micro-sat Serial Manufacturing		0.800	
(U) Chip Scale Atomic Clock		2.400	
(U) Ballistic Missile Technology		2.400	
(U) FLANG Missile Range Safety Technology		1.600	
(U) Total Cost	0.000	183.812	102.046

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

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E, PE 0604443F, 3GIRS		0.953	145.358						Continuing	TBD

(U) **D. Acquisition Strategy**

Expediently award contracts through ORS Office or partner organizations.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)					0604857F Operationally Responsive Space					A020 AF-funded ORSSats		

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ORS-1 (JFC need #3)	SS-CPFF	Goodrich, Danbury CT				46.033	Oct-08	31.885	Oct-09	Continuing	TBD	TBD
Bus & payload enablers	various	various				6.960	Dec-08	13.900	Oct-09	Continuing	TBD	TBD
Sys Eng, Launch & range, C ² , TPED enablers	various	various				3.685	Dec-08	18.058		Continuing	TBD	TBD
JFC needs (#1 & #2)	MIPR	AFRL, Kirtland AFB NM				2.800	Jan-09	2.500	Oct-09	Continuing	TBD	TBD
Rapid Response Space Capability	TBD	TBD						7.500	Dec-09	Continuing	TBD	TBD
Tier 1 operational capabilities, development, and integration	various	various				7.182	Oct-08	7.203	Oct-09	Continuing	TBD	TBD
Innovation Cell & TacSat Planning	various	various						1.000	Dec-09	Continuing	TBD	TBD
Micro-satellite serial manufacturing	MIPR	AFRL, Kirtland AFB, NM				0.800	Jan-09				0.800	0.776
Chip Scale Atomic Clock	MIPR	AFMC, Wright-Patterson on AFB, OH				2.400	Jan-09				2.400	2.327
FLANG Missile Range Safety Technology	MIPR	FLANG, Patrick AFB, FL				1.600	Jan-09				1.600	1.522
Ballistic Missile Technology	Allot	SMC, Los Angeles AFB, CA				2.400	Jan-09				2.400	2.327
CHIRP	Allot	SMC, Los Angeles AFB, CA				75.000	Oct-08			Continuing	TBD	TBD
LEONIDAS	SS-CP	U of Hawaii, Honolulu, HI				5.000	Dec-08			Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		153.860		82.046		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 & Evaluation</u>												
ORS Sat / TacSat launch vehicles, range operations, and related launch support	IDIQ-FPIF	Orbital, Chandler, AZ				29.952	Nov-08	20.000	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		29.952		20.000		Continuing	TBD	TBD

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Project A020

Exhibit R-3 (PE 0604857F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A020 AF-funded ORSSats
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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	0.000	183.812	102.046	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

PE NUMBER AND TITLE
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE
A020 AF-funded ORSSats

Operationally Responsive Space BPAC A020 Schedule

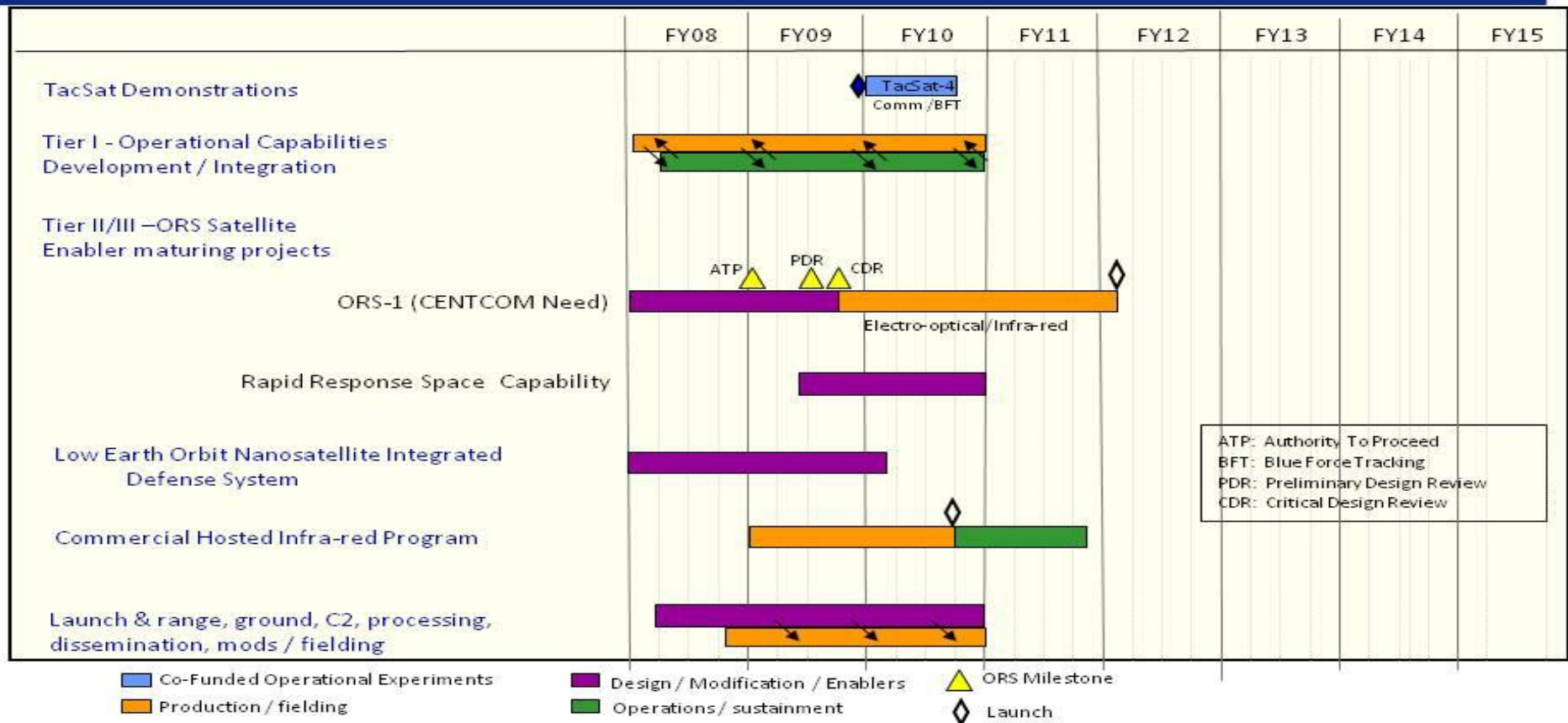


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A020 AF-funded ORSSats

(U) Schedule Profile

(U) Development of ORS-1 and enablers

(U) TacSat-4 launch and ops

(U) CHIRP launch and ops

(U) ORS launch/range, ground, command and control development

FY 2008

FY 2009

FY 2010

1-4Q

1-4Q

4Q

1-4Q

3-4Q

1-4Q

1-4Q

UNCLASSIFIED

PE NUMBER: 0604858F
 PE TITLE: Technology Transition Program.

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604858F Technology Transition Program.
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	9.611	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5350 Transition Prioritization	0.000	0.000	9.611	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Technology Transition Program Element (TTPE) provides funding to demonstrate and evaluate technologies to enable or accelerate their transition to acquisition programs of record and operational use. It addresses the gap that exists between when a technology is first demonstrated and when it can be successfully acquired as an operational capability. This gap is often referred to as the technology transition "valley of death." TTPE bridges that gap by funding promising concepts for a period of one to two years, allowing technology integration and demonstration to continue beyond the laboratory. It allows acquisition program managers (the capability developers and providers) and warfighters (the capability recipients and end users) to integrate, prototype, and demonstrate candidate technologies and assess them in an operational environment. As a result, the warfighters can assess the capability first-hand and accurately fund the follow-on acquisition program during the next budgeting cycle ("try before you buy"). TTPE includes research and development funds for the following transition activities: (1) prototyping (both full-scale and sub-scale to include competitions) of promising, high-priority concepts and technologies in an operational environment to lower acquisition risk by raising the technology readiness level; (2) performing pre-acquisition systems engineering to facilitate transition of concepts and technologies from a demonstration program (e.g., Advanced Technology Demonstrations (ATDs), Joint Capability Technology Demonstrations (JCTDs)) into acquisition programs of record; (3) assessing external interface requirements of candidate concepts, technologies and demonstration projects to better understand true engineering costs resulting from insertion of new technologies into the Air Force enterprise architecture; and (4) capturing data through information technology tools and databases to help formulate technology transition acquisition strategies and gather proposals for technology and prototype development that have the potential for application to the performance of the military missions of the Department of Defense. This program supports the national industrial base, engineering design teams and maintains the intellectual capital of government and industry.

TTPE is specifically designed to deal with technology transition opportunities throughout the fiscal year as they arise, resulting in a prioritized distribution of TTPE funding over the course of the entire execution year. Although analogous to major investment programs, the TTPE process allows the AF flexibility to transition innovative concepts and initiatives to the warfighter annually in a manner that coincides with development of the President's Budget. Candidate projects will receive TTPE approval and funds based on identified and demonstrated operational impact, cost savings, project development, production, lifecycle costs, project risk and cost of delay. The TTPE will nominate projects to the AF Service Acquisition Executive (SAE) for final approval. Potential sources of projects include, but are not limited to Joint Expeditionary Force Experiments (JEFX), Joint Experimentation, ATDs, JCTDs, Defense Advanced Research Projects Agency, Science and Technology, and Independent R&D efforts. This effort is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), since it involves system specific efforts that help expedite technology transition from the laboratory to operational use.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604858F Technology Transition Program.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	9.611
(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>			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604858F Technology Transition Program.	PROJECT NUMBER AND TITLE 5350 Transition Prioritization
---	--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5350 Transition Prioritization	0.000	0.000	9.611	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Technology Transition Program Element (TTPE) provides funding to demonstrate and evaluate technologies to enable or accelerate their transition to acquisition programs of record and operational use. It addresses the gap that exists between when a technology is first demonstrated and when it can be successfully acquired as an operational capability. This gap is often referred to as the technology transition "valley of death." TTPE bridges that gap by funding promising concepts for a period of one to two years, allowing technology integration and demonstration to continue beyond the laboratory. It allows acquisition program managers (the capability developers and providers) and warfighters (the capability recipients and end users) to integrate, prototype, and demonstrate candidate technologies and assess them in an operational environment. As a result, the warfighters can assess the capability first-hand and accurately fund the follow-on acquisition program during the next budgeting cycle ("try before you buy"). TTPE includes research and development funds for the following transition activities: (1) prototyping (both full-scale and sub-scale to include competitions) of promising, high-priority concepts and technologies in an operational environment to lower acquisition risk by raising the technology readiness level; (2) performing pre-acquisition systems engineering to facilitate transition of concepts and technologies from a demonstration program (e.g., Advanced Technology Demonstrations (ATDs), Joint Capability Technology Demonstrations (JCTDs)) into acquisition programs of record; (3) assessing external interface requirements of candidate concepts, technologies and demonstration projects to better understand true engineering costs resulting from insertion of new technologies into the Air Force enterprise architecture; and (4) capturing data through information technology tools and databases to help formulate technology transition acquisition strategies and gather proposals for technology and prototype development that have the potential for application to the performance of the military missions of the Department of Defense. This program supports the national industrial base, engineering design teams and maintains the intellectual capital of government and industry.

TTPE is specifically designed to deal with technology transition opportunities throughout the fiscal year as they arise, resulting in a prioritized distribution of TTPE funding over the course of the entire execution year. Although analogous to major investment programs, the TTPE process allows the AF flexibility to transition innovative concepts and initiatives to the warfighter annually in a manner that coincides with development of the President's Budget. Candidate projects will receive TTPE approval and funds based on identified and demonstrated operational impact, cost savings, project development, production, lifecycle costs, project risk and cost of delay. The TTPE will nominate projects to the AF Service Acquisition Executive (SAE) for final approval. Potential sources of projects include, but are not limited to Joint Expeditionary Force Experiments (JEFX), Joint Experimentation, ATDs, JCTDs, Defense Advanced Research Projects Agency, Science and Technology, and Independent R&D efforts. This effort is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), since it involves system specific efforts that help expedite technology transition from the laboratory to operational use.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604858F Technology Transition Program.	PROJECT NUMBER AND TITLE 5350 Transition Prioritization
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Planned program will select and execute specific technology transition projects based on identified and demonstrated operational impact, cost savings, project development, production, lifecycle costs, project risk and cost of delay. Each project will be approved by the AF Service Acquisition Executive (SAE) prior to award. This strategy allows the AF to maintain momentum on technology transition opportunities throughout the fiscal year and in a manner that facilitates long-term acquisition planning and budget development.	0.000	0.000	9.611
(U)			
(U)			
(U) Total Cost	0.000	0.000	9.611

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0604337F, Requirements Analysis and Maturation										

(U) **D. Acquisition Strategy**
 TTPE enables a more effective and prioritized transition of technologies to the warfighter. It allows more accurate cost estimating and comprehensive systems integration to occur through the use of prototypes and user assessments until the sponsoring MAJCOM can incorporate the technology into their subsequent budget submission. The AF, through appropriate program offices, will manage the acquisition and development process for the integration and fielding of SAE-approved TTPE projects. Each project will have a complete acquisition plan defined and approved as a criterion for project selection and subsequent funding. The Air Staff and AF corporate structure will complete an Operations and Acquisition Review to ensure project affordability and appropriateness within the overall AF program. In order to rapidly transition warfighting capabilities, the TTPE process nominates projects directly to the AF SAE for final approval.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0604858F Technology Transition Program.				5350 Transition Prioritization				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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		9.611		0.000	9.611	0.000
Remarks:												
(U) <u>Support</u>												
TBD - Pending Contract Award											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
TBD - Pending Contract Award											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
TBD - Pending Contract Award											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		9.611		0.000	9.611	0.000
TBD												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604858F Technology Transition Program.

PROJECT NUMBER AND TITLE

5350 Transition Prioritization

Technology Transition Program – PE 0604858F





Fiscal Year	FY09				FY10			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
FY10 Technology Transition Project Selection and Prioritization								
FY10 Project Funding Award								
FY10 Project Progress Review								

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604858F Technology Transition Program.

PROJECT NUMBER AND TITLE

5350 Transition Prioritization

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) FY10 Project Funding Award

1Q

(U) Project Progress Review

2Q

(U) Project Progress Review

4Q

(U) FY11 Technology Transition Project Selection and Prioritization

1-4Q

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

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	330.972	287.532	396.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4056 National Polar-orbiting Operational Env. Sat. Syst.	330.972	287.532	396.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY05, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178 NPOESS, BA 04 Advanced Component Development and Prototypes.

(U) A. Mission Description and Budget Item Justification

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

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

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

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	332.525	289.469	359.584
(U) Current PBR/President's Budget	330.972	287.532	396.641
(U) Total Adjustments	-1.553	-1.937	
(U) Congressional Program Reductions		-1.155	
Congressional Rescissions		-0.782	
Congressional Increases			
Reprogrammings	-1.553		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY08: \$1.553M reprogrammed for higher priorities.

FY10 changes: Additional funds were added to support the NPOESS program restructure activities [per the July 2008 Cost Analysis Improvement Group (CAIG) cost assessment] and the increased costs associated with the sensor development effort during the Engineering and Manufacturing Development (EMD) phase of the program.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite				PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	330.972	287.532	396.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

(U) A. Mission Description and Budget Item Justification

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

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

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

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue system development effort including ground and space system development, design and fabrication for risk reduction missions (includes GFE Microwave Imager and Space Environmental Monitoring development).	319.625	278.160	394.641
(U) Continue DoD funded program office support for system development efforts.	1.105	1.061	1.000
(U) Continue Launch and Mission Integration Phase II Studies	1.374	1.201	1.000
(U) Technical analysis/resolution of anomalies/failures, Independent Verification and Validation (IV&V) and risk reduction of NPOESS sensors and payload program			
(U) SBIR Transfer	8.868	7.110	
(U) Total Cost	330.972	287.532	396.641

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite	PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC funding: Polar Convergence*	330.969	287.985	381.794	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	330.972	287.532	396.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	3.900	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Total NPOESS Air Force	330.972	287.532	400.541	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. Total NOAA total cost include prior-year amount of \$1,881.0M. The NOAA funding profile represents the FY09 PB position. A revised FY10 NOAA funding position was not finalized at the time the Air Force submitted the FY10 budget. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$970.8M in PE 0305178F and \$922.2M in PE 0603434F. Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.

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

*** Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research 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 developing payloads, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding. In addition, the Nunn-McCurdy certified production units (C-3 and C-4) were assumed to be incrementally funded by the certifying official (USD (AT&L)).

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)				0305178F National Polar-Orbiting Op Env Satellite					4056 National Polar-orbiting Operational Env. Sat. Syst.			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Northrop Grumman (system development)	CPAF	Redondo Beach, CA	931.870	308.599	Oct-07	253.900	Oct-08	349.193	Oct-09	Continuing	TBD	
GFE Sensor Development	Various	Various		9.363	Aug-08	24.260	Dec-08	45.448	Dec-09	Continuing	TBD	
Controlled Cryptographic Items	Gov. Orgs.	Lackland AFB		1.663	Aug-08						1.663	
Government Led Studies	Gov. Orgs.	Various	7.249								7.249	
Launch Mission Integration Studies	Gov. Orgs.	Various	3.917	1.374	Mar-08	1.201	Mar-09	1.000	Mar-10	Continuing	TBD	
Small Business Innovative Reseach			24.852	8.868	Apr-08	7.110					40.830	
Subtotal Product Development			967.888	329.867		286.471		395.641		Continuing	TBD	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.											
(U) <u>Support</u>												
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	2.961	1.105	Oct-06	1.061	Oct-08	1.000	Oct-09	Continuing	TBD	
Subtotal Support			2.961	1.105		1.061		1.000		Continuing	TBD	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.											
(U) <u>Test & Evaluation</u>												
Included in IPO Support											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			970.849	330.972		287.532		396.641		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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

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

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



Program Schedule

Time now

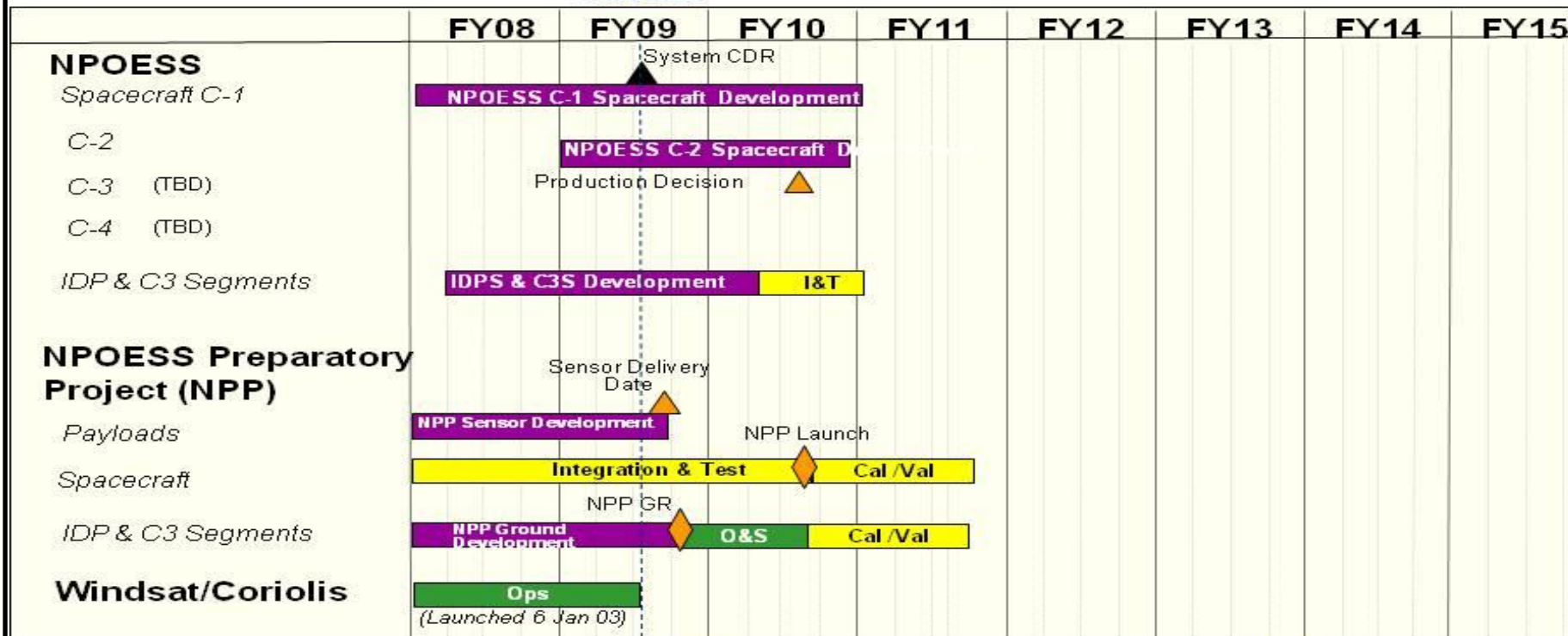


Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0305178F National Polar-Orbiting Op Env Satellite	PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Cross-track Infrared Sounder (CrIS) for NPP		2Q	
(U) Ozone Mapping and Profiler Suite (OMPS) for NPP	4Q		
(U) Visible Infrared Imager Radiometer Suite (VIIRS) for NPP		3Q	
(U) NPP Ground Ready		4Q	
(U) NPOESS System Critical Design Review		3Q	
(U) NPP Launch			3Q

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

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.373	18.709	31.124	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4887 Global Broadcast Service (GBS)	0.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	154.867
A023 Satellite Broadcast Management Transition	20.876	18.709	31.124	0.000	0.000	0.000	0.000	0.000	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. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics, weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently Ultra High Frequency Follow-On (UFO) 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and now the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink, and the Transportable Satellite Broadcast Managers (TSBMs) for the broadcast build in theatre. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities. The Theatre Injection Point (TIP) is a ground mobile satellite terminal suite transportable via two heavy High Mobility Multi-purpose Wheeled Vehicles (HMMWV) consisting of the TSBM and the Army Phoenix terminal. During FY09-11, to address commercial-off-the-shelf (COTS) obsolescence issues, the broadcast creation will transition to existing Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs) and the broadcast will be uplinked through DISA Teleport sites. This effort has been designated as an ACAT III program and funding has been realigned (i.e., a separate BPAC has been created) to delineate between the current ACAT I GBS program and the ACAT III SBM Transition program.

The GBS broadcast receive segment consists of Service-funded terminals, known as Receive Suites, which receive the broadcast and then disseminate information to local users. Service Receive Suites and the integration into service networks are funded in other Program Elements.

The FY08 contract award for the DECC transition has been delayed to FY09 due to an acquisition strategy change to conduct a full and open competition. FY10 continues to fund systems transmission security, information assurance, transition/upgrade of the SBM systems to the DISA DECC architecture, and continued analysis of alternatives for Operational Requirements Document (ORD) III requirements.

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

Exhibit R-2, RDT&E Budget Item Justification

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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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	29.098	18.790	9.416
(U) Current PBR/President's Budget	21.373	18.709	31.124
(U) Total Adjustments	-7.725	-0.081	
(U) Congressional Program Reductions		-0.030	
Congressional Rescissions		-0.051	
Congressional Increases			
Reprogrammings	-5.819		
SBIR/STTR Transfer	-1.906		
(U) <u>Significant Program Changes:</u>			
FY08: Reprogrammed \$5.819M for higher priorities			
FY10 funds added to fully fund the transition of the GBS broadcast functions to the Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers			

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4887 Global Broadcast Service (GBS)	0.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	154.867
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics, weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently UFO 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and now the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue System Development and Test	0.000	0.000	
(U) Continue Phase 2 Government System Integration	0.464	0.000	
(U) Continue System Test & Evaluation Support	0.028	0.000	
(U) Continue Program Office and other related support activities, including Systems Engineering and Integration	0.005	0.000	
(U) Total Cost	0.497	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) OPAF, PE 0303601F, Receive Suites/TIPs	1.393	2.943	7.683						Continuing	TBD
(U) RDT&E, PE 030601F, Receive Suites			3.600						0.000	3.600

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); 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) (i.e., AF GBS Receive Terminals, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)).

(U) D. Acquisition Strategy

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

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service
(GBS)

PROJECT NUMBER AND TITLE

4887 Global Broadcast Service (GBS)

(IPT) approach.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0603840F Global Broadcast Service (GBS)	4887 Global Broadcast Service (GBS)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon System Corp	CPAF		89.770								89.770	0.000
- (FY07: IPv6 Migration/Information Assurance)												0.000
IPv6 Migration/Information Assurance	Various		6.416								6.416	0.000
Robust Architecture Development	Various											0.000
Phase 2 Government System Integration	Various		31.418	0.464	Jan-08			0.000			31.882	0.000
Subtotal Product Development			127.604	0.464		0.000		0.000		0.000	128.068	0.000
Remarks:												
(U) <u>Support</u>												
Program Support - Various			18.119	0.005	Oct-07						18.124	0.000
Fielding - Various			1.200								1.200	0.000
Sustainment (Vendor TBD)											0.000	0.000
Subtotal Support			19.319	0.005		0.000		0.000		0.000	19.324	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Various			7.447	0.028	Jan-08						7.475	0.000
Subtotal Test & Evaluation			7.447	0.028		0.000		0.000		0.000	7.475	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			154.370	0.497		0.000		0.000		0.000	154.867	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

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

PROJECT NUMBER AND TITLE
4887 Global Broadcast Service (GBS)

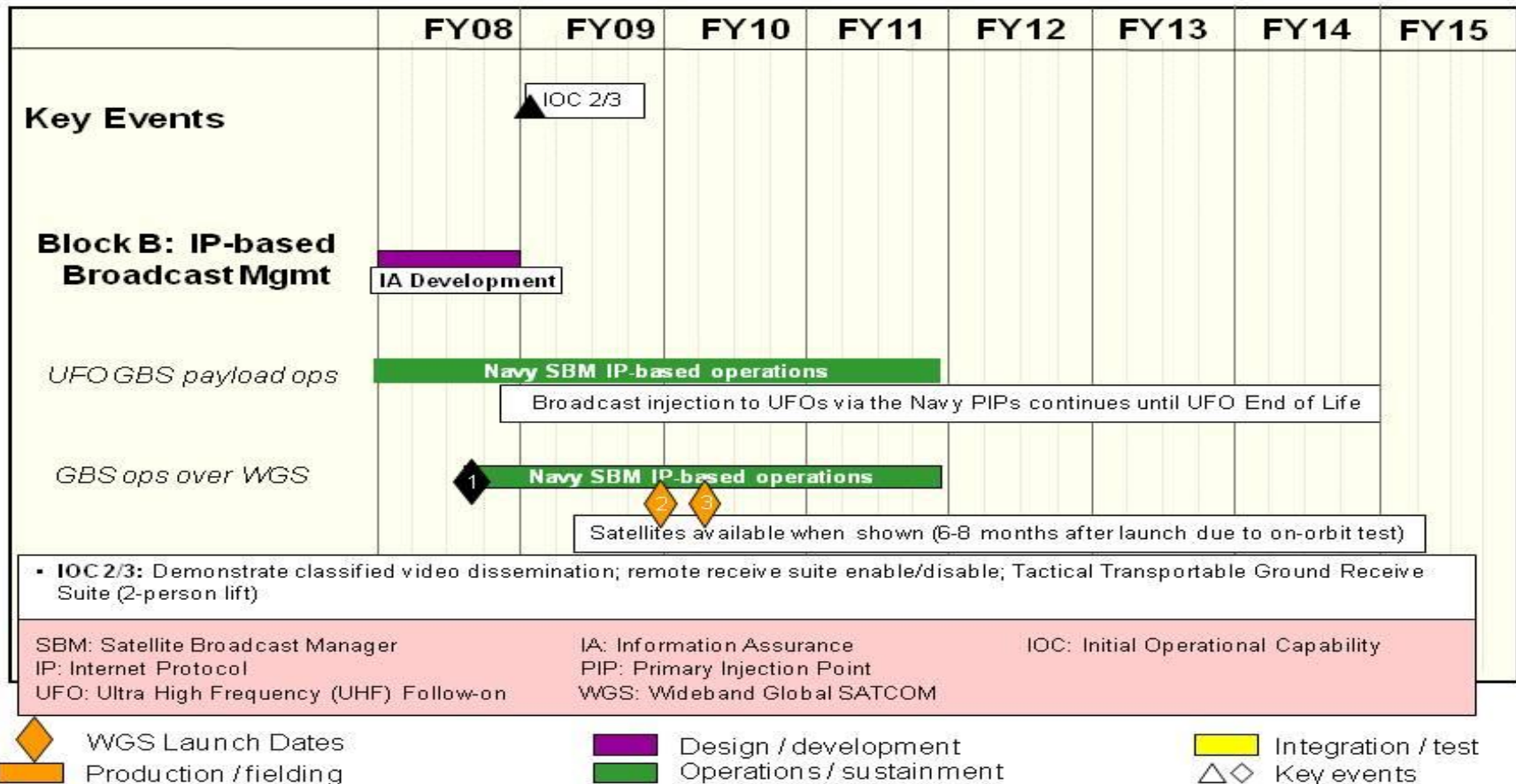


Exhibit R-4a, RDT&E Schedule Detail

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) Schedule Profile

(U) IOC 2 and 3 (Threshold)

(U) GBS operates on WGS SV1

(U) GBS operates on WGS SV2

(U) GBS operates on WGS SV3

FY 2008

FY 2009

FY 2010

3Q

1Q

4Q

2Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)		PROJECT NUMBER AND TITLE A023 Satellite Broadcast Management Transition	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A023 Satellite Broadcast Management Transition	20.876	18.709	31.124	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics, weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently UFO 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and now the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink, and the Transportable Satellite Broadcast Managers (TSBMs) for the broadcast build in theatre. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities. The Theatre Injection Point (TIP) is a ground mobile satellite terminal suite transportable via two heavy High Mobility Multi-purpose Wheeled Vehicles (HMMWV) consisting of the TSBM and the Army Phoenix terminal. During FY09-11, to address commercial-off-the-shelf (COTS) obsolescence issues, the broadcast creation will transition to existing Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs) and the broadcast will be uplinked through DISA Teleport sites.

The FY08 contract award for DECC transition has been delayed to FY09 due to an acquisition strategy change to conduct a full and open competition. FY10 continues to fund systems transmission security, information assurance, transition/upgrade of the SBM systems to the DISA DECC architecture, and continued analysis of alternatives for ORD III requirements.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue System Development and Test		6.969	19.860
(U) Continue Phase 2 Government System Integration	6.910	6.559	4.893
(U) Continue Program Office and other related support activities, including Systems Engineering and Integration	4.383	4.670	5.339
(U) Continue System Test & Evaluation Support	0.652	0.511	1.032
(U) Reprogrammed for higher priorities (approved by Congress in FY08 Omnibus)	8.931	0.000	0.000
(U) Total Cost	20.876	18.709	31.124

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other APPN OPAF, PE 0303600F, WGS PIPs	0.000	0.000	1.677						Continuing	TBD
(U) OPAF, PE 0303601F, Receive	1.393	2.943	7.683						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)	PROJECT NUMBER AND TITLE A023 Satellite Broadcast Management Transition
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(U) **C. Other Program Funding Summary (\$ in Millions)**

Suites/TIPs

(U) RDT&E, PE 030601F, Receive Suites	0.000	0.000	3.600	0.000	3.600
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(U) **D. Acquisition Strategy**

Conduct a full and open competition to award a new contract to transfer Satellite Broadcast Management functionality to two Defense Enterprise Computing Center (DECC) facilities. The DECC will utilize a new hardware and software architecture to resolve impending Commercial off the Shelf (COTS) obsolescence, Information Assurance compliance and sustainment issues. The new contract will also implement, as appropriate, follow-on GBS ORD III Pre-Planned Product Improvement capabilities into the GBS DECC-based system, as additional funding becomes available.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0603840F Global Broadcast Service (GBS)					A023 Satellite Broadcast Management Transition			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
DECC Transition	CPFF w/incentive	TBD	0.000	0.000		6.969	May-09	19.860	Oct-09	Continuing	TBD	
Phase 2 Government System Integration	Various		0.000	6.910	Nov-07	6.559	Oct-08	4.893	Oct-09	Continuing	TBD	
Subtotal Product Development			0.000	6.910		13.528		24.753		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Support (Various)			0.000	4.383	Nov-07	4.670	Nov-08	5.339	Nov-09	Continuing	TBD	
Subtotal Support			0.000	4.383		4.670		5.339		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Test and Evalulatin (Various)			0.000	0.652	Nov-07	0.511	Nov-08	1.032	Nov-09	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.652		0.511		1.032		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Reprogrammed for higher priorities				8.931							8.931	
Subtotal Management			0.000	8.931		0.000		0.000		0.000	8.931	0.000
Remarks:												
(U) Total Cost			0.000	20.876		18.709		31.124		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

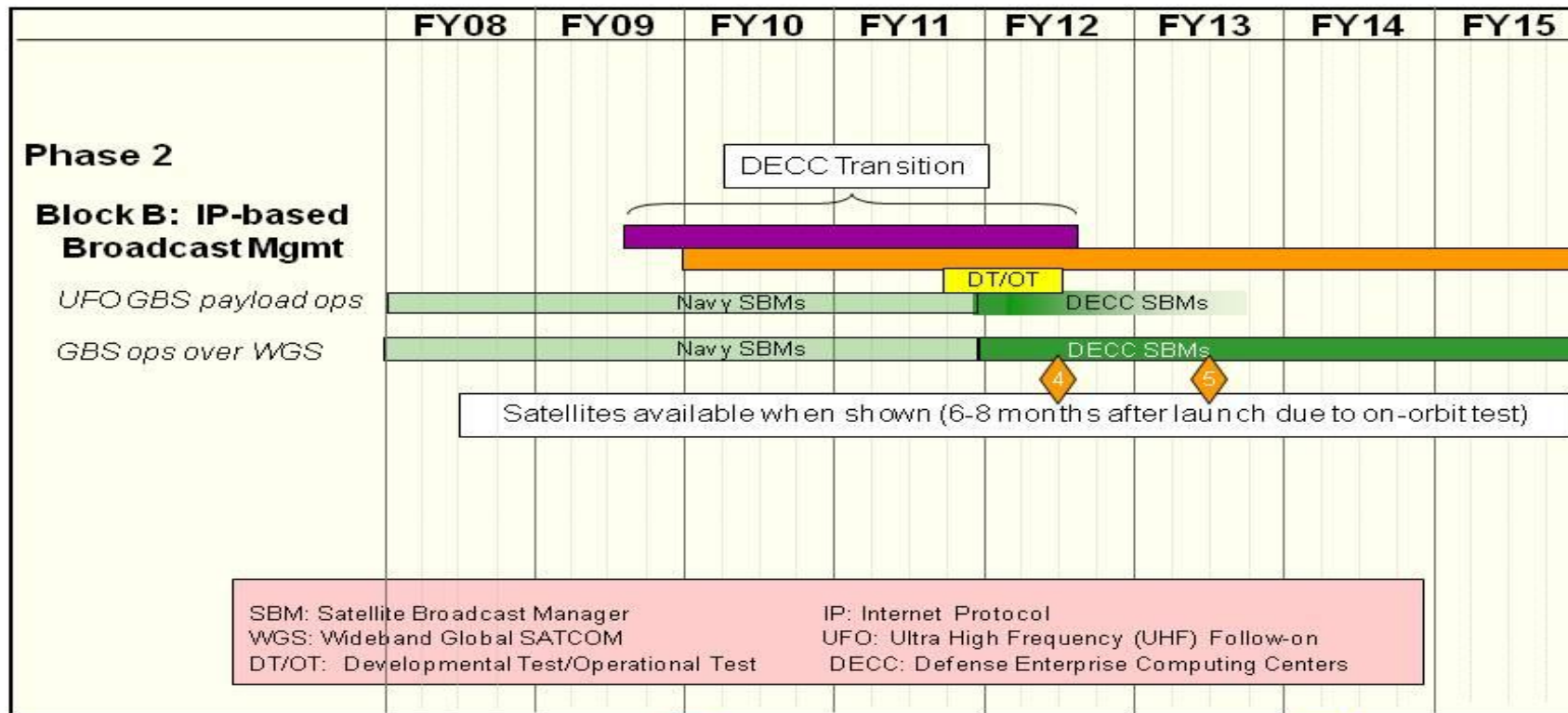
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

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

PROJECT NUMBER AND TITLE
A023 Satellite Broadcast Management Transition



SBM: Satellite Broadcast Manager IP: Internet Protocol
 WGS: Wideband Global SATCOM UFO: Ultra High Frequency (UHF) Follow-on
 DT/OT: Developmental Test/Operational Test DECC: Defense Enterprise Computing Centers

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

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE

A023 Satellite Broadcast Management Transition

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) DECC Transition Contract Award

3Q

(U) Final Design Review

1Q

(U) Systems Acceptance Test

4Q

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PE NUMBER: 0604222F
 PE TITLE: Nuclear Weapons Support

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.739	20.111	37.860	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4236 Engineering Analysis	6.516	5.091	13.650	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4807 Nuclear Weapons & CP Technologies	6.164	6.410	6.470	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5708 Nuclear Weapons Support	7.059	8.610	17.740	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY 2009, funding appropriated for government civilian payroll in Project 4236, Engineering Analysis, has been transferred to Project 5708, Nuclear Weapons Support, for execution.

(U) A. Mission Description and Budget Item Justification

(U) The Air Force (AF) is tasked with maintaining and providing technical expertise on all AF nuclear weapons; nuclear weapon systems; and with developing and maintaining counter-chemical, biological, radiological, nuclear, and high explosive (C-CBRNE) capabilities. This program provides resources for technical and programmatic activities which includes performing independent analyses on all AF nuclear weapons systems activities including weapons development/sustainment, interoperability, compatibility, safety/security/reliability, stockpile management/retirement; C-CBRNE assessments; and nuclear certification and nuclear certification management. The Air Force Nuclear Weapons Center, Kirtland AFB, NM, is the executing agency for this program.

(U) 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, model validation, and weapon effectiveness in support of the DoD-DOE Annual Surety Report, DOE Stockpile Stewardship Plan, the DoD-DOE Weapon Annual Assessment, and DoD-DOE nuclear stockpile planning/requirements assessment.
- Identify, evaluate, and assess current and projected innovative concepts for combating WMD capabilities to include participating in the pre-acquisition process as appropriate for those projects being evaluated for possible development and/or supporting current elimination and offensive operations, active and passive defense, and consequence management related to C-CBRNE weapons and their manufacturing/bulk storage facilities.
- Develop, validate, and deploy mission planning software tools for targeting WMD facilities and systems.

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

(U) 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

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

weapons and/or weapon systems to meet evolving combating WMD mission requirements.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	20.191	20.166	20.314
(U) Current PBR/President's Budget	19.739	20.111	38.573
(U) Total Adjustments	-0.452	-0.055	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.055	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.452		
(U) <u>Significant Program Changes:</u>			
FY 2010			
-- Pre-acquisition studies and analyses associated with a B61 Life Extension Program and a Joint AF-Navy-UK MoD Warhead Arming & Fuzing Assembly (AFA) Sustainment Project initiated			
-- Government civilian nuclear scientist, engineer, and program manager manning for the Air Force Nuclear Weapons Center increased to meet new mission needs			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT NUMBER AND TITLE 4236 Engineering Analysis		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4236 Engineering Analysis	6.516	5.091	13.650	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2009, funding appropriated for government civilian payroll in this Project has been transferred to Project 5708, Nuclear Weapons Support, this Program, for execution.

(U) A. Mission Description and Budget Item Justification

(U) Provide engineering analysis for all Air Force (AF) nuclear weapons, delivery systems, and support systems to include all phases of acquisition. Provide the engineering and technical management expertise required in critical areas of nuclear weapons safety, security, and reliability; operations; modernization; testing; certification; and counterproliferation.

(U) Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, nuclear weapon systems, and the supporting infrastructure.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Nuclear Weapons Program Support. Provide government leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF active and inactive stockpile. Perform technical analysis in support of life extension and modernization programs for weapons in the AF stockpile. [NOTE: FY 2009 government civilian payroll appropriated for this effort has been transferred to Project 5708, Nuclear Weapons Support, for execution. Starting in FY 2010, funding for this activity will be in Project 5708.]			
(U) -- Government Civilian Personnel	0.803		
(U) -- Studies, Analysis, & Evaluations	1.063	1.154	1.082
(U) -- Engineering & Technical Services	0.702	0.760	0.876
(U) Combating Weapons of Mass Destruction (WMD) Support. Provide government leadership for pre-acquisition technical, engineering, and management support/expertise for candidate weapons to counter future threats from WMD. Conduct assessments of operational concepts for destroying CBRNE manufacturing and bulk storage facilities as well as developing new analytical methodologies needed to perform these assessments and provide technical support to Unified/Specified Combatant command operations (as requested). [NOTE: FY 2009 government civilian payroll appropriated for this effort has been transferred to Project 5708 for execution.]			
(U) -- Government Civilian Personnel	0.981		1.307
(U) -- Studies, Analysis, & Evaluations	0.857	0.945	0.885
(U) -- Engineering & Technical Services	1.314	1.410	1.626
(U) -- Test & Evaluation Activities	0.212	0.232	
(U) Joint Warhead Arming & Fuzing Assembly (AFA) Sustainment. Initiate an AFA feasibility and initial design study in conjunction with the Navy and the United Kingdom Ministry of Defense (UK-MoD) leading to an engineering			8.800

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 4236 Engineering Analysis
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
design and development of a modern AFA for use on ballistic missile warheads			
(U) Management & Professional Support Services	0.584	0.590	0.615
(U) Total Cost	6.516	5.091	15.191

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) Joint Warhead AFA										
Sustainment: AF Procurement										
- 3020 (Program Element										
0101213F, Minuteman								12.000	Continuing	TBD
Squadrons, Project 5915,										
Joint Warhead										
Modernization)										
Also see Navy Program Element 0101221N, Strategic Sub & Weapons System Support										

(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 to obtain technical analyses and technical support for safety, operations and counterproliferation assessments. All contracts will be openly competed.

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Exhibit R-3, RDT&E Project Cost Analysis

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May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 4236 Engineering Analysis
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<u>(U) Product Development</u> In-House Studies/Analysis & Engineering Activities (Government Civilian Personnel)	Direct Payment (Payroll)	Air Force Nuclear Weapons Center (AFNWC), Kirtland AFB, NM	14.034	1.724	Oct-07			1.307	Oct-09	Continuing	TBD	TBD	
Studies, Analysis, & Evaluations	CPAF-C/T &M-C	Multiple*	5.227	1.930	Jan-08	2.098	Jan-09	1.967	Jan-10	Continuing	TBD	TBD	
Engineering & Technical Services	CPAF-C	RhinoCorp, Albuquerque, NM (through FY 2008); TBD (FY 2009 and beyond)	7.609	2.006	Nov-07	2.171	Feb-09	2.502	Jan-10	Continuing	TBD	TBD	
Joint Warhead AFA Sustainment - Concept Definition	TBD	TBD						8.800	Jan-10	164.800	173.600		
Subtotal Product Development			26.870	5.660		4.269		14.576		Continuing	TBD	TBD	
Remarks:	* - ITT Systems, Albuquerque, NM, and Colorado Springs, CO; Applied Science Labs, Albuquerque, NM; SAIC, Arlington, VA; & ANSER, Arlington, VA												
<u>(U) Support</u> Management, Technical, & Professional Support	T&M-C	ANSER, Arlington, VA; SAIC, Arlington, VA	2.705	0.584	Mar-08	0.590	Mar-09	0.615	Mar-10	Continuing	TBD	TBD	
Subtotal Support			2.705	0.584		0.590		0.615		Continuing	TBD	TBD	
Remarks:													
<u>(U) Test & Evaluation</u> Advanced Technology/Component Development Evaluations	MIPR	Various Government Ranges/Facilities	2.238	0.212	Mar-08	0.232	Mar-09				0.000	2.682	0.000
Subtotal Test & Evaluation			2.238	0.212		0.232		0.000			0.000	2.682	0.000
Remarks:													
<u>(U) Management</u> In-House Programmatic/Financial Management (Government Civilian Personnel)	Direct Payment (Payroll)	AFNWC, Kirtland AFB, NM	1.575	0.060	Oct-07						0.000	1.635	0.000
Subtotal Management			1.575	0.060		0.000		0.000			0.000	1.635	0.000
Remarks:													

R-1 Line Item No. 63

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Project 4236

Exhibit R-3 (PE 0604222F)

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

(U) Total Cost

33.388

6.516

5.091

15.191

Continuing

TBD

TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

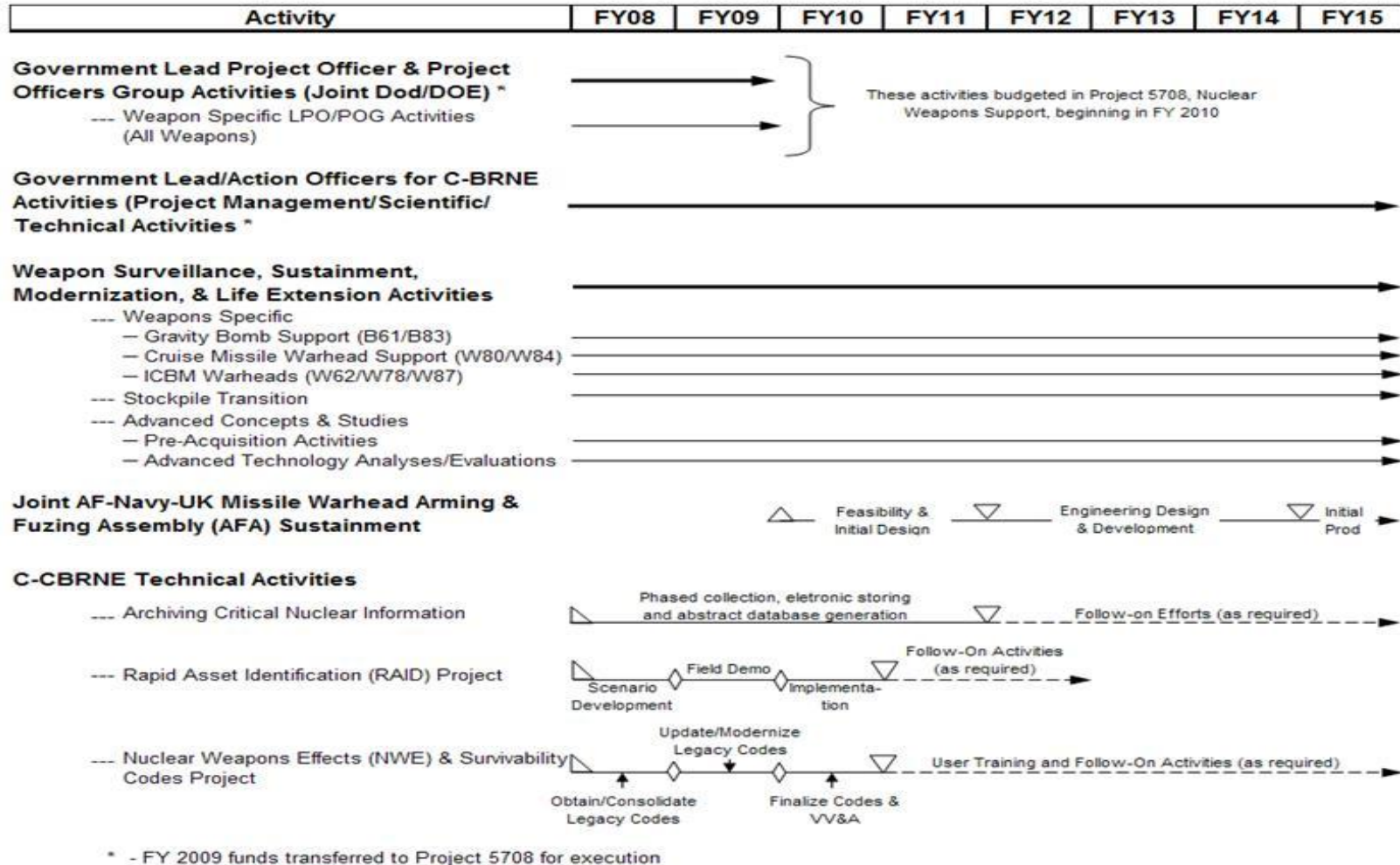
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis



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Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)	0604222F Nuclear Weapons Support	4236 Engineering Analysis		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile				
(U) Project Officer Group (POG) Management/Engineering & Technical Analysis--Government Personnel [FY 2009 funding for this effort moved to Project 5708, Nuclear Weapons Support, for execution. Beginning in FY 2010, this effort will be budgeted in Project 5708.]		1-4Q		
(U) Annual Warhead Assessments (B61/B83, W80/W84, & W78/W87)		3-4Q	3-4Q	3-4Q
(U) Combating Weapons of Mass Destruction (WMD) Project Officer and Technical Analysis--Government Personnel [FY 2009 funding for this effort moved to Project 5708, Nuclear Weapons Support, for execution.]		1-4Q		1-4Q
(U) Weapon/Warhead Studies & Analysis				
(U) -- Reliable Replacement Warhead (RRW) Studies & Analysis		1-2Q		
(U) -- Joint Warhead Fuze Sustainment (with Navy) - Feasibility & Initial Design Studies				1-4Q
(U) -- Advanced ICBM Arming/Fuzing Studies (jointly with Navy & UK MoD)		1-4Q	1-4Q	1-4Q
(U) -- Future Stockpile Studies		1-4Q	1-4Q	1-4Q
(U) -- Nuclear Roadmap/CONOPS Development		1-4Q	1-4Q	1-4Q
(U) -- Minuteman III/ICBM				
(U) --- Minuteman III Safety Enhanced Reentry Vehicle Support		1-4Q	1-4Q	1-4Q
(U) --- Mk12A/Mk21 Refurbishment Program Support		1-4Q	1-4Q	1-4Q
(U) --- W78/W87 Nuclear Surety Program		1-4Q	1-4Q	1-4Q
(U) --- ICBM Flight Test Study		1-2Q		
(U) -- Gravity Weapons				
(U) --- B61 Modernization Studies		1-4Q	1-4Q	1-2Q
(U) --- Gravity Weapon Flight Test Program Support (B61/B83)		1-3Q	1-3Q	2-4Q
(U) -- Cruise Missile				
(U) --- Cruise Missile Warhead Modernization Studies		1-4Q	1-4Q	1-4Q
(U) --- Cruise Missile Flight Test Program Support		3-4Q	3-4Q	3-4Q
(U) C-CBRNE/Counterproliferation Support				
(U) -- Computer Code Development/Support		1-4Q	1-4Q	1-4Q
(U) -- Advanced/Innovative Technology Evaluations		1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT NUMBER AND TITLE 4807 Nuclear Weapons & CP Technologies		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4807 Nuclear Weapons & CP Technologies	6.164	6.410	6.470	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) Perform engineering analyses across the chemical, biological, radiological, nuclear and high explosive (CBRNE) pillars for countering weapons of mass destruction (WMD) with emphasis on asymmetric threats (specifically CBRNE) and other difficult to attack targets). Develop proposed solutions for consideration for entry into acquisition. Plan for and transition selected nuclear and non-nuclear 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.

(U) Develop, evaluate, and utilize tools required for the employment of current inventory and new concepts for combating WMD weapons to include intelligence, surveillance, and reconnaissance; battle damage assessment; and target defeat/collateral effects predictions for current and future operations.

(U) Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs that result in identifying, and developing or modifying weapons to meet new and evolving elimination and offensive capabilities for combating WMD. Efforts also include developing and/or validating target planning software for existing/new concepts and weapons for combating WMD.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop pre-acquisition strategies/studies of conventional and other advanced alternative technologies and capabilities for eliminating or conducting offensive operations to combat WMD with emphasis on technologies & capabilities for attacking CBRNE targets and threats.			
(U) -- Technical Assessments & Demonstrations	0.854	0.854	0.921
(U) Research, develop and/or improve (to include verification, validation, and assessment (VV&A)) the fidelity and utility of target planning tools associated with eliminating or conducting offensive operations for combating WMD.			
(U) -- Modeling & Simulation Development/Verification	2.030	2.067	2.095
(U) Perform advanced concept research and development (R&D) studies of potential nuclear and non-nuclear capabilities for combating WMD.			
(U) -- Studies, Analyses, & Evaluations	2.767	2.826	2.913
(U) Provide operational support to the Joint Chiefs of Staff, Combatant Commands, and Major Commands for evaluating elimination of and operations against CBRNE facilities (e.g., intelligence analysis and support, weapon effectiveness and collateral damage assessments, etc.).			
(U) -- Studies, Analyses, & Evaluations		0.157	0.132

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 4807 Nuclear Weapons & CP Technologies
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Management & Professional Support Services	0.513	0.506	0.520
(U) Total Cost	6.164	6.410	6.581

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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 to obtain technical analyses and technical support for safety, operations and counterproliferation assessments. All contracts will be openly competed.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Technology Assessments & Demonstrations	MIPR	Multiple*	16.525	0.854	Jan-08	0.854	Jan-09	0.921	Jan-10	Continuing	TBD	TBD
Modeling and Simulation Development/Verification	CPAF-C	Multiple**	7.804	2.030	Mar-08	2.067	Mar-09	2.095	Jan-10	Continuing	TBD	TBD
Studies, Analyses, & Evaluations	CPAF-C	Multiple**	17.073	2.767	Jan-08	2.983	Jan-09	3.045	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			41.402	5.651		5.904		6.061		Continuing	TBD	TBD
Remarks:	* - Aeronautical Systems Center (ASC) (Wright-Patterson AFB, OH); Air Armament Center (AAC) (Eglin AFB, FL); Defense Threat Reduction Agency (DTRA) (Ft Belvoir, VA); White Sands Missile Range (WSMR)(WSMR, NM)											
	** - RhinoCorps LLC (Albuquerque, NM); ITT (Colorado Springs, CO); TBD (beginning in FY09)											
<u>(U) Support</u>												
Management & Professional Support Services	CPAF-C/T &M-C	Multiple***	6.084	0.513	Jan-08	0.506	Jan-09	0.520	Jan-10	Continuing	TBD	TBD
Subtotal Support			6.084	0.513		0.506		0.520		Continuing	TBD	TBD
Remarks:	*** - ITT Systems (Albuquerque, NM), ANSER (Arlington, VA), SAIC (Arlington, VA); TBD											
<u>(U) Test & Evaluation</u>												
N/A											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>												
N/A											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			47.486	6.164		6.410		6.581		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

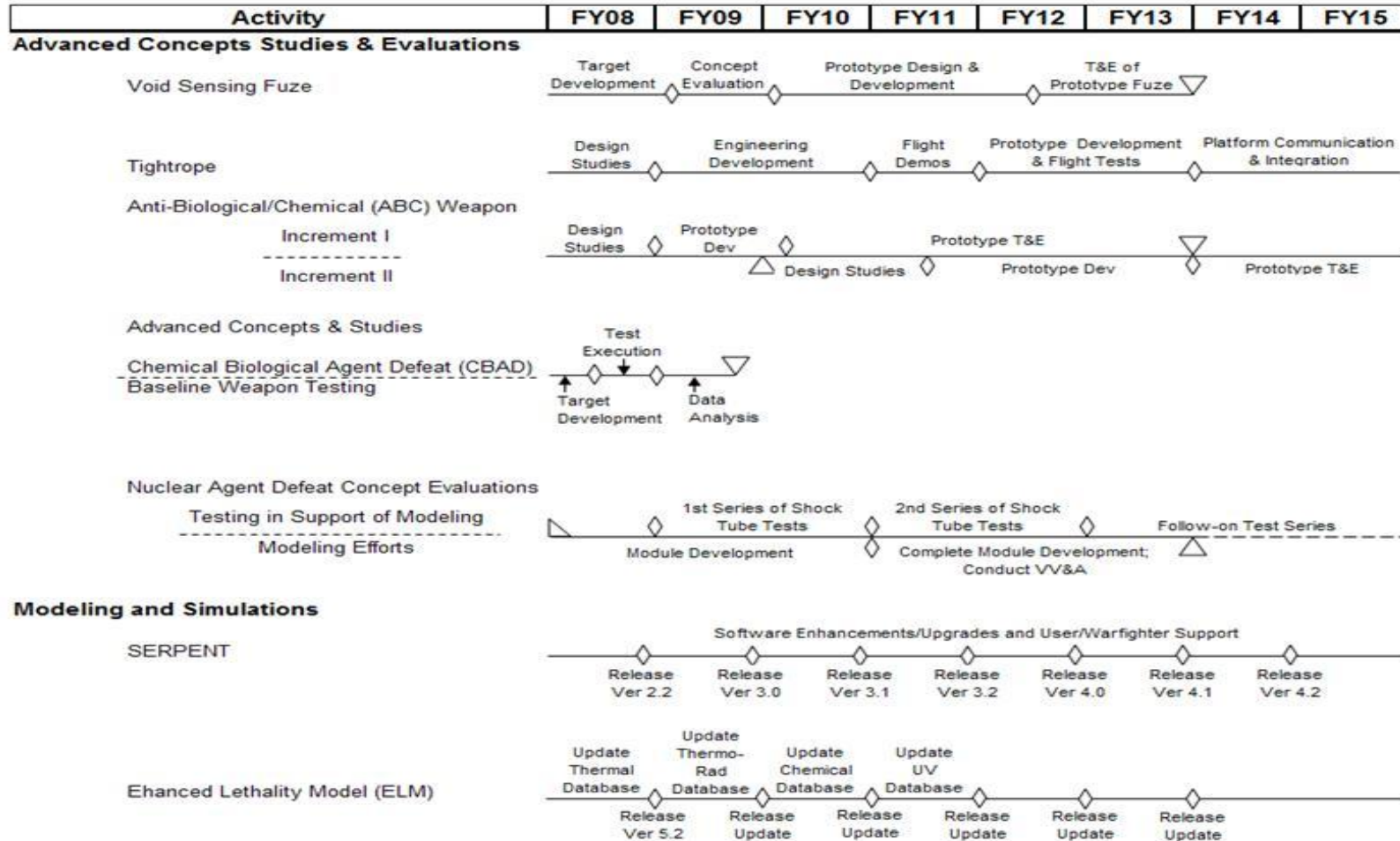
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE
4807 Nuclear Weapons & CP Technologies



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Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009		
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>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile				
(U) Advanced Modeling & Simulation in Support of CBRNE Consequence Management		1-4Q	1-4Q	1-4Q
(U) Effects Modeling Tools				
(U) ---Joint VV&A		1-4Q	1-4Q	
(U) ---Joint Accredited Version Release		1-4Q	1-4Q	
(U) ---Issues Updates		1-4Q	1-4Q	1-4Q
(U) Chemical Biological (CB) Agent Neutralization Calculator - Issue Updates		2-3Q	2-3Q	2-3Q
(U) Nuclear Weapons Effects/Vulnerability Prediction Tools Against Chemical/Biological Targets - Continue Development		1-4Q	1-4Q	1-4Q
(U) Enhanced Cruise Missile (ECM)				
(U) ---Develop Nuclear Weapons Requirements Documents		2-4Q	1-2Q	
(U) ---Accomplish Phase 6.2 Study		4Q	1-4Q	1Q
(U) Anti-Biological/Chemical Weapon				
(U) ---Complete Phase 1 Study		1-4Q		
(U) ---Phase 2 Study		3-4Q	1-4Q	1-2Q
(U) Agent Defeat Weapon (ADW)				
(U) ---Develop Requirements and Acquisition Documentation		1-4Q		
(U) ---Develop Baseline Legacy Weapon Test Database		1-4Q	1-4Q	1-4Q
(U) Land Based Strategic Deterrent				
(U) ---Follow On Development Efforts		1-4Q	1-4Q	1-4Q
(U) ---ICBM Future Warhead Concepts Study		1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Effects/Special Nuclear Study and Analyses		1-4Q	1-4Q	1-4Q
(U) Advanced Weapon Concepts Studies and Analyses				
(U) ---Chemical/Biological Testing and Characterization			1-4Q	1-4Q
(U) ---Advanced Weapon Guidance, Navigation, & Control for Special Weapon Applications			1-4Q	1-4Q
(U) ---Fuze Development & Support for Agent Defeat Weapon Applications			1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5708 Nuclear Weapons Support	7.059	8.610	17.740	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2009, funding appropriated for government civilian pay in Project 4236, Engineering Analysis, this Program, was transferred to this Project for execution.

(U) A. Mission Description and Budget Item Justification

(U) Provide 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; oversee and manage the AF nuclear certification process; interface 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.

(U) 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Weapon Specific Lead Project Officer/Project Officers Group Activities. Provide government leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF active and inactive stockpile. [NOTE: FY 2009 funds for government civilian pay for this effort appropriated in Project 4236, Engineering Analysis, have been transferred to this Project for execution. Starting in FY 2010, funding for all government civilian personnel will be in this Project.]			
(U) -- Government Civilian Personnel		0.795	1.510
(U) Combating Weapons of Mass Destruction (WMD) Support. Provide government leadership for pre-acquisition technical, engineering, and management support/expertise for candidate weapons to counter future threats from WMD. [NOTE: FY 2009 funds appropriated for government civilian pay for this effort were appropriated in Project 4236, Engineering Analysis, have been transferred to this Project for execution. Starting in FY 2010, funding for all government civilian personnel will be in this Project.]			
(U) -- Government Civilian Personnel		0.972	
(U) Government Engineering Activities. 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.			
(U) -- Government Civilian Personnel	1.310	1.182	1.785
(U) -- Engineering Technical Services	0.317	0.462	1.468
(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			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 5708 Nuclear Weapons Support
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<u>(U) B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
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.			
(U) -- Government Civilian Personnel	1.022	0.922	1.519
(U) -- Studies, Analyses, & Evaluations	0.701	0.724	1.060
(U) Nuclear Delivery System Support. Prepare nuclear surety design criteria, standards, specifications, and related requirements documents for all AF ground-launched missile systems; provide nuclear surety design guidance to program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification and nuclear compatibility certification of weapon system modifications; administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance; and perform nuclear certification oversight functions. Provide leadership to and management of the AF-led Project Officers Groups for AF nuclear weapon delivery systems to include technical analysis and compatibility testing to support life extension programs and delivery system modifications.			
(U) -- Government Civilian Personnel	0.543	0.490	0.992
(U) -- Studies, Analyses, & Evaluations	1.188	1.133	0.912
(U) -- Engineering Technical Services	1.194	1.073	0.912
(U) Nuclear College Activities. Provide training to AF organizations/personnel having a role in the nuclear certification process. Develop/present a nuclear activities management course to all AF personnel involved in nuclear weapons-related activities.			
(U) -- Government Civilian Personnel	0.154	0.144	0.503
(U) -- Studies, Analyses, & Evaluations	0.150	0.150	0.306
(U) Management & Professional Services			
(U) -- Government Civilian Personnel	0.160	0.144	0.400
(U) -- Contracted Support	0.320	0.419	0.434
(U) B61 Life Extension Program (LEP) Option Studies			5.000
(U) Total Cost	7.059	8.610	16.801

<u>(U) C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

(U) D. Acquisition Strategy

RDT&E projects performed by AF organizations are direct funded, other DoD and government agencies by Military Interdepartmental Purchase Request (MIPR) or other appropriate means. Contractor efforts are accomplished via cost plus award fee (CPAF) contracts awarded as a result of open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604222F Nuclear Weapons Support					5708 Nuclear Weapons Support			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
In-house Studies/Analysis & Other Government Activities (Government Civilian Personnel)	Direct Payment (Payroll)	AF Nuclear Weapons Center (AFNWC), Kirtland AFB, NM	24.376	3.029	Oct-07	4.505	Oct-08	6.309	Oct-09	Continuing	TBD	TBD
Studies, Analyses, & Evaluations	Various	Multiple*	2.074	2.039	Jan-08	1.947	Jan-09	2.278	Jan-10	Continuing	TBD	TBD
B61 Life Extension Program (LEP) Options Project	TBD	TBD						5.000	Jan-10		5.000	
Engineering & Technical Services	CPAF-C	Sverdrup, Albuquerque, NM	5.261	1.511	Dec-07	1.595	Dec-08	2.380	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			31.711	6.579		8.047		15.967		Continuing	TBD	TBD
Remarks:	* - Typically government agencies such as Defense Threat Reduction Agency (DTRA), Ft Belvoir, VA; DOE national laboratories such as Sandia National Laboratories (SNL), Kirtland AFB, NM & Livermore, CA, & Lawrence Livermore National Laboratory (LLNL), Livermore, CA; others as needed											
(U) <u>Support</u>												
Management & Professional Support Services	CPAF-C	MacAulay Brown, Albuquerque, NM	2.416	0.320	Jan-08	0.419	Jan-09	0.434	Jan-10	Continuing	TBD	TBD
Subtotal Support			2.416	0.320		0.419		0.434		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
In-House Programmatic/Financial Management (Government Civilian Personnel)	Direct Payment (Payroll)	AFNWC, Kirtland AFB, NM	4.336	0.160	Oct-07	0.144	Oct-08	0.400	Oct-09	Continuing	TBD	TBD
Subtotal Management			4.336	0.160		0.144		0.400		Continuing	TBD	TBD
Remarks:												
(U) <u>TAMS</u>												
(U) Total Cost			38.463	7.059		8.610		16.801		Continuing	TBD	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

Activity	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
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Government Lead Project Officer & Project Officers Group Activities (Joint DoD/DOE)

--- Weapon Specific LPO/POG Activities

Budgeted in Project
4236 prior to FY 2010

Nuclear Weapons Program Support

--- Pre-Acquisition Studies (Phases 1/2/2A or 6.1/6.2/6.2A)

As Required

--- Nuclear Weapon Sustainment (Phases 3/4/5/6 or 6.3/6.4/6.5/6.6)

As Required

--- Nuclear Weapon Retirement (Phase 7)

As Required

--- Joint AF-NNSA Weapon Test Activities (All Weapons)

B61 Life Extension Program (LEP) Options Studies & Analysis



Nuclear Weapons Certification Analyses

--- Nuclear Certification Management Meetings

--- Independent Surety Analysis

--- Compatibility Analysis

--- Surveillance Tests

As Required

As Required

As Required

Other Studies and Analyses

--- Weapons Maintenance Program Safety

--- Facilities Utilization/Design Studies

--- Long-term Storage Operational Safety Review

--- ICBM Operational Safety Review

--- System II Interface Development & Integration

On-Going

On-Going

As Required

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

Activity	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
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Engineering Projects

--- ICBM Targeting Study

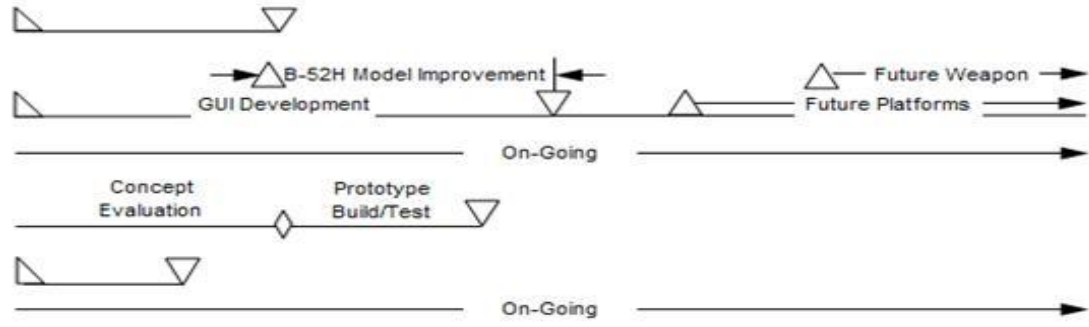
--- Nuclear Hardness Database (NHDB)

----- Development Efforts
----- Testing Support

--- Convoy Security Enhancement

--- Aircraft Monitor & Control (AMAC)

----- Flightline Tester Design/Review
----- Surveillance Testing



Nuclear College Activities



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Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT NUMBER AND TITLE 5708 Nuclear Weapons Support	
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Weapon System Project Officers Group (POG) Activities	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Certification			
(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	2Q	2Q	2Q
(U) ---Land Based Strategic Nuclear Deterrence Analysis	1-4Q	1-4Q	
(U) ---Intercontinental Ballistic Missile (ICBM) Security Mod Program	1-4Q	1-4Q	1-4Q
(U) ---ICBM Crypto Upgrade Program	1-4Q		
(U) ---Joint Strike Fighter (JSF) Integration Certification	1-4Q	1-4Q	1-4Q
(U) ---JSF Weapons Support Equipment Certification	1-4Q	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) ---JSF TO Development	1-4Q	1-4Q	1-4Q
(U) Studies, Analyses, & Assessments			
(U) ---ICBM Operational Safety Review	1-3Q		
(U) ---Long Term Storage Operational Safety Review	1-4Q	1-2Q	
(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)	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) ---System II Interface Development and Integration (in conjunction with the DOE national laboratories)	1-4Q	1-4Q	1-4Q
(U) ---Development of new System II AMAC Tester	1-4Q	1Q	
(U) B61 LEP Option Studies			1-4Q
(U) Information Technology Activities	1-4Q	1-4Q	1-4Q
(U) Nuclear College Activities			1-4Q

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604226F B-1B
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	180.434	142.643	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4596 Conventional Mission Upgrades	180.434	142.643	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY08 funding totals includes \$36.8M supplemental funding
 FY10, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.

(U) A. Mission Description and Budget Item Justification

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1B grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupportable pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1B improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. The LCTP effort provides a limited targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. In addition, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost.

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B CMUP upgrade program is included in Budget Activity (BA) 5, System Development and Demonstration.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	152.164	128.871	81.263
(U) Current PBR/President's Budget	180.434	142.643	0.000
(U) Total Adjustments	28.270	13.772	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.388	
Congressional Increases	36.861	14.160	
Reprogrammings	-4.700		
SBIR/STTR Transfer	-3.891		

(U) **Significant Program Changes:**

FY08 increased for Congressional Supplemental of \$36.861M for GWOT.

FY09 increased \$10.0M (3010 to 3600 recolor), \$4.16M (16-Carry Congressional Add).

FY10/11, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344.

This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604226F B-1B			PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4596 Conventional Mission Upgrades	180.434	142.643	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1B grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupported pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1B improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. The LCTP effort provides a limited targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. In addition, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost.

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B CMUP upgrade program is included in Budget Activity (BA) 5, System Development and Demonstration.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	172.552	133.645	0.000
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	4.671	3.604	
(U) Continuing Mission Support	2.949	4.325	
(U) Modeling & Simulation / Studies & Analyses	0.262	1.069	
(U) Total Cost	180.434	142.643	0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

4596 Conventional Mission Upgrades

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	71.344	41.359								112.703
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	4.206	2.508								6.714
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	2.431	2.649								5.080
(U) Appn 28, PE 0207446F, Bomber TDL Core	37.714	11.603								49.317
(U) Appn 28, PE 0207423F, Advanced Communication Systems 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 0208006F, Air Force Mission Planning Systems (AFMPS), Joint Mission Planning System (JMPS)	3.300									

(U) **D. Acquisition Strategy**

(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); installed performance responsibility; use of cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis

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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) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
(U) Gyro Stabilization System (GSS)	SS/CPIF	Boeing, Long Beach, CA	21.085	2.822	Oct-07						23.907	
(U) Central Integrated Test System (CITS)	SS/CPIF	Boeing, Long Beach, CA	29.585	6.881	Feb-08	4.474	Oct-08				40.940	
(U) Vertical Situation Display (VSD)	SS/CPIF	Boeing, Long Beach CA	28.236	15.730	Nov-07	21.904	Nov-08				65.870	
(U) Radar Modernization Improvement Program (RMIP)	SS/CPIF	Boeing, Long Beach, CA	75.293	44.759	Jan-08	44.421	Oct-08				164.473	
(U) Inertial Navigation System (INS)	SS/CPIF	Boeing, Long Beach, CA	0.250	10.973	Jan-08	27.820	Nov-08				39.043	
(U) Fully Integrated Data Link (FIDL)	SS/CPIF	Boeing, Long Beach, CA	32.081	22.579	Nov-07	15.069	Nov-08				69.729	
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)	SS/CPFF	561st, Robins AFB, GA	29.793	8.525	Oct-07	7.340	Dec-08				45.658	
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)	SS/CPFF	561st, Robins AFB, GA	22.797								22.797	
(U) Laptop Controlled Targeting Pod (LCTP)	SS/CPIF	Boeing, Long Beach, CA	25.087	34.119	Jul-08						59.206	
(U) Threat Situational Awareness System (TSAS)	SS/CPIF	Boeing, Long Beach, CA	6.206	13.972	Feb-08	8.417	Oct-08				28.595	
(U) Digital Communications Improvement (DCI)	SS/CPIF	Boeing, Long Beach, CA	2.889	1.224	Feb-08	0.040	Dec-08				4.153	
(U) 16-Carry	SS/CPIF	Boeing, Long Beach, CA		8.800	Apr-08	4.160	Sep-08				12.960	
(U) System Configuration	SS/CPIF	Boeing, Long Beach, CA		0.108	Apr-08						0.108	
(U) Tech Order Enhancement	SS/CPIF	Boeing, Long Beach, CA		1.500	Dec-07						1.500	
(U) JEFX 2008		OC-ALC, Tinker AFB, OK		0.500	Dec-07						0.500	
(U) Software support	SS/CPIF	Boeing, Long Beach, CA		0.060	May-08						0.060	
Subtotal Product Development			273.302	172.552		133.645		0.000		0.000	579.499	0.000
Remarks:												
(U) <u>Support</u>												
(U) A&AS	Various		3.962	2.949	Jan-08	4.325	Jan-09				11.236	
(U) Studies & Analyses / Modeling & Sim	C/FPIF	Rockwell Collins,	0.537	0.262	Jan-08	1.069	Jan-09				1.868	

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Exhibit R-3 (PE 0604226F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)		0604226F B-1B				4596 Conventional Mission Upgrades				
	Sterling VA									
	Subtotal Support	4.499	3.211		5.394	0.000		0.000	13.104	0.000
	Remarks:									
(U)	<u>Test & Evaluation</u>									
	(U) AFFTC P.O.	65.947	4.671	Dec-07	3.604	Dec-08			74.222	
	Subtotal Test & Evaluation	65.947	4.671		3.604	0.000		0.000	74.222	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	343.748	180.434		142.643	0.000		0.000	666.825	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604226F B-1B

PROJECT NUMBER AND TITLE
4596 Conventional Mission Upgrades

Development Activity



CA - Contract Award	△ Forecast Activity
MS - Milestone	▲ Completed
PDR - Preliminary Design Review	■ RDT&E Funding
CDR - Critical Design Review	Ⓞ Grounding Item
FRP DR - Full Rate Production Decision Review	
HW - Hardware	
LCTP - Laptop Controlled Targeting Pod	
RAA - Required Assets Available	
UNR - Urgent Need Request	

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Exhibit R-4 (PE 0604226F)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

4596 Conventional Mission Upgrades

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Gyro Stab Sys (GSS) -- MS C	2Q		
(U) Vertical Situation Displays (VSD) Upgrade -- CDR	1Q		
(U) RADAR Improvement Upgrade -- CDR	2Q		
(U) Inertial Nav Sys (INS) -- MS B	2Q		
(U) Inertial Nav Sys (INS) -- PDR		1Q	
(U) Inertial Nav Sys (INS) -- CDR		2Q	
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) Software Migration - CDR		1Q	
(U) Laptop Controlled Targeting Pod (LCTP) -- RAA	4Q		

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PE NUMBER: 0604233F
 PE TITLE: Specialized Undergraduate Pilot Training

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.033	13.426	6.227	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4102 Joint Primary Aircraft Training System (JPATS)	4.665	8.265	2.281	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4376 T-38 Avionics Upgrade Program (AUP)	9.368	5.161	3.946	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification
 Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training (SUPT) and the Department of Defense initiative for joint pilot training. The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and associated Ground Based Training Systems (GBTS). The Air Force is the Executive Service. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training.

JPATS T-6 FY2008 - FY2010 includes annual funding for the development and test of upgrades and enhancements to both the aircraft and the Ground Based Training System (GBTS) hardware and software components.

T-38 FY2008 - FY2010 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. FY2008-FY2010 includes development funding for improved T-38 brakes.

This program element is in Budget Activity 5, System Development and Demonstration (SDD), because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	14.927	7.462	3.977
(U) Current PBR/President's Budget	14.033	13.426	6.227
(U) Total Adjustments	-0.894	5.964	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.036	
Congressional Increases		6.000	
Reprogrammings	-0.550		
SBIR/STTR Transfer	-0.344		

(U) Significant Program Changes:
 FY2008 includes a transfer to Small Business Innovation Research (SBIR) and reprogrammings to support higher Air Force priorities.

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

FY2009 includes a Congressional increase for an AT-6B capabilities demonstration for the Air National Guard, as well as Congressional rescissions.

FY2010 includes a funding increase to correctly phase the development of the T-38 Improved Brake Systems Program (IBSP).

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training			PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4102 Joint Primary Aircraft Training System (JPATS)	4.665	8.265	2.281	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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.

FY2008 and FY2009 include Congressional increases to develop/demonstrate potential Air National Guard (ANG) operational mission capabilities for the AT-6B.

FY2008-FY2010 JPATS funding requests are used to develop and test upgrades and enhancements to program hardware and software components.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) JPATS studies & development efforts.	2.335	2.287	2.281
(U) AT6B	2.330	5.978	0.000
(U) Total Cost	4.665	8.265	2.281

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other APPN										
(U) Aircraft Procurement, Air Force, BA-3										
(U) JPATS	231.427	27.579	15.711							2,456.848
(U) JPATS, BA-6	0.000	15.954	2.515							TBD
(U) JPATS Mod Funding	16.974	20.697	33.074							TBD
(U) JPATS Post Production	0.000	0.000	0.000							TBD
(U) Military Construction, Air										

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)
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(U) C. Other Program Funding Summary (\$ in Millions)

Force					
(U) PE 0804741F, JPATS	0.000	0.000	0.000		20.200
(U) RDT&E, Navy, BA-7					
(U) PE 0603208N, Training System Aircraft, H1150, JPATS	0.000	0.000	0.000		11.300
(U) Aircraft Procurement, Navy, BA-3	293.231	289.253	285.183		TBD
(U) JPATS					
(U) APN 5 Mod Funding	8.205	8.892	6.976		TBD
(U) APN 6 Spares	16.641	8.637	8.686		TBD
(U) Military Construction, Navy	23.850	0.000	0.000		120.763

(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 follow-on contract for both the air vehicle and GBTS was awarded as a FAR Part 15 action.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604233F Specialized Undergraduate Pilot Training						4102 Joint Primary Aircraft Training System (JPATS)		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
JPATS	C/FPI	HBC, Wichita KS	2.316	2.335	May-08	2.287	Dec-08	2.281	Dec-09	Continuing	TBD	TBD
AT-6B	TO	Georgia Technical Research Institute (GTRI), Atlanta GA	2.330	2.330	Mar-09	5.978	Mar-09			0.000	10.638	TBD
Subtotal Product Development			4.646	4.665		8.265		2.281		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 & 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			4.646	4.665		8.265		2.281		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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)

JPATS Schedule

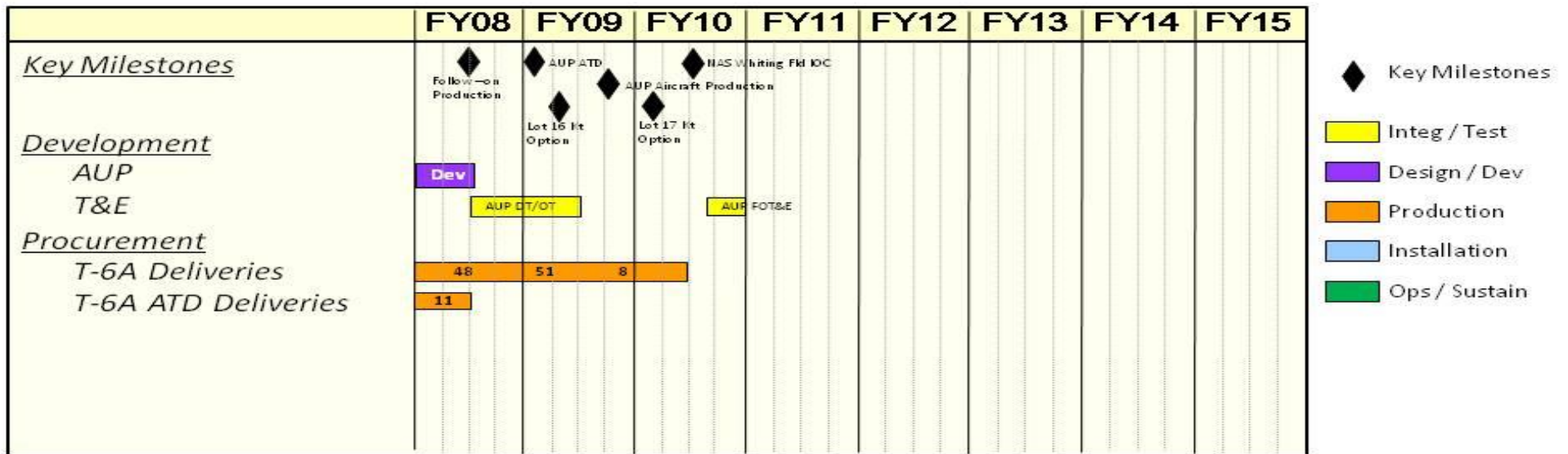


Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4102 Joint Primary Aircraft Training System (JPATS)
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) JPATS Landing Gear Handle Redesign	1Q	2Q	
(U) JPATS Universal Water-Activated Release System (UWARS)	4Q	4Q	
(U) JPATS Parachute Surveillance System Development	1Q	1Q	4Q
(U) JPATS Integrated Data Acquisition Recording System (IDARS) Memory Upgrade / Military Flight Operations Quality Assurance (MFOQA)	4Q	4Q	
(U) JPATS Aircrew Training Device (ATD) Visual System Development		1-4Q	
(U) JPATS Engine Studies	3Q		
(U) JPATS Instrument Hood Development		3Q	4Q
(U) JPATS Power Control Lever Protection	4Q	4Q	

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4376 T-38 Avionics Upgrade Program (AUP)	9.368	5.161	3.946	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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 2008 - FY2010 funding is to develop and test aircraft and ATD hardware/software block updates, mission planning software, requirements driven by DoD, FAA and National Aerospace System (NAS) mandated changes (Crash Survivable Flight Data Recorder, Cockpit Voice Recorder, Emergency Locator Transmitter, etc.), enhancements identified during test and evaluation Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues such as Selective Availability Anti-Spoofing Module (SAASM), and precision and GPS approaches. Other upgrades will include enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations, such as a scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Companion Aircraft Model (CAM) operations.

FY 2008 - FY 2010 include development funding for the T-38C Improved Brake System Program (IBSP). This effort will include development/missionization of Non Developmental Items (NDI)/Commercial Off The Shelf (COTS) brakes, wheels, and anti-skid systems as well as necessary flight testing, validation, and any additional studies and analysis.

Budget Activity Justification. This project is in Budget Activity 5, System Development and Demonstration (SDD), because it primarily involves the missionization of NDI or COTS equipment, and components.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop and test Block 7 AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.	1.372		
(U) Develop and test Block 8 AUP aircraft and ATD hardware/software upgrades, mission planning software,		1.598	

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.			
(U) Develop and test Block 9 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. Block 9 is not scheduled to be complete until FY2012, due to 2 year block upgrade cycle vs. 1 year cycle.			1.581
(U) Improved Brake System Program, wheel and brake replacement, anti-skid capability modification and its associated integration issues, studies and analyses	7.996	3.563	2.365
(U) Total Cost	9.368	5.161	3.946

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other APPN										
(U) PE 0804741F, T-38 Avionics Upgrade, BP 1100	0.776	0.000	0.000							510.596
(U) PE 0804741F, T-38 Improved Brakes, BP 1100	0.000	9.770	14.217							TBD

(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 pricing was negotiated for the period FY2005-2008 for the CLS contract, subsequently pricing was solicited for FY09 T-38C CLS requirements. FY2005-2010 block updates are being executed under the new contract.

The T-38C IBSP competitive source selection includes 3 years of development and 6 years of production.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604233F Specialized Undergraduate Pilot Training					4376 T-38 Avionics Upgrade Program (AUP)			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Avionics Upgrade Program (AUP)	C/CPAF	The Boeing Corporation St. Louis MO	5,703.264	1.372		1.598		1.581		Continuing	TBD	TBD
Improved Brake System Program (IBSP)	PO	TBD		7.996	Jul-09	3.563	Jul-09	2.365		0.000	13.924	TBD
Subtotal Product Development			5,703.264	9.368		5.161		3.946		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 & Evaluation</u>											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			5,703.264	9.368		5.161		3.946		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

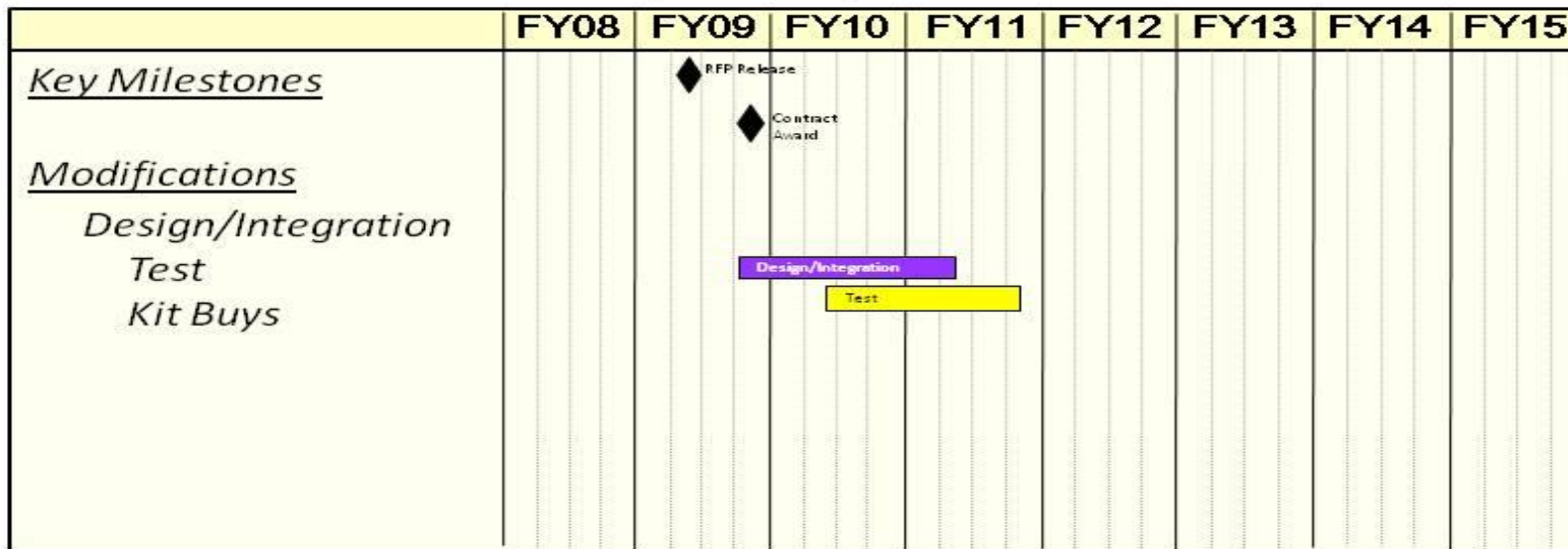
May 2009

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)

T-38 Improved Brake System Program (IBSP) Schedule



- ◆ Key Milestones
- Integ / Test
- Design / Dev
- Production
- Installation
- Ops / Sustain

Exhibit R-4, RDT&E Schedule Profile

DATE

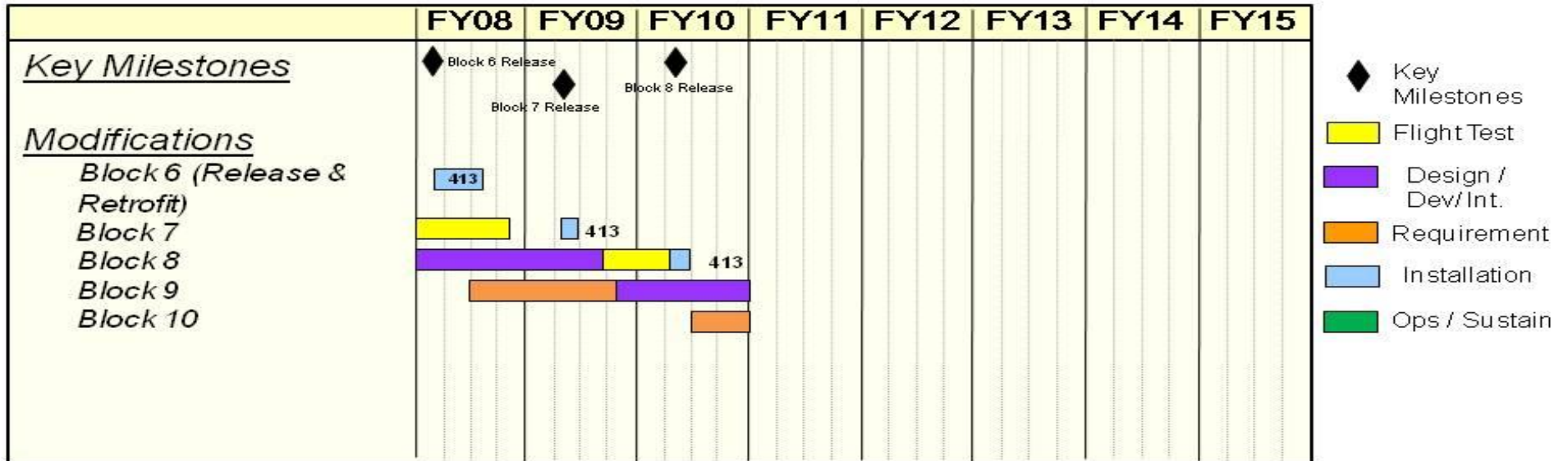
May 2009

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)

T-38 Avionics Upgrade Program (AUP)



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training	PROJECT NUMBER AND TITLE 4376 T-38 Avionics Upgrade Program (AUP)
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile			
(U) AUP Block 6 Retrofit and Release	1-3Q		
(U) AUP Block 7 Implementation	3Q		
(U) AUP Block 7 Flight Test	3-4Q		
(U) AUP Block 7 Retrofit and Release		2Q	
(U) AUP Block 8 Implementation		3Q	
(U) AUP Block 8 Flight Test		3Q	2Q
(U) AUP Block 8 Retrofit and Release			2Q
(U) AUP Block 9 Implementation		4Q	2Q
(U) IBSP Requirements	3Q		
(U) IBSP Proposal Preparation/Source Selection	4Q	3Q	
(U) IBSP Contract Award		4Q	
(U) IBSP Design Intergration		4-Q	
(U) IBSP Test			1Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	277.880	364.076	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3843 B-2 Advanced Technology Bomber	277.880	364.076	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY10, Project Number 653843, B-2 Advanced Technology Bomber efforts are transferring from PE 0604240F, B-2 Advanced Technology Bomber, to PE 0101127F, B-2 Squadrons, transferring funds/efforts from MFP 6 to MFP 1.

(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, precision payload and stealth (anti-access for both nuclear and conventional missions) characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, return home safely, and permit freedom of movement for follow-on forces such as F-22, F-35, and other Long Range Strike platforms. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility, lethality, and survivability of this national asset tasked across a broad spectrum, from tactical to national objectives. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode 5/S Identification Friend or Foe (IFF), Defensive Management System (DMS), Integrated Display Systems (IDS) and advanced, low detection data link upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades, such as but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. Integrated Display systems, radar, and Defensive Management System upgrades improve system performance, increase reliability and supportability, and counters grounding and hardware obsolescence. These system upgrades will transition from the current analog design to modern digital technology providing enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (SR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Integrated Display Systems upgrade will provide processors, fiber optics, Ethernet, and associated architecture required to support advanced weapon system capabilities. The full display system upgrade includes Multi-function Display Units (MDU), discrete collector units, switching units, and the necessary wiring modifications to support the B-2 mission, precluding potential FY12 non-mission capable events. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

system. Defensive Management System upgrades and improved displays are essential to reducing non-mission capable events, meeting Aircraft Availability Improvement Program (AAIP) goals in this aging aircraft. New Triad (electro-magnetic pulse (EMP) hardening) requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Finally, advanced data links will permit B-2 to communication with other stealth platforms in an anti-access environment to enhance situation awareness and to permit time-critical targeting and engagement.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The B-2 is the only anti-access penetrating platform capable of carrying the MOP. The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDM II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as high-resolution, streaming video for visual identification and precision targeting, both in the cockpit and via airborne networking. The MOP and MTK projects will design, develop, integrate, and test hardware and software required for carriage, jettison, and release of both weapons from the B-2. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability. Engine upgrades are necessary to maintain commonality with the F110 engine core.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing and other LO materials development, hot structures, tailpipe material improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, radar frequency diagnostics and other LO diagnostic tools development such as improvements of the Signature Diagnostic System database, Low Observable Combat Readiness Model, and other low observable information systems. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer Upgrade, mixed weapon load-outs, Universal Armament Interface, and

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

Global Positioning System (GPS) M-code receivers.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	295.945	351.417	0.000
(U) Current PBR/President's Budget	277.880	364.076	0.000
(U) Total Adjustments	-18.065	12.659	
(U) Congressional Program Reductions		-18.511	
Congressional Rescissions		-0.990	
Congressional Increases		32.160	
Reprogrammings	-9.999		
SBIR/STTR Transfer	-8.066		

(U) **Significant Program Changes:**

FY08 funds were re-aligned to higher Air Force priorities. Integrated Strike Warfare and Advanced Tactical Data Link funding was added by Congressional Plus-up in the FY09 Appropriations Bill. In FY10, Project Number 653843, B-2 Advanced Technology Bomber efforts are transferring from PE 0604240F, B-2 Advanced Technology Bomber, to PE 0101127F, B-2 Squadrons, transferring funds/efforts from Major Force Program 6 (MFP 6 = Research & Development) to MFP 1 (Strategic Forces).

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0604240F B-2 Advanced Technology Bomber						3843 B-2 Advanced Technology Bomber		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3843 B-2 Advanced Technology Bomber	277.880	364.076	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, Project Number 653843, B-2 Advanced Technology Bomber efforts are transferring from PE 0604240F, B-2 Advanced Technology Bomber, to PE 0101127F, B-2 Squadrons, transferring funds/efforts from MFP 6 to MFP 1.

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

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Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode 5/S Identification Friend or Foe (IFF), Defensive Management System (DMS), Integrated Display Systems (IDS) and advanced, low detection data link upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades, such as but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. Integrated Display systems, radar, and Defensive Management System upgrades improve system performance, increase reliability and supportability, and counters grounding and hardware obsolescence. These system upgrades will transition from the current analog design to modern digital technology providing enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (SR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Integrated Display Systems upgrade will provide processors, fiber optics, Ethernet, and associated architecture required to support advanced weapon system capabilities. The full display system upgrade includes Multi-function Display Units (MDU), discrete collector units, switching units, and the necessary wiring modifications to support the B-2 mission, precluding potential FY12 non-mission capable events. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. Defensive Management System upgrades and improved displays are essential to reducing non-mission capable events, meeting Aircraft Availability

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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

Improvement Program (AAIP) goals in this aging aircraft. New Triad (electro-magnetic pulse (EMP) hardening) requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Finally, advanced data links will permit B-2 to communication with other stealth platforms in an anti-access environment to enhance situation awareness and to permit time-critical targeting and engagement.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The B-2 is the only anti-access penetrating platform capable of carrying the MOP. The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDM II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as high-resolution, streaming video for visual identification and precision targeting, both in the cockpit and via airborne networking. The MOP and MTK projects will design, develop, integrate, and test hardware and software required for carriage, jettison, and release of both weapons from the B-2. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability. Engine upgrades are necessary to maintain commonality with the F110 engine core.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing and other LO materials development, hot structures, tailpipe material improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, radar frequency diagnostics and other LO diagnostic tools development such as improvements of the Signature Diagnostic System database, Low Observable Combat Readiness Model, and other low observable information systems. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer Upgrade, mixed weapon load-outs, Universal Armament Interface, and Global Positioning System (GPS) M-code receivers.

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber	PROJECT NUMBER AND TITLE 3843 B-2 Advanced Technology Bomber
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This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning, Trainer support, long range planning, studies, program integration activities, acquisition planning, and other government costs.	10.012	18.053	
(U) Continue development of Aft Deck, Low Observable improvements, Mode 5/S IFF, Proximity Sensor Logic Unit (PSLU), Moving Target Kill (MTK), Massive Ordnance Penetrator (MOP), Display Systems, Defensive Management System (DMS), Integrated Windshield Solution, Trainer Upgrades, and other airframe and avionics improvements.	31.183	40.407	
(U) Begin development of Integrated Strike Warfare and Advanced Tactical Data Link improvements.		23.854	
(U) Continue development of EHF SATCOM and Computers to include Increment 1 Component Advanced Design (CAD), Increment 1 System Development and Demonstration (SDD) and design and fabrication of new and modified components for two test aircraft and two Force Development Evaluation (FDE) aircraft, and Increment 2 CAD and SDD	123.947	198.444	
(U) Continue development of Radar Modernization Program including continuing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units.	112.738	83.318	
(U) Total Cost	277.880	364.076	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) A/C Proc, AF, Modifications/BA05/B-2A/A dv Proc (XX302)		49.665								
(U) A/C Proc, AF, Modifications/BA05/B-2A	97.716	298.246								
(U) A/C Prod, AF, Post Prod Support/BA07/ICS (XX50)	27.637	36.683								
(U) A/C Prod, AF, Post Prod Support/BA07/PPS	17.675	0.000								
(U) A/C Proc, AF, A/C Initial	1.249	0.828								

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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)**

Spares/BA06/B-2A

(U) A/C Proc, AF, Depot Activation/BA07/B-2A	0.000	19.507
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(U) Proc (Other), AF/BA 02,03, 04/B-2A	4.204	4.346
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(U) **D. Acquisition Strategy**

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee (CPAF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604240F B-2 Advanced Technology Bomber				3843 B-2 Advanced Technology Bomber				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Air Vehicle	Multiple	Various		261.280	Oct-07	338.333	Oct-08				599.613	
Aircrew Training	Multiple	Various		0.125	Jan-08	3.150	Jan-09				3.275	
Mission Planning	Multiple	Various		2.502	Jan-08	1.731	Jan-09				4.233	
Engines	Multiple	Various		0.000		0.000					0.000	
Subtotal Product Development			0.000	263.907		343.214		0.000		0.000	607.121	0.000
Remarks:												
(U) <u>Support</u>												
Other Govt Costs	N/A	Various		7.218	Oct-07	13.127	Oct-08				20.345	
Subtotal Support			0.000	7.218		13.127		0.000		0.000	20.345	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Govt Test	N/A	AFFTC		6.755	Oct-07	7.735	Oct-08				14.490	
Subtotal Test & Evaluation			0.000	6.755		7.735		0.000		0.000	14.490	0.000
Remarks:												
(U) <u>Management</u>												
Cancelled Year Invoices	N/A	Various		0.000	Mar-08	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	277.880		364.076		0.000		0.000	641.956	0.000
Award dates listed are the first incremental funding opportunity associated with cost categories												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

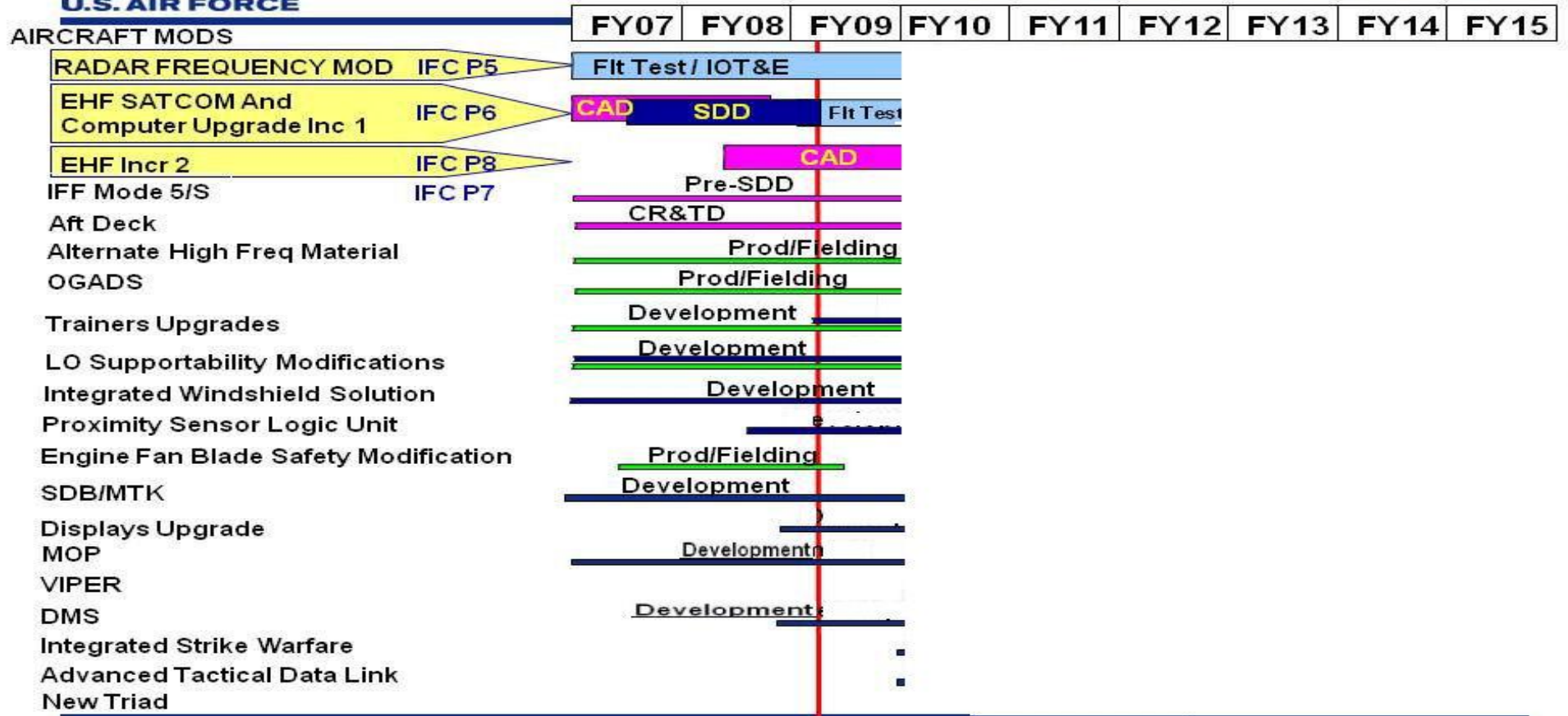
PE NUMBER AND TITLE
0604240F B-2 Advanced Technology Bomber

PROJECT NUMBER AND TITLE
3843 B-2 Advanced Technology Bomber



U.S. AIR FORCE

B-2 Detailed Schedule



★ Initial Operational Capability

As of: 30 Nov 08 ¹

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

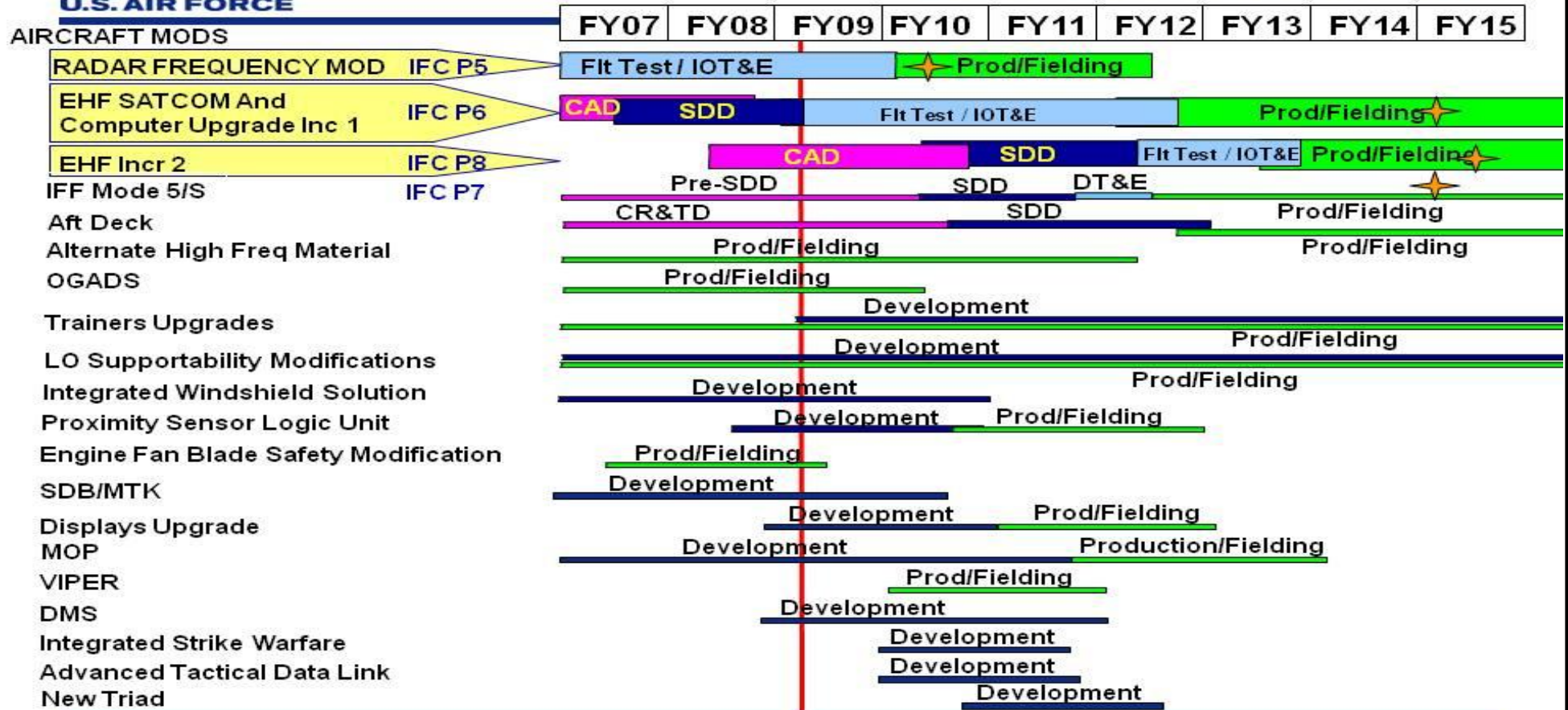
PE NUMBER AND TITLE
0604240F B-2 Advanced Technology Bomber

PROJECT NUMBER AND TITLE
3843 B-2 Advanced Technology Bomber



U.S. AIR FORCE

B-2 Detailed Schedule



★ Initial Operational Capability

As of: 30 Nov 08 ¹

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber	PROJECT NUMBER AND TITLE 3843 B-2 Advanced Technology Bomber
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) EHF Increment 1 SDD Flight Test Begins		3Q	
(U) EHF Increment 2 CAD Contract Award	2Q		
(U) Mode S/5 IFF MS B Prep Contract Award		3Q	
(U) Proximity Sensor Logic Unit Contract Award	3Q		
(U) SDB/Moving Target Kill Contract Award	3Q		
(U) Massive Ordnance Penetrator Contract Award	3Q		
(U) Displays Upgrade Contract Award	4Q		
(U) Defensive Management System Contract Award	4Q		
(U) Integrated Strike Warfare Contract Award		4Q	
(U) Advanced Tactical Data Link Contract Award		4Q	
FY10 - FY15 efforts are addressed in PE 0101127F			

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PE NUMBER: 0604261F
 PE TITLE: Personnel Recovery Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	60.344	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.626
5213 CSAR-X	50.407	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	197.689
5249 HC-130Recap	9.937	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.937

In FY 2007, Project Number 5213, CSAR-X, RDT&E efforts were transferred from PE 0207224F, Combat Rescue and Recovery, CSAR-X, to more accurately reflect funding within the CSAR-X program.

The FY 2009 PB separates the CSAR-X and HC-130Recap projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

Procurement funding for CSAR-X remains in PE 0207224F and is reported in P-Docs.

Procurement funding for HC/MC-130 Recap is included in Air Combat Command PE 0207224F and Air Force Special Operations Command PE 0207230F, as reported in P-Docs.

(U) A. Mission Description and Budget Item Justification

Program Element 0604261F includes development projects 5213, 5249, and for the Combat Search and Rescue Replacement Vehicle (CSAR-X), HC-130 Recapitalization (Recap), respectively. The FY 2008 PB, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. For more detailed information regarding these programs see the respective R-2a exhibits under the new PEs.

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The HC-130 Recapitalization (Recap) Program will augment and eventually replace the aging USAF fleet of Combat Rescue Tanker (CRT) aircraft which is experiencing airworthiness, maintainability, and operational limitations. The low density/high demand CRT fleet consists of several C-130 variants--37 aircraft in all--in Active Duty, Air Force Reserve, and Air National Guard squadrons.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	290.059	0.000	
(U) Current PBR/President's Budget	104.289	0.000	
(U) Total Adjustments	-185.770	0.000	
(U) Congressional Program Reductions	-185.111		
Congressional Rescissions	-0.659		
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

- CSAR-X: Based on contract award delays Congress rescinded \$92M of FY07 funding and reduced the FY08 President's Budget by \$185.7M. Additionally, the conferees directed that \$99M of the \$185M CSAR-X reduction be directed to maintaining and upgrading the HH-60G CSAR platform so that it may safely and effectively perform the mission until CSAR-X is operational.

- The FY 2009 PB separates the CSAR-X and HC-130Recap projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

- CSAR-X program successfully completed a Block 0 Milestone B in November 2006. This budget reflects Milestone B Block 0 FY08 requirements.

- HC-130 Recap was a New Start in FY08 with funds transferred from terminated "HC-130 Conversion Program," PE 0207224F, BPAC 655249

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5213 CSAR-X	50.407	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	197.689
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The 2009 PB separates the two projects into distinct PEs (0605277 and 0605278, respectively) to provide more budget clarity.

The CSAR-X program is currently in source selection with an anticipated contract award date in 1st Quarter FY 09. Costs and schedules are offeror dependent. Budgets and procurement profile will be updated after contract award to reflect the cost and schedule within the approved Acquisition Program Baseline. The updated information will be reflected after completion of Source Selection.

(U) A. Mission Description and Budget Item Justification

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide the USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, to include passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: RDT&E funding includes, but is not limited to, the development of three Block 0 Test Vehicles, non-recurring engineering, software development, integration, testing and certification of the CSAR-X mission components required by the Capability Development Document (CDD), as well as simulator development for both aircrew and maintenance trainers.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SPO support to include, but not limited to the development of test and evaluation master plan, preparation of Block 10 Milestone (MS) A and Block 0 MS C documentation, and execution of SDD contract.	5.906		
(U) Studies and Analysis	1.393		
(U) Government Test & Evaluation	4.711		
(U) Development Support	0.000		
(U) Software	0.000		
(U) Simulator Development	0.000		

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604261F Personnel Recovery Systems	PROJECT NUMBER AND TITLE 5213 CSAR-X
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 0 System Development and Demonstration (SDD) to include, but not limited to non-recurring engineering, test vehicle, software, simulator development, and data.	38.397		
(U) Block 10 Development to include, but not limited to non-recurring engineering, test vehicle, software, simulator development, and data.			
(U) Total Cost	50.407	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, AF PE 0605277		232.232	89.775							Continuing	TBD

(U) D. Acquisition Strategy

The CSAR-X program will pursue an incremental development strategy composed of Block 0 and Block 10 increments, each with separate milestone decision points. Block 0 will include development and fielding of a new Combat Search and Rescue (CSAR) weapon system. Block 0 will correct HH-60G force-size shortfalls while improving current CSAR capabilities of range, payload, armament, and defensive systems. Block 10 will provide for the insertion of additional systems and improved technologies into the CSAR-X to meet all thresholds stated in the CDD.

Block 0 production deliveries is planned to begin in FY12. At the conclusion of Block 10 Operational Testing, the program will begin Block 10 aircraft production and the retrofitting of Block 0 aircraft to a Block 10 configuration. The program will procure and field 141 CSAR-X helicopters along with support equipment, spares, aircrew and maintenance trainers, and associated Type 1 training.

Block 10 development is planned to begin in FY10 after a successful Milestone A decision. Block 10 will develop two Test Vehicles to the Block 10 configuration allowing for design, integration, and testing of the Block 10 capabilities.

The program is currently in source selection and development schedules are offeror dependent.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604261F Personnel Recovery Systems				5213 CSAR-X				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>FY 2010</u> <u>Cost</u>	<u>FY 2010</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>												
Studies & Analysis	Various	Various		1.393							1.393	
Block 0 SDD	CPIF/AF	TBD		38.397							38.397	
Test Vehicle	CPIF/AF	TBD		0.000							0.000	
Software	CPIF/AF	TBD		0.000							0.000	
Simulator Development	CPIF/AF	TBD		0.000							0.000	
Block 10 SDD	CPIF/AF	TBD		0.000							0.000	
Subtotal Product Development			0.000	39.790		0.000		0.000		0.000	39.790	0.000
Remarks:												
(U) <u>Support</u>												
Development Support	CPIF/AF	TBD		0.000							0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Gov't Test & Evaluation		46 TW, Eglin AFB, FL		4.711							4.711	
Contractor Test & Evaluation	CPIF/AF	TBD		0.000							0.000	
Subtotal Test & Evaluation			0.000	4.711		0.000		0.000		0.000	4.711	0.000
Remarks:												
(U) <u>Management</u>												
SPO Support				5.906							5.906	
Subtotal Management			0.000	5.906		0.000		0.000		0.000	5.906	0.000
Remarks:												
(U) Total Cost			0.000	50.407		0.000		0.000		0.000	50.407	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604261F Personnel Recovery
Systems

PROJECT NUMBER AND TITLE
5213 CSAR-X

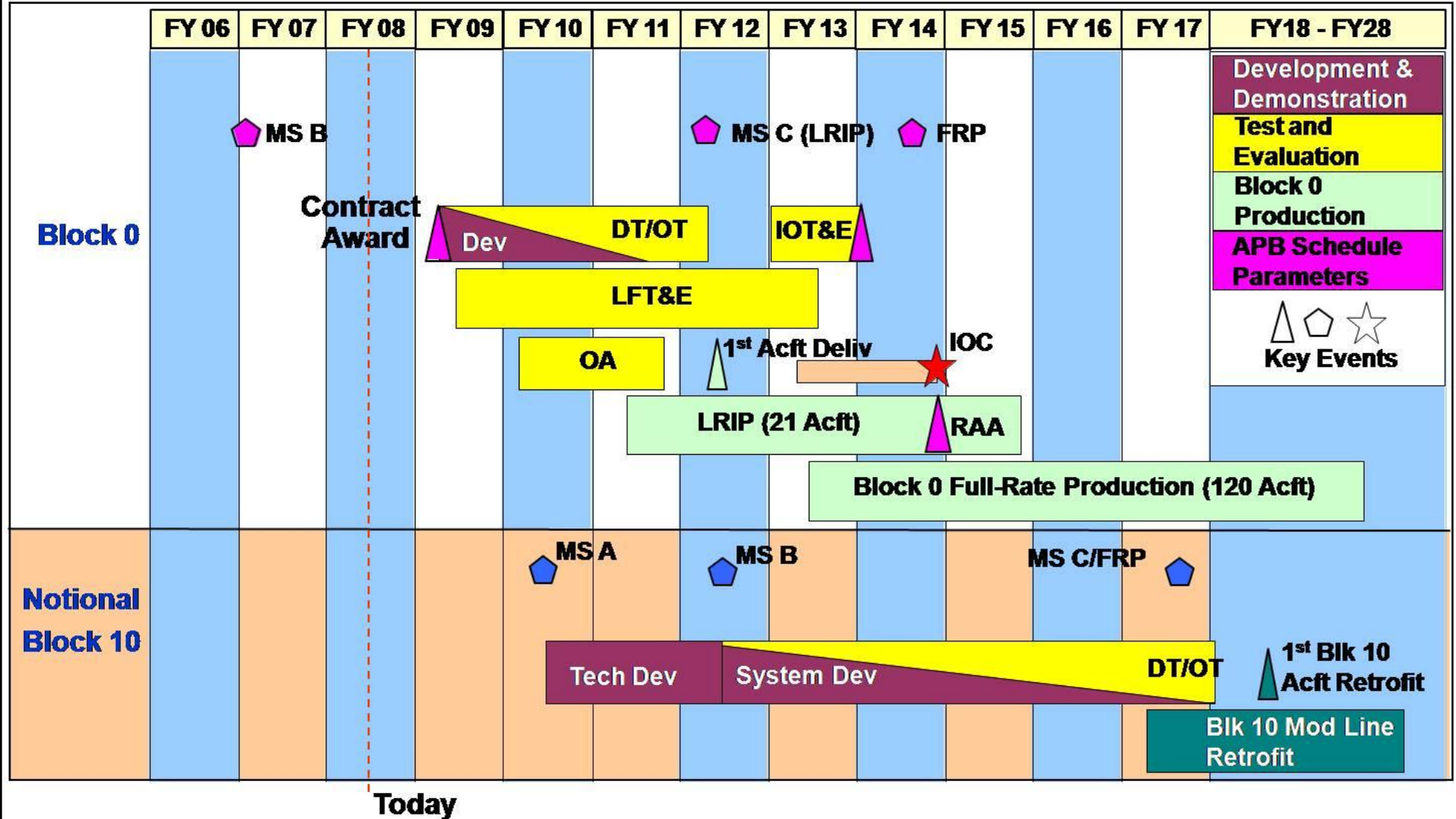


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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 Profile

FY 2008

FY 2009

FY 2010

(U) Conduct CSAR-X Source Selection (Amendment 6)

1-4Q

(U) Block 0 Contract Award (Including Amendment 6)

1Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604261F Personnel Recovery Systems			PROJECT NUMBER AND TITLE 5249 HC-130Recap		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5249 HC-130Recap	9.937	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.937
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. HC/MC-130 Recap was a FY 2008 New Start.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Acquisition Planning, Milestone Preparation, RFP development and Source Selection Activities	2.101		
(U) Systems Engineering and Integration	4.000		
(U) Test and Evaluation Planning, Conduct and Support	3.836		
(U) Total Cost	9.937	0.000	0.000

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

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) HC/MC-130 Recap RDT&E PE 0605278F	0.000	11.692	10.054	4.015	2.504	2.500			Continuing	TBD
(U) HC/MC-130 Recap APAF (Including Advance Procurement)	75.221	587.677	734.688	671.980	608.478	588.465			Continuing	TBD

(U) D. Acquisition Strategy

AF plans to procure modified KC-130Js in FY 2009 and FY 2010 to meet the Warfighter's immediate requirement and conduct a business case analysis to determine the acquisition strategy to procure the remaining aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604261F Personnel Recovery Systems				5249 HC-130Recap				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Systems Engineering and Integration	TBD	TBD	4.000	Nov07				0.000			0.000	TBD
Subtotal Product Development			4.000	0.000		0.000		0.000		0.000	0.000	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 & Evaluation</u>												
Test and Evaluation Conduct	TBD	TBD	2.000	Mar08							0.000	TBD
Test and Evaluation Support	TBD	TBD	1.836	Mar08							0.000	TBD
Subtotal Test & Evaluation			3.836	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Management</u>												
SPO Support	TBD	TBD	2.101								2.101	TBD
Subtotal Management			2.101	0.000		0.000		0.000		0.000	2.101	TBD
Remarks:												
(U) Total Cost			9.937	0.000		0.000		0.000		0.000	2.101	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604261F Personnel Recovery
Systems

PROJECT NUMBER AND TITLE
5249 HC-130Recap

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HC/MC-130 Recapitalization Program Schedule

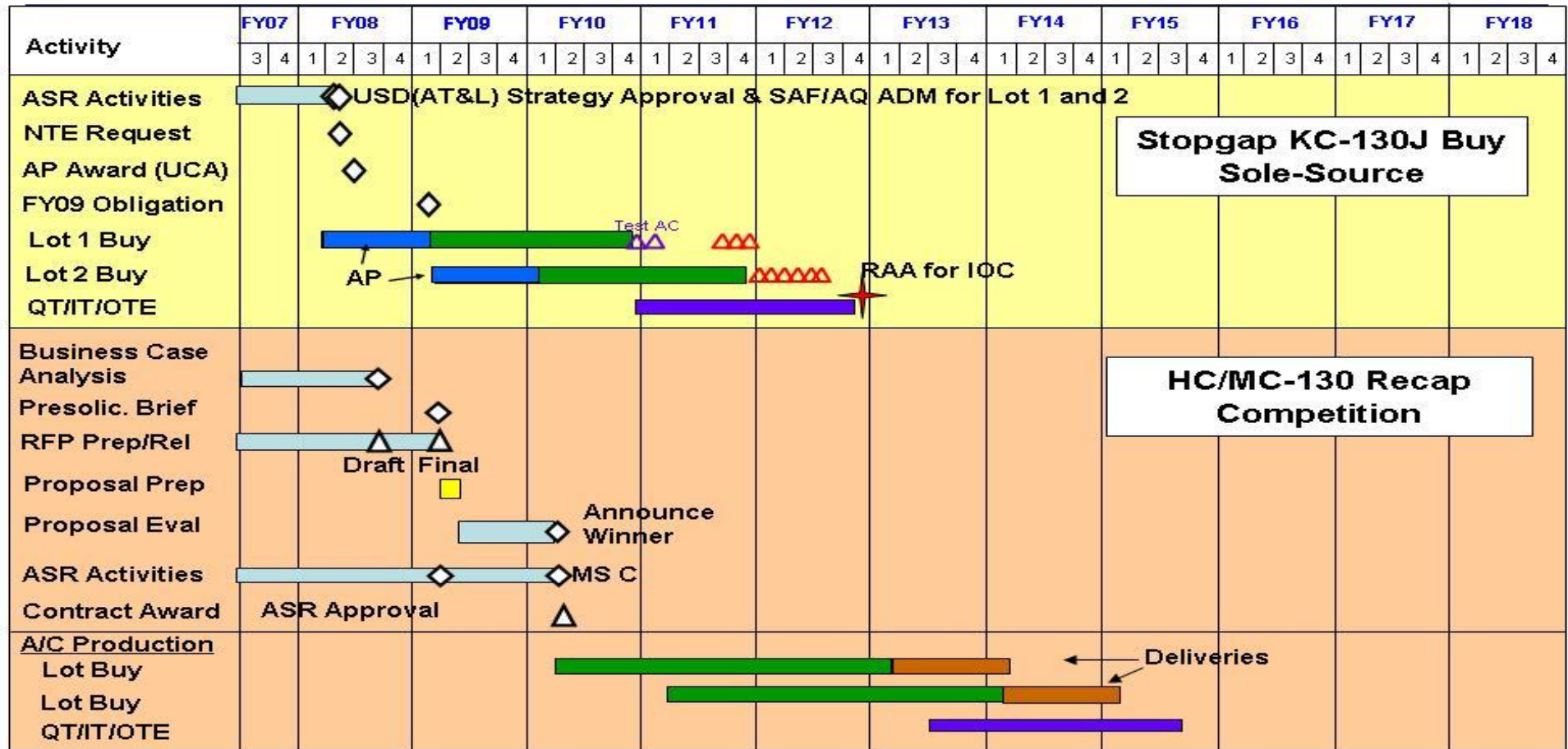


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

PROJECT NUMBER AND TITLE

5249 HC-130Recap

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

- (U) Conduct Market Research
- (U) Develop Acquisition Strategy
- (U) JROC Validation of CDD
- (U) Acquisition Strategy Approval
- (U) Advance Procurement Contract Award (Lot 1)
- (U) Production Contract Award (Lot 1)
- (U) Advance Procurement Contract Award (Lot 2)

1Q
2Q
2Q

1Q
1Q

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PE NUMBER: 0604270F
 PE TITLE: EW Development

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	76.169	56.342	97.275	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4832 Precision Location and Identification (PLAID)	12.907	1.503	2.458	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5305 MALD-J	0.000	0.000	94.817	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
8462 Miniature Air Launched Decoy	63.262	54.839	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

MALD-J efforts, 655305, were part of 658462, MALD, prior to FY10. No efforts are considered New Starts in FY10/11.

(U) A. Mission Description and Budget Item Justification

This program element (PE) consolidates Air Force funding and management of common Electronic Warfare (EW) systems from engineering development through transition to operational capability. EW is an integral part of offensive and defensive Counter-air, Counterland, and Countersea operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electro-magnetic spectrum. This PE supports Electronic Support (ES), Electronic Protection (EP), and Electronic Attack (EA). ES programs support the collection, analysis, and dissemination of information related to the detection, geo-location, characterization, and identification of threats to air operations. EP programs provide self-protection through active and passive measures that deceive threats to air operations. EA programs provide kinetic and non-kinetic means to defeat threats that rely on the electro-magnetic spectrum.

This program is in budget activity 5 - System Development and Demonstration (SDD) because of the common development to meet user requirements that provide electronic warfare combat capability.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	102.601	54.995	86.443
(U) Current PBR/President's Budget	76.169	56.342	97.275
(U) Total Adjustments	-26.432	1.347	
(U) Congressional Program Reductions			
Congressional Rescissions	-14.500	-0.153	
Congressional Increases	1.600	1.500	
Reprogrammings	-11.168		
SBIR/STTR Transfer	-2.364		

(U) Significant Program Changes:

- FY08, Project 658462, \$14.5M of MALD funds rescinded
- FY08 funds reprogrammed for higher Air Force priorities
- FY08 654832 Congress added \$1.6M for Rapid Replacement of Mission Critical Logistics Electronic Components (RRMCLEC). -FY09 654832 Congress added \$1.5M

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

for RRMCLEC.

-FY2010 Project 658462, funds added for continued development of MALD-J

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	12.907	1.503	2.458	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The AN/ALR-69A radar warning receiver (RWR) is an evolutionary development program consisting of a core digital receiver/processor with growth increments. The core ALR-69A program objectives are to improve identification of threat type, detect threat signals while outside of the threat envelop, and operate in a dense signal environment. Evolutionary growth spirals include single and multi-ship precision geolocation (PG) as well as Specific Emitter Identification (SEI). The underlying technologies and algorithms enabling PG and SEI are often collectively referred to as Precision Location and Identification (PLAID).

ALR-69A development is currently focused on a replacement RWR for AFSOC and AMC C-130 aircraft. The ALR-69A is also under consideration by AFSOC, AMC and ACC for integration and installation in other mission design series aircraft.

In FY09 Congress added \$1.5M AF RDT&E funds to the EW Development PE 064270F for "Rapid Replacement of Mission Critical Logistics Electronics Components" (RRMCLEC). Warner Robins Air Logistics Center (ALC) is performing RRMCLEC work and tracking those funds. RRMCLEC will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Raytheon Core C-130 SDD	5.238		1.290
(U) Raytheon Option 11 AT3 ACTD	2.434		
(U) AT3 ACTD Program Office Support	1.008		
(U) Program Office Support		0.041	1.000
(U) Engineering Support	0.564		0.168
(U) AFOTEC Det 1 46 OGS Responsible Test Organization (RTO)	0.778		
(U) AT3 ACTD Test and Evaluation	0.690		
(U) Platform Integration	0.595		
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	1.600	1.462	
(U) Total Cost	12.907	1.503	2.458

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) DARPA Funding (AT3 ACTD)										1.300
(U) OSD Funding (AT3 ACTD)										14.000
(U) PE 0207442F Common ECM Equipment	10.308	10.502	0.000							TBD
(U) PE 0401115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement commenced in FY07	14.767	23.711	0.000							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
May 2009

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) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		5.238	Feb-08			1.290	Oct-09	0.000	6.528	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		2.434	Feb-08					0.000	2.434	8.384
Subtotal Product Development			0.000	7.672		0.000		1.290		0.000	8.962	36.976
Remarks:												
(U) <u>Support</u>												
AT3 Program Office Support	PR	Various Contractors		1.008	Dec-07					0.000	1.008	1.255
Program Office						0.041		1.000	Dec-09		1.041	1.610
Engineering	Various			0.564	Jan-08			0.168	Nov-09	0.000	0.732	2.500
Subtotal Support			0.000	1.572		0.041		1.168		0.000	2.781	5.365
Remarks:												
(U) <u>Test & Evaluation</u>												
AFOTEC Det 1 46 OGS C-130	PO			0.778						0.000	0.778	4.455
AT3 ACTD T&E (Western Test Range)	PO			0.690	May-08						0.690	0.739
Subtotal Test & Evaluation			0.000	1.468		0.000		0.000		0.000	1.468	5.194
Remarks:												
(U)												
Platform Integration - C-130, F-16 AT3 ACTD	Various	Various		0.595	Dec-07					0.000	0.595	7.027
Platform Integration Options 3/4	Various	Various		0.000							0.000	0.395
Subtotal			0.000	0.595		0.000		0.000		0.000	0.595	7.422
Remarks:												
(U)												
Rapid Replacement of Mission Critical Logistics Electronic Components	IDIQ Time and Mats	Scientific Research Corp - Atlanta GA		1.600	Sep-08	1.462					3.062	3.900
Subtotal			0.000	1.600		1.462		0.000		0.000	3.062	3.900
Remarks:												
(U) Total Cost			0.000	12.907		1.503		2.458		0.000	16.868	58.857

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Project 4832

Exhibit R-3 (PE 0604270F)

Exhibit R-4, RDT&E Schedule Profile

DATE

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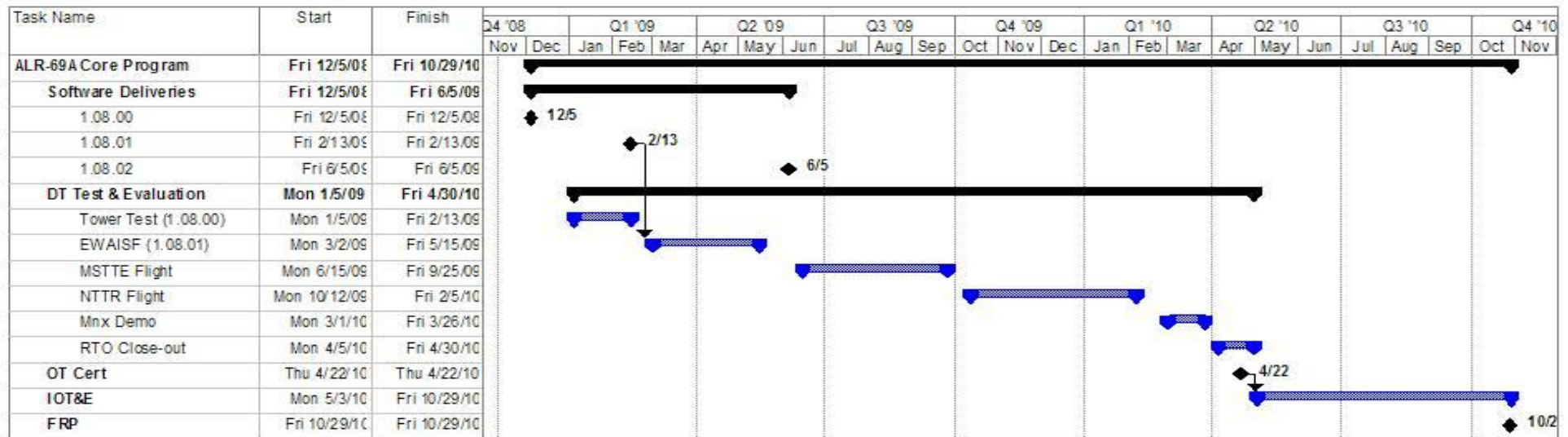
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
4832 Precision Location and Identification (PLAID)



ALR-69A Core Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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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>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile			
(U) Developmental Testing and Evaluation	1-4Q	1-4Q	
(U) Operational Test and Evaluation			3-4Q
(U) LRIP II Decision		2Q	

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604270F EW Development			PROJECT NUMBER AND TITLE 5305 MALD-J	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5305 MALD-J	0.000	0.000	94.817	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

MALD-J efforts were included in Project 658462, Miniature Air Launched Decoy, for FY 2008 and FY 2009.

(U) A. Mission Description and Budget Item Justification

This project develops the Miniature Air Launched Decoy Jammer (MALD-J). The jammer is a variant of the MALD decoy. The decoy and jammer configurations are key enablers supporting the Air Force Global Strike, Global Response, Space and C4ISR, and the Air and Space Expeditionary Force Concepts of Operations. MALD is a low cost, powered, expendable decoy designed to represent the kinematics and radar signature characteristics of various combat aircraft. The MALD will be employed from various aircraft platforms to stimulate, saturate, and deceive an enemy Integrated Air Defense System (IADS) thus increasing the survivability of coalition strike aircraft.

MALD-J will provide stand-in jamming capability for the Airborne Electronic Attack Systems of Systems. MALD-J will be launched against a preplanned target and will jam specific radars in a stand-in role to degrade or deny the IADS detection of friendly aircraft or munitions. MALD-J will be able to operate in both decoy and jammer modes.

Planned efforts for this program are risk reduction (to include prototyping) and System Development and Demonstration (SDD) of the jammer configuration and any other direct variant. This will include design, development, test, aircraft integration, and seamless verification.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MALD-J R/R and SDD CONTRACT			66.550
(U) MALD-J Contractor Support			1.607
(U) MALD-J Program Office Support (Government)			0.800
(U) MALD-J B-52 Aircraft Integration			1.200
(U) MALD-J Mission and Test Support			3.360
(U) MALD-J F-16 Aircraft Integration			0.300
(U) Future MALD-J Variant R/R			21.000
(U) Total Cost	0.000	0.000	94.817

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN (PE 0207442F										
MALD/MALD-J	59.171	56.285	109.552						Continuing	TBD
procurement)										

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

5305 MALD-J

(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.

MALD-J risk reduction is based on a pair of decision points to evaluate progress towards meeting required effectiveness for the jammer payload. The Phase 1 effort is geared toward completing the subsystem design and characterizing effectiveness measures for that design. Phase 2 risk reduction will take the full system through PDR and establish an Integrated Baseline for the following MALD-J SDD program.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604270F EW Development					5305 MALD-J			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Risk Reduction and SDD	CPAF	Raytheon Missile Systems, Tucson, AZ						66.550	Jan-10		66.550	TBD
Improvement Risk Reduction	CPAF	Raytheon Missile Systems, Tucson, AZ						21.000	Jan-10		21.000	
B-52 Aircraft Integration	MIPR	B-52 SPO						1.200	Nov-09		1.200	
F-16 Aircraft Integration	MIPR	F-16 SPO						0.300	Jun-10		0.300	
Subtotal Product Development			0.000	0.000		0.000		89.050		0.000	89.050	TBD
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.											
(U) <u>Support</u> Contractor Support to AAC/308 ARSW/692 ARSS	Various	Various						1.607	Dec-09		1.607	
Subtotal Support			0.000	0.000		0.000		1.607		0.000	1.607	0.000
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.											
(U) <u>Test & Evaluation</u> Government Test Planning	Various	Various	0.000					3.360			3.360	
Subtotal Test & Evaluation			0.000	0.000		0.000		3.360		0.000	3.360	0.000
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.											
(U) <u>Management</u> Program Office Support for AAC/308 ARSW/692 ARSS	Various	Various						0.800			0.800	
Subtotal Management			0.000	0.000		0.000		0.800		0.000	0.800	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and information technology expenses.											
(U) Total Cost			0.000	0.000		0.000		94.817		0.000	94.817	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

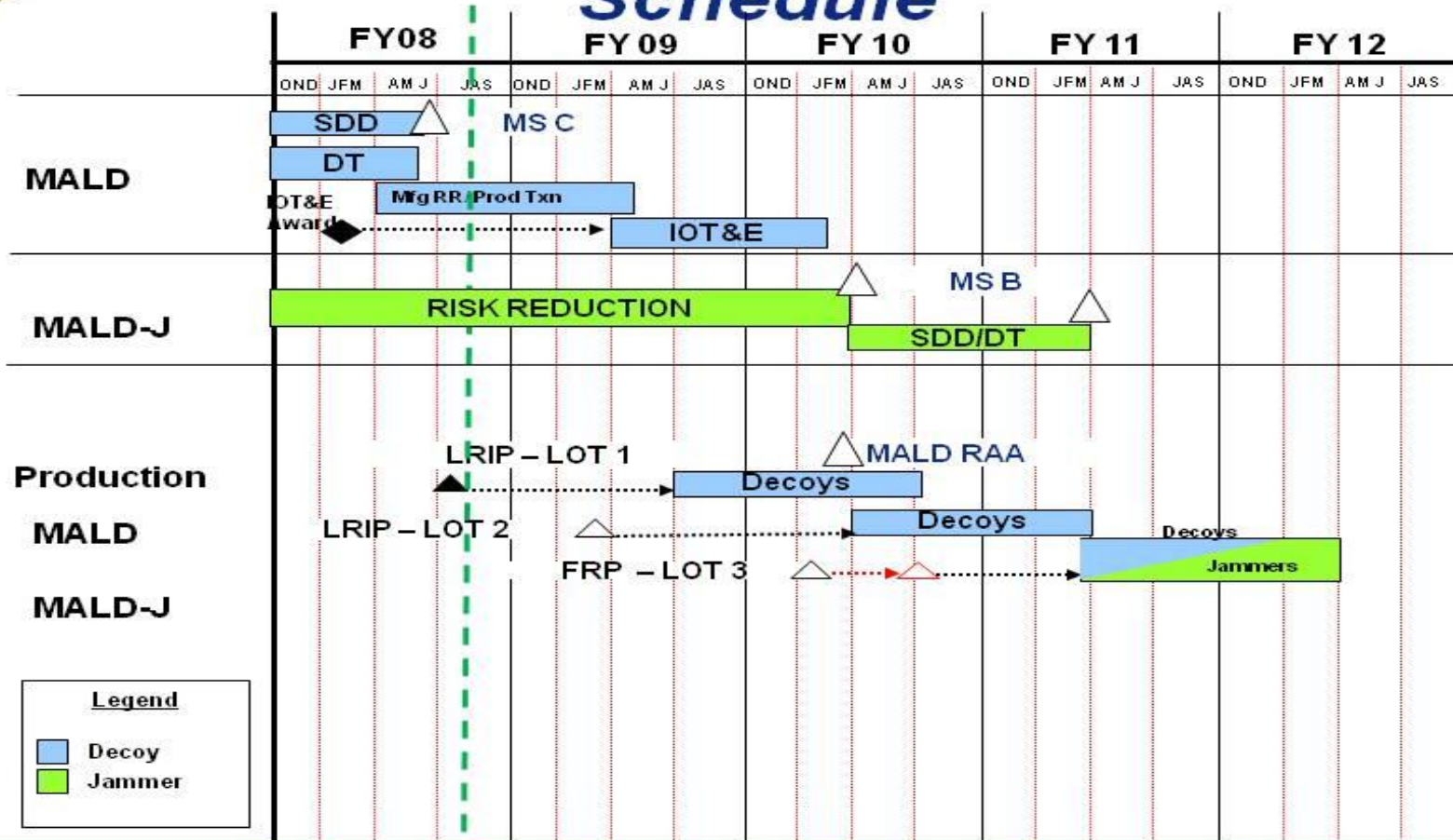
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
5305 MALD-J

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Integrated Schedule



Legend

- Decoy
- Jammer

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

5305 MALD-J

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) MALD-J SDD

2Q

(U) MALD-J IOT&E award

2Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
8462 Miniature Air Launched Decoy	63.262	54.839	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY 2008 and FY 2009 include MALD-J efforts. In FY 2010, MALD-J is broken out in Project 655305, MALD-J.

(U) A. Mission Description and Budget Item Justification

This project develops the Miniature Air Launched Decoy (MALD) and MALD Jammer (MALD-J). The decoy and jammer configurations are key enablers supporting the Air Force Global Strike, Global Response, Space and C4ISR, and the Air and Space Expeditionary Force Concepts of Operations. MALD is a low cost, powered, expendable decoy designed to represent the kinematics and radar signature characteristics of various combat aircraft. The MALD will be employed from various aircraft platforms to stimulate, saturate, and deceive an enemy Integrated Air Defense System (IADS) thus increasing the survivability of coalition strike aircraft.

MALD-J will provide stand-in jamming capability for the Airborne Electronic Attack Systems of Systems. MALD-J will be launched against a preplanned target and will jam specific radars in a stand-in role to degrade or deny the IADS detection of friendly aircraft or munitions. MALD-J will be able to operate in both decoy and jammer modes.

Planned efforts for this program are risk reduction (to include prototyping) and System Development and Demonstration (SDD) of the decoy, jammer, and any future configurations. This will include design, development, test, aircraft integration, and seamless verification.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MALD and MALD-J RR and SDD Contract	53.283	30.835	
(U) MALD-J Contractor Support	2.538	0.839	
(U) MALD / MALD-J Program Office Support (Government)	0.981	0.435	
(U) MALD / MALD-J B-52 Aircraft Integration	0.300	0.840	
(U) MALD / MALD-J Mission and Test Support	5.910	7.590	
(U) MALD / MALD-J F-16 Aircraft Integration	0.250	0.300	
(U) Future MALD-J Variant R/R	0.000	14.000	
(U) Total Cost	63.262	54.839	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN (PE 0207442F MALD/MALD-J	59.171	56.285	109.552						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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)

procurement)

(U) D. Acquisition Strategy

A full and open competition for MALD was held in FY03 resulting in award of a cost plus award fee contract to Raytheon.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604270F EW Development				8462 Miniature Air Launched Decoy				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center									0.000	40.074
MALD / MALD-J RR and SDD	CPAF	Raytheon Missile Systems, Tucson AZ	174.074	53.283	Mar-08	30.835	Jan-09				258.192	TBD
MALD / MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO	13.460	0.300	Nov-08	0.840	Nov-08				14.600	0.000
MALD / MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO	1.154	0.250	Mar-08	0.300	Aug-09				1.704	0.000
Improvement Risk Reduction						14.000	Jan-09				14.000	
Subtotal Product Development			188.688	53.833		45.975		0.000		0.000	288.496	TBD
Remarks:												
(U) <u>Support</u> Contractor Support to AAC/308 ARSW/692 ARSS	Various	Various	8.799	2.537	Dec-07	0.839	Dec-08				12.175	
Subtotal Support			8.799	2.537		0.839		0.000		0.000	12.175	0.000
Remarks:												
(U) <u>Test & Evaluation</u> Government Test Planning	Various	Various	22.257	5.911		7.590					35.758	
Subtotal Test & Evaluation			22.257	5.911		7.590		0.000		0.000	35.758	0.000
Remarks:		Element includes detailed planning, support data reduction and reports from such testing.										
(U) <u>Management</u> AAC/308 ARSW/692 ARSS	Various	AAC, Eglin AFB FL	2.896	0.981		0.435					4.312	
Subtotal Management			2.896	0.981		0.435		0.000		0.000	4.312	0.000
Remarks:		Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and information technology expenses.										
(U) Total Cost			222.640	63.262		54.839		0.000		0.000	340.741	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
8462 Miniature Air Launched Decoy

MALD Master Schedule

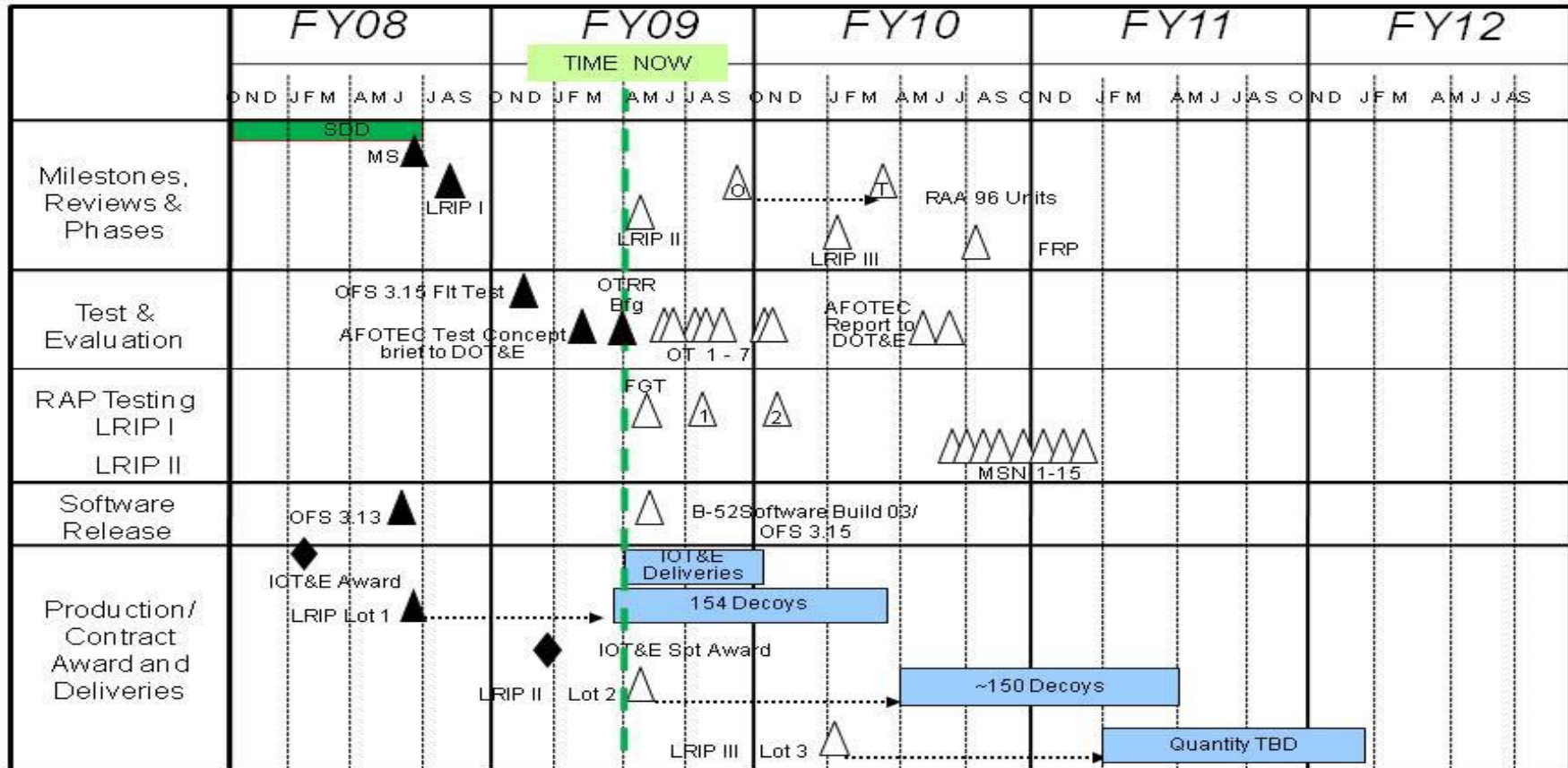


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

8462 Miniature Air Launched Decoy

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) MALD MS C

3Q

(U) MALD IOT&E

3Q

(U) MALD RAA

2Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	88.444	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5050 TDL System Integration	0.000	0.000	58.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5262 Family of Gateways	0.000	0.000	29.660	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Beginning in FY10, Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to this Program Element.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDLs) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST) and Radar Common Data Link (R-CDL).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among ground and air platforms. Utilization of TDLs in a joint environment requires the integration of terminals [e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)] into host platforms, and designing interoperability of data link networks across all deployed joint and allied platforms. The 653rd Electronic Systems Group (653rd ELSG) performs several cross-platform activities to ensure proper integration of TDL capabilities and interoperability of TDL networks. TDL efforts include incorporating changes and additions to data link message standards (e.g. MIL-STD-6016C), incorporating TDL enhancements and Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This program participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, and/or space-based C4ISR networks to produce operational effects not possible within individual networks. The AF continues to enhance the interoperability and capabilities of fielded gateways such as the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality, Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). Common Link Integration Processing (CLIP) is an Air Force/Navy program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne, maritime and fixed-site systems.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in budget activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations,

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604281F TACTICAL DATA NETWORKS ENTERPRISE

initial fielding support activities, operational support activities, and support of special projects.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	88.444
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

In FY 10, \$17.000M was added for Link 16 Enhancements activities and there was a program reduction of \$4.500M in Project 655050. Prior years funding for these efforts was included in PE 0207434F, Link 16 Support and Sustainment.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE				PROJECT NUMBER AND TITLE 5050 TDL System Integration			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5050 TDL System Integration	0.000	0.000	58.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

Beginning in FY10, all TDL System Integration funding moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise. Project will remain 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 mission assignments. TDLs provide interoperable data exchange, local and global connectivity, and situational awareness to the tactical user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons and sensor platforms. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST), Advanced Tactical Data Link (ATDL), and Radar Common Data Link (R-CDL).

The number of Air Force platforms hosting TDLs is expanding from C2 aircraft (E-3, E-8, etc.) to the fighter, bomber, ISR, tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Network Centric Transformation activities performed by the 653rd Electronic Systems Group (653rd ELSG) include, but are not limited to: enabling and supporting the transformation to network-centric operations, Network Enabled Weapons (previously Weapons Data Link), analysis and integration efforts encompassing hardware, software, operational Link 16 enhancements, and training and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of service-wide network management procedures and operations, system wide enhancements and test.

In addition, this project funds the development and integration of the Joint Interface Control Officer (JICO) - Support System (JSS). JSS is an AF-led joint program to develop a TDL management toolkit to enable JICOs to plan multi-TDL architectures, manage data exchange requirements, execute and monitor a multi-TDL network, and respond to correct network deficiencies.

Joint Interoperability of Tactical Command and Control Systems (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 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

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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agreements) to ensure joint, allied, and coalition interoperability.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, and development of special projects.

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			
(U) TDN MANAGEMENT AND INITIAL FIELDING:			10.117
- Joint Interface Control Officer Support System (JSS): Complete production representative development and system testing (DT&E, OT&E) required for FY10 Milestone C decision.			
- TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a data link capability. This support consists of organic and contractor teams that provide Tactics, Techniques & Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL operations and field installations. Develops TDL architectures for implementation at AF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports AF and Joint TDL experiments.			
(U) NETWORK CENTRIC TRANSFORMATION:			34.981
- Network Centric Transformation activities including, but not limited to: enabling and supporting the transformation to network centric operations, Network Enabled Weapons (previously Weapons Data Link), Network Centric Capability Assessment, Link 16 network centric enhancements, and Tactical Targeting Network Technology (TTNT).			
- 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) TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT:			7.127
- JINTACCS Tactical Data Link management, architecture development and certification testing.			
- Implementation and interoperability scheduling with the A-10, F-15, F-16, B-52, B-1, B-2, and other weapon systems			
- Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center (CRC), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems.			
- Tactical Data Link roadmap requirements, configuration management, and Air Force Participating Test Unit activities (AFPTU).			
(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT: Includes the 640th Electronic Systems Squadron (640th ELSS) program management support, coalition interoperability management, A&AS and MITRE support.			6.559
(U) Total Cost	0.000	0.000	58.784

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (3600)										
(U) 0207434F (Link 16 Sup & Sus)	186.371	192.460	0.000							
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106							
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000							
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667							
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000							
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616							
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000							
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000							
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359							
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219							
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242							
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							

(U) D. Acquisition Strategy

The 653rd Electronic Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604281F TACTICAL DATA NETWORKS ENTERPRISE

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 & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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	Various	Various						10.118	Nov-09		10.118	TBD
- Network Centric Transformation (TTNT, NEW, Link 16 enhancements)	Various	Various						34.158	Dec-09		34.158	TBD
- TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various	Various						7.127	Dec-09		7.127	TBD
-TDL Acquisition Management (Coalition Interoperability)	Various	Various						0.680	Nov-09		0.680	TBD
Subtotal Product Development			0.000	0.000		0.000		52.083		0.000	52.083	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
- Various Test Centers	Project Order/MIP R	Various						0.823	Dec-09		0.823	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.823		0.000	0.823	TBD
Remarks:												
(U) <u>Management</u>												
-Program Office and Contractor Support	C/FFP	Various						5.878	Dec-09		5.878	TBD
Subtotal Management			0.000	0.000		0.000		5.878		0.000	5.878	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		58.784		0.000	58.784	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604281F TACTICAL DATA NETWORKS ENTERPRISE

PROJECT NUMBER AND TITLE
5050 TDL System Integration



Tactical Data Networks Enterprise/ Tactical Data Link System Integration

22 April 2009

PE 0604281F BPAC 5050	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<u>TDN Management/Fielding</u>								
<u>Integration/Fielding</u>			Support Services					
<u>Net-Centric Transformation</u>								
<u>Net Enabled Weapons</u>		FY09 and prior TDL System Integration resided in PE 0207434F Project 655050	Small Form Factor Terminal Development					
			Test					
<u>Link 16 Enhancements</u>			Risk Reduction activities, Technology Insertion, Modeling & Simulation					
<u>Interoperability/Config Mgt</u>								
JINTACCS			Management/Certification Testing					
iSMART			Management/Certification Testing					

As of 22 Apr 09

▲ Contract Awards

■ Delivery Milestones

Program Phases
■ Development/Demonstration
■ Test
■ Integration/Fielding

Integrity - Service - Excellence

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604281F TACTICAL DATA NETWORKS ENTERPRISE

PROJECT NUMBER AND TITLE

5050 TDL System Integration

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) TDL Integration & Fielding Support

1-4Q

(U) Network Enabled Weapons Development

1-4Q

(U) Network Enabled Weapons Test & Certification

1-2Q

(U) LINK 16 Enhancements Development

1-4Q

(U) JINTACCS Management/Certification Testing

1-4Q

(U) iSMART Management/Certification Testing

1-4Q

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5262 Family of Gateways	0.000	0.000	29.660	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning FY10, Family of Gateways moved from PE 0207434F to PE 0604281F under the existing Project 655262.

(U) A. Mission Description and Budget Item Justification

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks to produce operational effects not possible within individual networks. Gateway functions include: 1) enabling interoperability among otherwise incompatible systems by translating between data formats, protocols, and communication mediums, 2) extending the range of Line-of-Sight constrained systems through relay functions or by routing through Beyond-Line-of-Sight links, 3) consolidating data from multiple networks into high capacity links for transmission to key C2ISR nodes, 4) routing information to and from communications disadvantaged users, 5) correlating data from multiple sources to increase utility and improve accuracy, and 6) providing application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/management. A primary benefit is that gateways provide cost-effective modernization and achieve network-centric warfighting effects without modification of individual platforms.

Existing gateways include the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). These legacy gateways, which are fielded in multiple Joint and Service C2 centers and platforms, primarily provide tactical data link range extension and interoperability. The AF continues to enhance the interoperability and capabilities of fielded gateways through processing capability upgrades, operating system updates, display/graphical user interface upgrades, incorporation of additional messaging standards and protocols, and completion of gateway architecture fielding.

Common Link Integration Processing (CLIP) is a program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne, maritime, and fixed-site systems, with initial fielding on B-1 & B-52. The AF and Navy made equitable contributions to CLIP RDT&E funding through FY07. Program leadership transferred from the Navy to the AF in FY08. The AF is funding CLIP RDT&E beginning in FY08. CLIP is a software-only, weapon system-independent middleware application that provides gateway services among diverse message sets and waveforms. CLIP effectively isolates the host platform system software from changes in data link message format and processing. Because message processing is no longer embedded in mission software, message standard updates can be incorporated without costly mission software changes. The result is enhanced interoperability and significantly reduced integration and life-cycle sustainment costs.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects

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Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604281F TACTICAL DATA NETWORKS ENTERPRISE	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CLIP software updates, integration and testing			17.041
(U) Development, integration, and testing of JRE/JTEP capability enhancements			2.329
(U) Development, integration, and testing of Pocket J capability enhancements			0.681
(U) Development, integration, and testing of JADSI capability enhancements			4.336
(U) Development, integration, and testing of SADL/TMPG capability enhancements			2.262
(U) Tactical Data Link Acquisition Management: Includes the 653rd Electronic Systems Group (653rd ELSG) program management support, A&AS and MITRE support.			3.011
(U) Total Cost	0.000	0.000	29.660

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E (3600)										
(U) 0207434F (Link 16 Sup & Sus)	186.371	192.460	0.000							
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106							
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000							
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667							
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000							
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616							
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000							
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000							
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359							

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604281F TACTICAL DATA NETWORKS ENTERPRISE

PROJECT NUMBER AND TITLE

5262 Family of Gateways

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

Sus)

(U) 0207445F (Fighter TDL)	0.300	0.281	0.219
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850

(U) **D. Acquisition Strategy**

The 653rd Electronic Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604281F TACTICAL DATA NETWORKS ENTERPRISE					5262 Family of Gateways			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
CLIP Software updates, Integration and Testing	Various	Various						17.041	Nov-09		17.041	TBD
JRE/JTEP enhancements	T&M/FFP	Centech, Arlington, VA						2.329	Dec-09		2.329	TBD
Pocket J enhancements	T&M/FFP	ProLogic, WV						0.681	Jan-10		0.681	TBD
JADSI enhancements	T&M/FFP	Ultra Electronics, Austin, TX						4.336	Dec-09		4.336	TBD
SADL/TMPG enhancements	T&M/FFP	Raytheon, Fullerton, CA						2.262	Dec-09		2.262	TBD
Subtotal Product Development			0.000	0.000		0.000		26.649		0.000	26.649	TBD
Remarks:												
(U) <u>Management</u>												
Program Office and Contractor Support								3.011	Nov-09		3.011	TBD
Subtotal Management			0.000	0.000		0.000		3.011		0.000	3.011	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		29.660		0.000	29.660	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

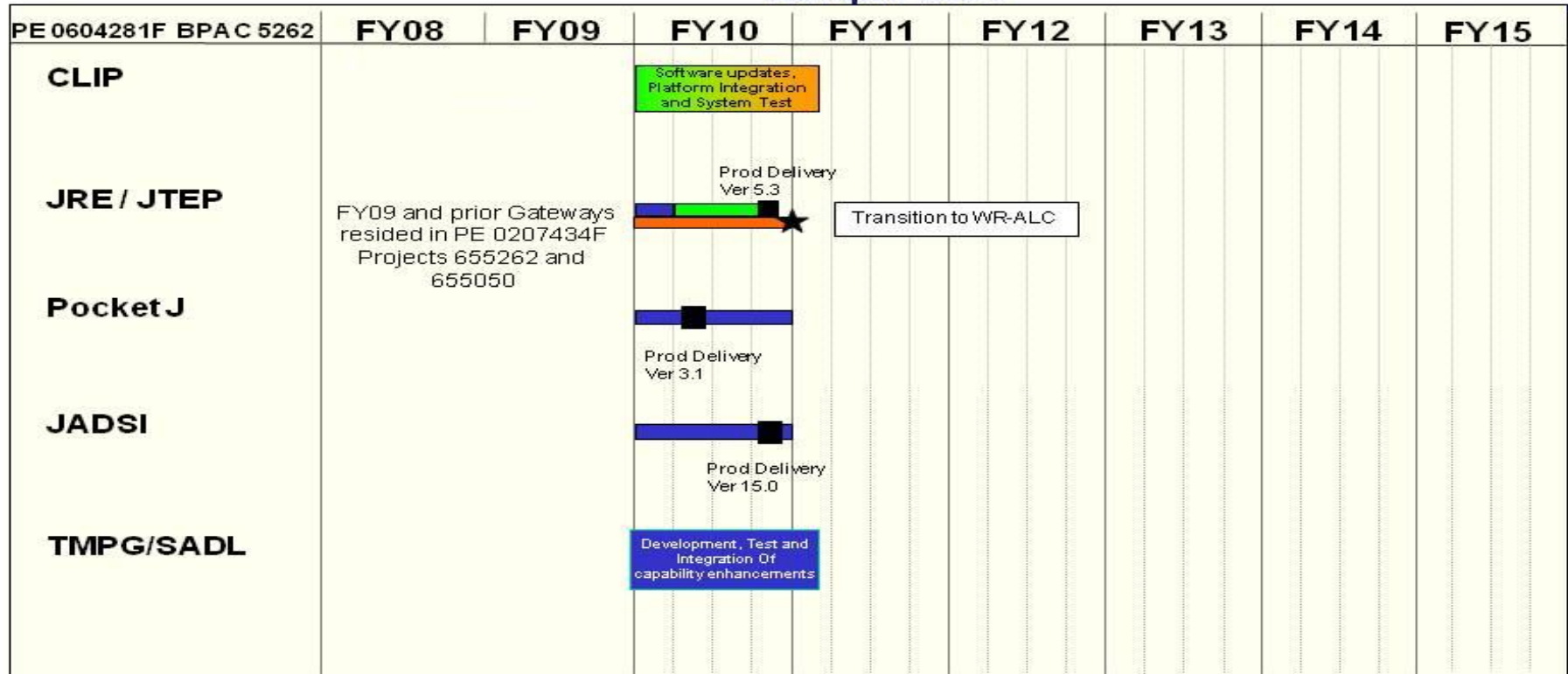
PE NUMBER AND TITLE
0604281F TACTICAL DATA
NETWORKS ENTERPRISE

PROJECT NUMBER AND TITLE
5262 Family of Gateways



Tactical Data Networks Enterprise Family of Gateways Schedules

22 April 2009



As of 22 Apr 09



Transition Milestone



Contract Awards



Delivery Milestones

Program Phases

- Development/Demonstration
- Test
- Integration/Fielding

Integrity - Service - Excellence

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604281F TACTICAL DATA NETWORKS ENTERPRISE

PROJECT NUMBER AND TITLE

5262 Family of Gateways

(U) **Schedule Profile**

FY 2008

FY 2009

FY 2010

- (U) CLIP Software updates, Integration and Testing
- (U) JRE/JTEP Development & Test of Ver 5.3
- (U) JRE/JTEP Product Delivery of Ver 5.3
- (U) JRE/JTEP Integration/Fielding of Ver 5.2
- (U) Pocket J Development
- (U) Pocket J Product Delivery
- (U) JADSI Development
- (U) JADSI Product Delivery
- (U) TMPG/SADL capability enhancements

- 1-4Q
- 1-3Q
- 4Q
- 1-4Q
- 1-4Q
- 2Q
- 1-4Q
- 4Q
- 1-4Q

UNCLASSIFIED

PE NUMBER: 0604287F
 PE TITLE: Physical Security Equipment

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604287F Physical Security Equipment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.033	0.052	0.050	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5120 Physical Security Equipment - SD/ED	0.033	0.052	0.050	0.000	0.000	0.000	0.000	0.000	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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.034	0.052	0.051
(U) Current PBR/President's Budget	0.033	0.052	0.050
(U) Total Adjustments	-0.001	0.000	
(U) Congressional Program Reductions	-0.001		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604287F Physical Security Equipment				PROJECT NUMBER AND TITLE 5120 Physical Security Equipment - SD/ED		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5120 Physical Security Equipment - SD/ED	0.033	0.052	0.050	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**
 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION - Conduct operational test of MDARS-E. - Provide Engineering Support for fielding the MDARS-E.			
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2007 plans.			
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2008 plans.	0.033		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2009 plans.		0.052	0.050
(U) Total Cost	0.033	0.052	0.050

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) D. Acquisition Strategy

Not Applicable

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604287F Physical Security Equipment				5120 Physical Security Equipment - SD/ED				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> PM-FPS (US Army) Subtotal Product Development Remarks:	MIPR		0.033 0.033	0.033 0.033		0.052 0.052		0.050 0.050		0.000	0.168 0.168	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 & 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 Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.033	0.033		0.052		0.050		0.000	0.168	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604287F Physical Security
Equipment

PROJECT NUMBER AND TITLE
5120 Physical Security Equipment -
SD/ED

Exhibit R-4, Schedule Profile		Date: September 2005																																		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)		PE NUMBER AND TITLE PE 0604287F Physical Security Equipment																PROJECT NUMBER AND NAME 5120 Physical Security Equipment - SD/ED																		
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conduct Operational test of MDARS																																				
Provide Engineering Support for fielding MDARS																																				

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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 Profile

FY 2008

FY 2009

FY 2010

(U) Provide engineering support for fielding the MDARS-E

1-4Q

1-4Q

1-4Q

(U) Robotic Security Systems Integration

1-4Q

1-4Q

1-4Q

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	147.586	126.324	153.815	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5191 Small Diameter Bomb Increment II	140.306	126.324	153.815	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5258 Focused Lethality Munition (FLM)	7.280	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

FY2008 funding totals include \$7.280M in GWOT Supplemental Funding.

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment I (SDB I) RDT&E completed in Sep 08. SDB I is currently in Full Rate Production (FRP).

Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, provides a migration path to net-centric ops capability, multiple kills per pass, multiple ordnance carriage, adverse weather operations, 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 for the US Air Force is the F-15E and the F-35 B/C Joint Strike Fighter (JSF) for the US Navy. SDB II will be compatible with the BRU-61 miniature munitions carriage and the SDB I container systems. SDB II began a competitive Risk Reduction phase in FY06 and Milestone B is scheduled for FY10. Milestone C is planned for FY13 followed by Required Assets Available (RAA) on the F-15E in FY14. Objective aircraft include: F-22, F-16, F-35A, B-2, A-10, MQ-9, B-1, B-52, and the F/A-18 E/F. 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.

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM) is a Joint Capabilities Technology Demonstration (JCTD) program that increases the near field blast and decreases collateral damage, thus giving increased options to the war fighter. Extends access to targets restricted by collateral damage limitations.

The technical approach combined and leveraged 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases Near-Field Blast Impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance, 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property, 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, weapon Operational Flight Program (OFP) changes allow it to match SDB I accuracy 4) Remains compatible with BRU-61 miniature munition carriage and SDB I container system. The Military Utility Assessment was completed in Jun 08 with positive feedback in all areas. Insensitive munitions testing completed in Aug 08 with satisfactory results. FLM completed the original JCTD activities in Aug 08. The FY08 GWOT supplemental funds will procure 100 additional residual weapons. Contract award occurred in Mar 09.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	144.279	125.067	128.670
(U) Current PBR/President's Budget	147.586	126.324	153.815
(U) Total Adjustments	3.307	1.257	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.343	
Congressional Increases	7.280	1.600	
Reprogrammings			
SBIR/STTR Transfer	-3.973		

(U) **Significant Program Changes:**

FY08 includes \$7.28M of GWOT Supplemental funding for SDB I FLM. Congressional add of \$1.6M in FY09 for M-PACT High Pressure Air Generator System. SDB II program fully funded in FY10.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5191 Small Diameter Bomb Increment II	140.306	126.324	153.815	0.000	0.000	0.000	0.000	0.000	0.000	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**
 Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, provides a migration path to net-centric ops capability, multiple kills per pass, multiple ordnance carriage, adverse weather operations, 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 for the US Air Force is the F-15E and the F-35 B/C Joint Strike Fighter (JSF) for the US Navy. Objective aircraft include: F-22, F-35A, F-16, B-2, A-10, MQ-9, B-1, B-52, and the F/A-18 E/F. SDB II will be compatible with the BRU-61 miniature munitions carriage and the SDB I container systems. SDB II began a competitive Risk Reduction phase 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SDB II Risk Reduction	122.798	102.775	129.882
(U) Aircraft Integration	7.895	10.855	17.072
(U) Program Office Support	9.613	11.094	6.861
(U) M-PACT High Pressure Air Generator System		1.600	
(U) Total Cost	140.306	126.324	153.815

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Missile Procurement, AF 0207327F, Appn 3020									Continuing	TBD
(U) RDT&E,Navy 0604329N (Includes F-35 B/C Integration and Support Cost)	11.251	19.574	44.100						Continuing	TBD

(U) **D. Acquisition Strategy**
 All major contracts within this Program Element were awarded through full and open competition. Two contractors were selected for a 42 month Risk Reduction phase using Cost Plus Fixed Fee contracts. Down select to one contractor will occur prior to System Development and Demonstration (SDD). SDD will be a Cost Plus Fixed Fee contract with performance incentives. The DoN is funding the integration of the SDB II on the threshold F-35 B/C Joint Strike Fighter.

The Government is buying the SDB II based on contractor-developed System Performance Specification (SPS) which will become contractually binding at down

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
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

select. The contractor will be accountable for system performance as defined in the SPS and will include a system warranty. Accordingly, the contractor is accountable to the government for the design of the weapon system, as well as the planning and executing the Development Test and Evaluation (DT&E) program to verify the system performance. The Government formally arranges and funds the use of Government flight test support for DT&E. Although funded by the Government, flight test support funds are part of the negotiated commitment between the contractor and the Government ensuring the contractor is able to execute the DT&E Program according to the scope of the SDD contract.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604329F Small Diameter Bomb	5191 Small Diameter Bomb Increment II

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Risk Reduction Contract 1	CPFF	Boing, St. Louis MO	48.386	61.399		51.387	May-06	0.000		Continuing	TBD	TBD
Risk Reduction Contract 2	CPFF	Raytheon, Tucson AZ	48.386	61.399		51.387	May-06	0.000		Continuing	TBD	TBD
SDD	CPIF	TBD						129.882		Continuing	TBD	TBD
M-PACT High Pressure Air Generator System						1.600					1.600	TBD
Subtotal Product Development			96.772	122.798		104.374		129.882		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	4.455	4.351		7.955	Apr-06	4.000		Continuing	TBD	TBD
BRU-61/A	PO (In-House)	St. Louis, MO	0.674	2.500		0.000	N/A	0.600		Continuing	TBD	TBD
Other	Misc.	Various	4.550	5.588		6.075	N/A	1.767		Continuing	TBD	TBD
Subtotal Support			9.679	12.439		14.030		6.367		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
Test Support	PO (In-House)	Eglin AFB, FL	2.436	1.045		2.901	N/A	8.525		Continuing	TBD	TBD
46 TW	PO (In-House)	Eglin AFB, FL	0.000	0.000		0.000		3.947		Continuing	TBD	TBD
Subtotal Test & Evaluation			2.436	1.045		2.901		12.472		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
TAMS	C/CPAF	Eglin AFB, FL	0.000	0.064		0.190	Oct-06	0.287		Continuing	TBD	TBD
TEAS	C/CPAF	Eglin AFB, FL	5.075	3.388		3.918		3.019		Continuing	TBD	TBD
PMA	PO (In-House)	Eglin AFB, FL	1.065	0.572		0.911		1.788		Continuing	TBD	TBD
Subtotal Management			6.140	4.024		5.019		5.094		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			115.027	140.306		126.324		153.815		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604329F Small Diameter Bomb

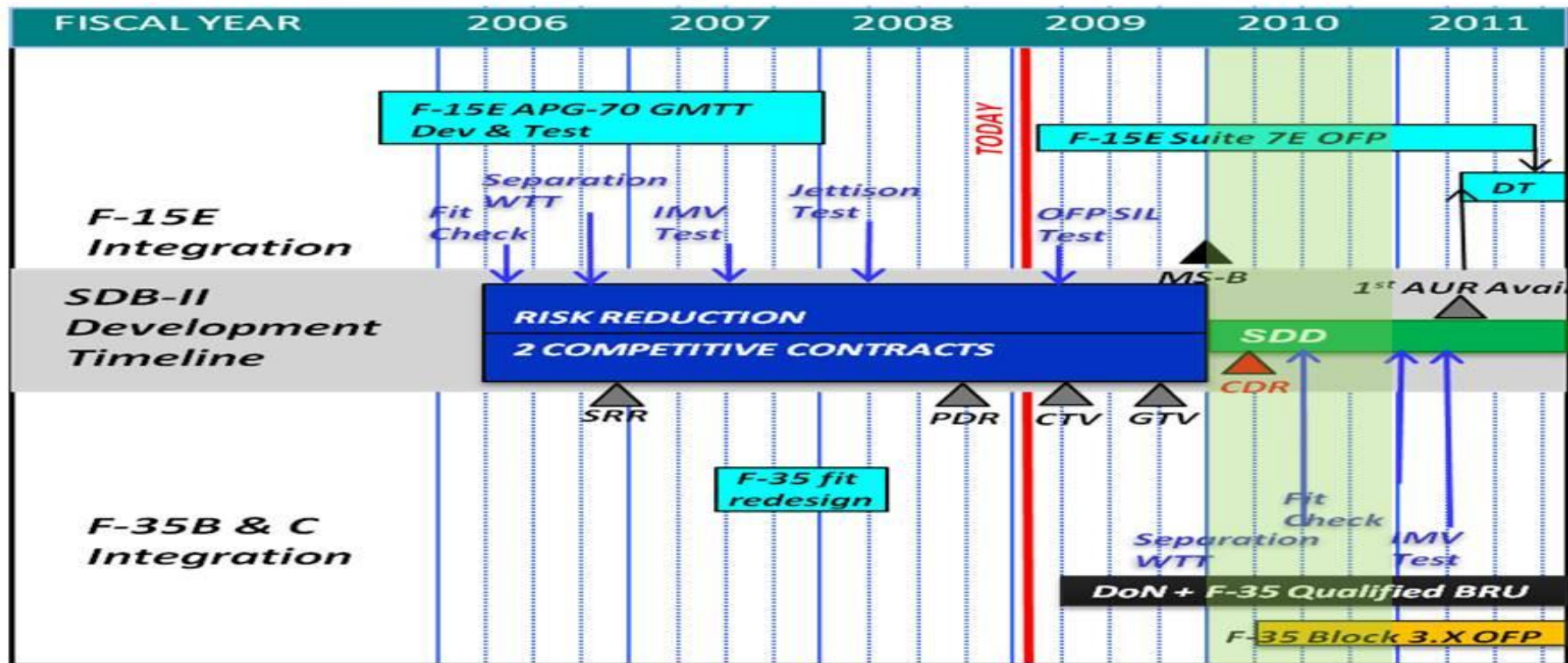
PROJECT NUMBER AND TITLE
5191 Small Diameter Bomb Increment II



FOUO -- Competition Sensitive

SDB II Schedule

FY10 Highlighted



FOUO -- Competition Sensitive

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5191 Small Diameter Bomb Increment II
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Complete Risk Reduction Phase		4Q	
(U) SDD Contract Award			1Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604329F Small Diameter Bomb			PROJECT NUMBER AND TITLE 5258 Focused Lethality Munition (FLM)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5258 Focused Lethality Munition (FLM)	7.280	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2008 funding total includes \$7.280M in GWOT supplemental funding.

(U) A. Mission Description and Budget Item Justification

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM) is a Joint Capabilities Technology Demonstration (JCTD) program that increases the near field blast and decreases collateral damage, thus giving increased options to the war fighter. Extends access to targets restricted by collateral damage limitations.

The technical approach combined and leveraged 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases Near-Field Blast Impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance, 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property, 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, weapon OFP changes allow it to match SDB I accuracy 4) Remains compatible with BRU-61 miniature munition carriage and SDB I container system. The Military Utility Assessment was completed in Jun 08 with positive feedback in all areas. Insensitive munitions testing completed in Aug 08 with satisfactory results. FLM completed the original JCTD activities in Aug 08. The FY08 GWOT supplemental funds will procure up to 100 additional residual weapons; Contract award occurred in Mar 09.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Support, Design, Development, and Integration contract	7.280	0.000	0.000
(U) Testing, Targets and Test support	0.000	0.000	0.000
(U) Program Office Support	0.000	0.000	0.000
(U) Mission Support	0.000	0.000	0.000
(U) Total Cost	7.280	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) RDT&E Defense Agency (Fund Code 5K)	5.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.000

(U) D. Acquisition Strategy

The Focused Lethality Munition (FLM) Joint Capabilities Technology Demonstration (JCTD) contract was sole sourced to Boeing based on only one responsible source to field this capability. It is a Cost Plus Fixed Fee contract with an additional Incentive Fee to motivate schedule.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604329F Small Diameter Bomb				5258 Focused Lethality Munition (FLM)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
System Support Development	CPFF	Boeing, St Louis Mo	23.918	7.280	Mar-09	0.000				0.000	31.198	31.198
Subtotal Product Development			23.918	7.280		0.000		0.000		0.000	31.198	31.198
Remarks:												
(U) <u>Support</u>												
Air Force Research Lab (AFRL)	PO	Eglin AFB FL	0.445	0.000							0.445	0.445
Sverdrup, Inc.	C/CPAF	Eglin AFB FL	0.000	0.000							0.000	0.000
Other	MISC	Eglin AFB FL	2.031	0.000							2.031	2.031
Subtotal Support			2.476	0.000		0.000		0.000		0.000	2.476	2.476
Remarks:												
(U) <u>Test & Evaluation</u>												
Testing and Test support	PO	Eglin AFB FL	3.780	0.000							3.780	3.780
Subtotal Test & Evaluation			3.780	0.000		0.000		0.000		0.000	3.780	3.780
Remarks:												
(U) <u>Management</u>												
COLSA	C/CPAF	Eglin AFB FL	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			30.174	7.280		0.000		0.000		0.000	37.454	37.454

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

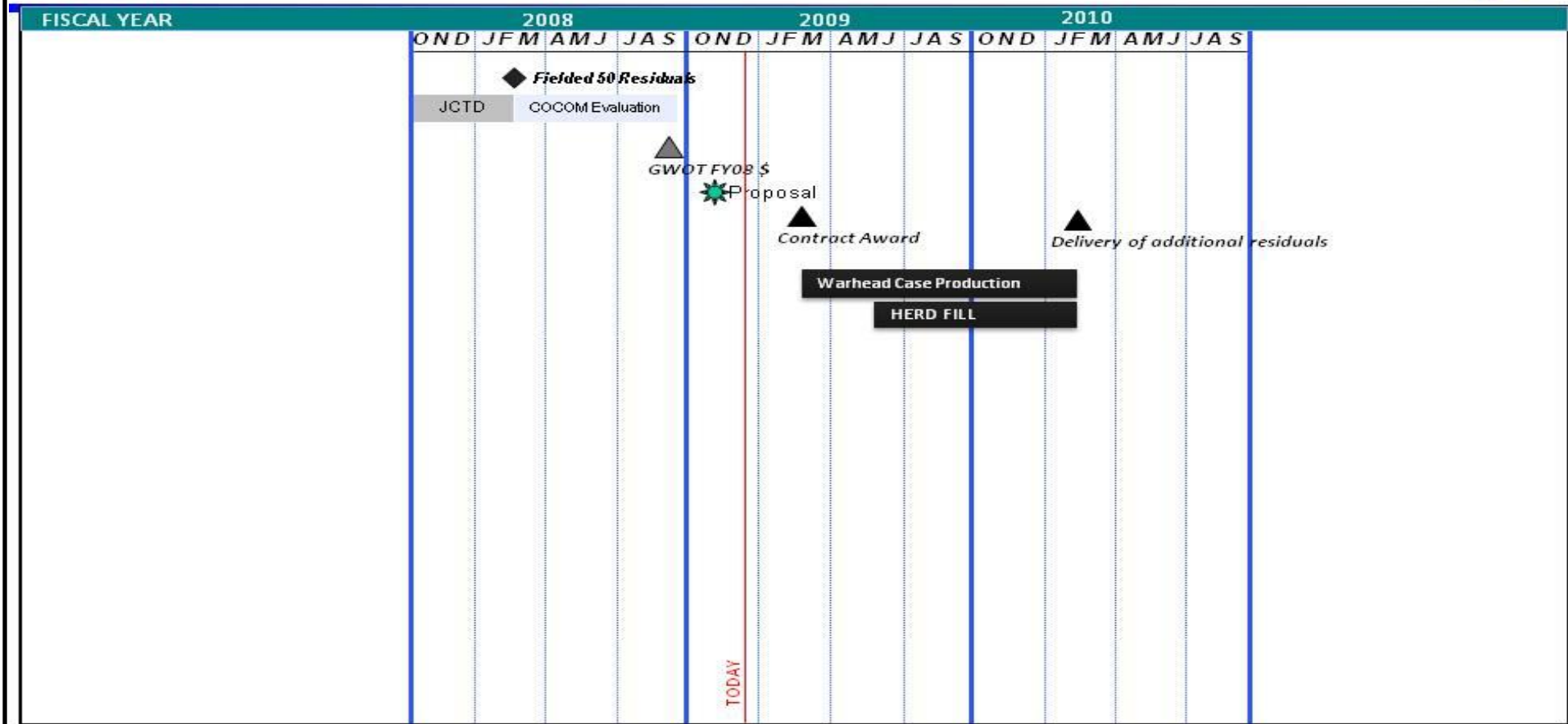
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE
5258 Focused Lethality Munition (FLM)



FLM Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT NUMBER AND TITLE 5258 Focused Lethality Munition (FLM)
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Military Utility Assessment	2-3Q		
(U) Delivery of Residual Assets	2Q		
(U) FLM Contract Award for additional residuals		2Q	
(U) Delivery of additional residuals			2Q

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PE NUMBER: 0604421F
 PE TITLE: Counterspace Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	59.379	76.147	64.248	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A001 Counter Satellite Communications System	15.614	29.662	31.109	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A003 Rapid Identification Detection and Reporting System (RAIDRS)	33.692	37.464	25.816	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A005 Counterspace C2	10.073	9.021	7.323	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A024 RAIDRS Block 20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Program 65A024, RAIDRS Block 20 content and funding were transferred to PE 0305614F, Joint Space Operations Center (JSpOC) Mission Systems effective in FY 2010

(U) A. Mission Description and Budget Item Justification

This program supports the conduct of critical planning, technology insertion, and system acquisition in support of Air Force space control systems and associated command and control development to meet current and future military space control needs. Development and acquisition of counterspace systems will be conducted, capitalizing on the technology development and risk reduction efforts of PE 0603438F, Space Control Technology. This funding supports all development phases of the acquisition process including concept development, risk reduction, design, and demonstration. Space control systems include both offensive counterspace (OCS) and defensive counterspace (DCS) systems. OCS systems include the means to disrupt, deny, degrade, or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. DCS systems include both active and passive measures to protect U.S. and friendly space related capabilities (satellites, communications links, and supporting ground systems) from enemy attack or interference. This includes development efforts to prevent adversarial ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. Counterspace Command and Control (C2) supports the development of command and control and mission planning capabilities in support of the fielding and employment of counterspace systems.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	63.819	74.918	81.116
(U) Current PBR/President's Budget	59.379	76.147	64.248
(U) Total Adjustments	-4.440	1.229	
(U) Congressional Program Reductions		-0.371	
Congressional Rescissions			
Congressional Increases		1.600	
Reprogrammings	-0.500		
SBIR/STTR Transfer	-3.940		
(U) <u>Significant Program Changes:</u>			
FY 2008: -\$.500M transferred to higher priority Air Force programs			
FY 2009: +\$1.600M Congressional addition for Space Control Test Capability			
FY 2010: RAIDRS Block 20 transferred to PE 0305614F, JSpOC Mission Systems			

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A001 Counter Satellite Communications System	15.614	29.662	31.109	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This effort supports concept exploration and follow-on system development of mobile/transportable counter satellite communications capabilities derived from technologies prototyped in PE0603438F, Space Control Technology, in the area of Offensive Counter Space. Future advanced counter satellite communications systems will also be developed in this program. Included are: architecture engineering, system hardware design and development, software design and integration, testing and procurement of capabilities to provide disruption of satellite communications signals in response to USSTRATCOM requirements.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Block 10 Capability Upgrades	1.621	8.202	0.800
(U) Study/refine, develop, prototype risk reduction, integrate, test and field the next Block (Block 20) advanced counter communications capability	7.930	11.486	20.340
(U) Architecture Development Support	2.045	2.805	2.830
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	4.018	7.169	7.139
(U) Total Cost	15.614	29.662	31.109

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0604421F) Counterspace Systems	0.000	8.881	4.000						Continuing	TBD

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible, to upgrade existing capabilities as well as to acquire next generation capabilities through incremental acquisitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604421F Counterspace Systems					A001 Counter Satellite Communications System			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Architectural Engineering Support	Various	Various	23.356	2.045	Dec-07	2.805	Jan-09	2.830	Jan-10	Continuing	TBD	TBD
Block 10 Capability Upgrades	CPAF	Harris Corp, Melbourne, FL	7.862	0.298	Feb-08	0.000		0.000		0.000	8.160	7.862
Block 10 Capability Upgrades	CPAF	General Dynamics, Santa Clara, CA	0.515	1.323	Jan-08	6.667	Jan-09	0.800	Jan-10	Continuing	TBD	TBD
Block 20 Prototype Development & Future Capability Studies	Various	Various	2.197	7.930	Dec-07	2.312	Dec-08	0.378	Dec-09	0.000	12.817	13.371
Block 20 Prototype Development & Future Capability Studies	CPAF	SI International, Colorado Springs, CO	0.000	0.000		9.174	Oct-08	0.816	Oct-09	0.000	9.990	11.422
Block 20 Development	TBD	TBD	0.000	0.000		0.000		19.146	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			33.930	11.596		20.958		23.970		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
System Program Office Support	Various	SMC, El Segundo, CA	9.948	4.018	Oct-07	7.169	Oct-08	7.139	Nov-09	Continuing	TBD	TBD
Subtotal Support			9.948	4.018		7.169		7.139		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
CCS Block 10 Test Support	Various	SMC, El Segundo, CA	0.100	0.000		1.535	Nov-08			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.100	0.000		1.535		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			43.978	15.614		29.662		31.109		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

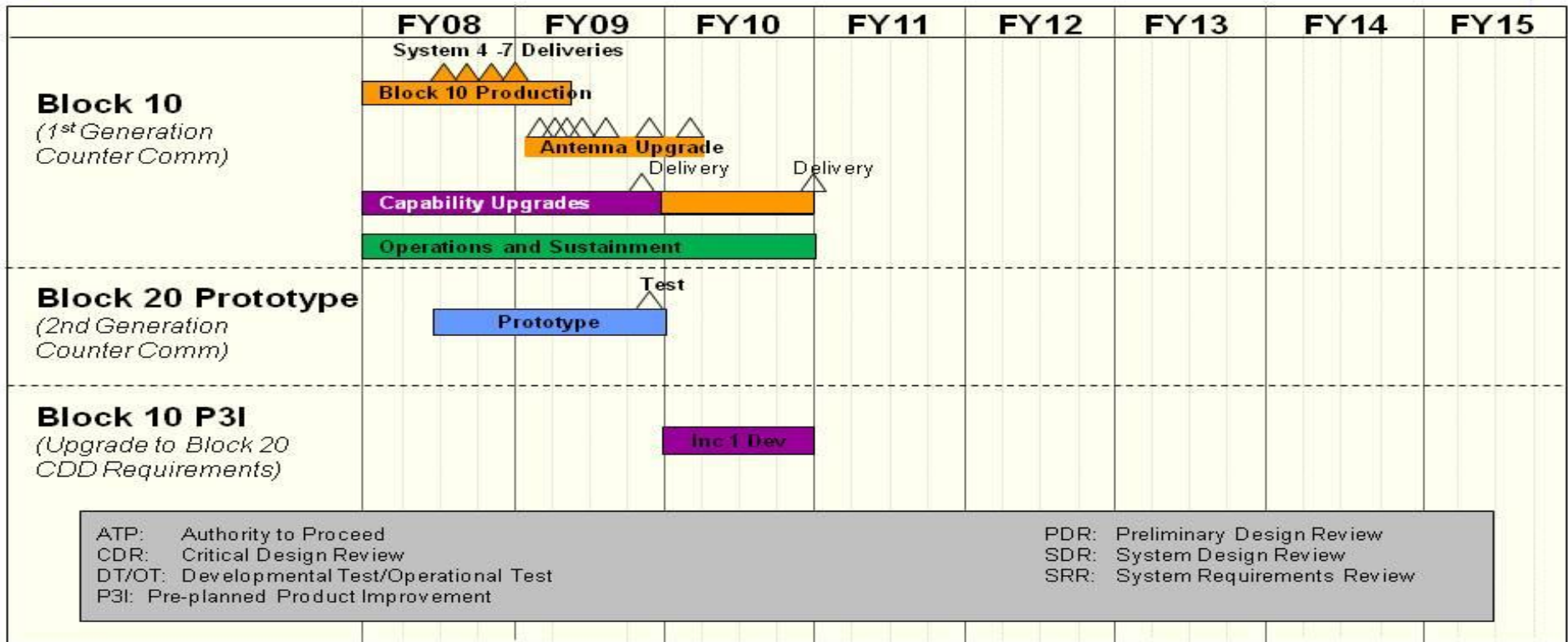
PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A001 Counter Satellite
Communications System



U.S. AIR FORCE

Counterspace Systems CCS Schedule



ATP: Authority to Proceed
 CDR: Critical Design Review
 DT/OT: Developmental Test/Operational Test
 P3I: Pre-planned Product Improvement

PDR: Preliminary Design Review
 SDR: System Design Review
 SRR: System Requirements Review

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

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

**A001 Counter Satellite
Communications System**

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Capability Upgrades	1-4Q	1-4Q	
(U) Block 10 Production	1-4Q	1-2Q	
(U) Block 10 Deliveries	2-4Q	1-2Q	
(U) Block 20 Prototype Development	2-4Q	1-4Q	
(U) Block 20 Prototype Demo		4Q	
(U) Block 20 Contract Award			3Q
(U) Block 20 Development			3-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604421F Counterspace Systems			PROJECT NUMBER AND TITLE A003 Rapid Identification Detection and Reporting System (RAIDRS)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A003 Rapid Identification Detection and Reporting System (RAIDRS)	33.692	37.464	25.816	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

RAIDRS Block 20 content and funding were transferred to PE0305614F, JSpOC Mission Systems effective in FY 2010

(U) A. Mission Description and Budget Item Justification

This effort supports mission area architecture development, concept exploration, and engineering and manufacturing development to provide attack detection, threat identification and characterization, and support rapid mission impact assessments of U.S. space systems. This effort will investigate and implement the technical architecture, operational concept, support concept, training, verification (test), and deployment of a Rapid Attack Identification Detection and Reporting System (RAIDRS). Incremental capability deliveries are planned.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Block 10	18.369	20.037	19.149
(U) Continue concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Block 20	10.632	8.527	0.000
(U) RAIDRS Block 10 Test Support	0.030	0.111	0.100
(U) Architecture Development & Systems Engineering	1.024	4.001	3.175
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	3.637	4.788	3.392
(U) Total Cost	33.692	37.464	25.816

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0604421F), Counterspace Systems	22.356	20.252	25.793						Continuing	TBD

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. System will be designed and acquired in Block increments using a Block Acquisition strategy.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604421F Counterspace Systems					A003 Rapid Identification Detection and Reporting System (RAIDRS)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Architecture Development & Systems Engineering RAIDRS Block 10 System Development	Various CPAF	Various Integral Systems Inc, Lanham, MD	6.339	1.024	Nov-07	4.001	Nov-08	3.175	Nov-09	Continuing	TBD	TBD
RAIDRS Block 20 Requirements Development/Risk Reduction	Various	Various	55.449	18.369	Oct-07	20.037	Oct-08	19.149	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			1.128	10.632	Aug-08	8.527	Nov-08	0.000		Continuing	TBD	TBD
Remarks:			62.916	30.025		32.565		22.324		Continuing	TBD	TBD
(U) <u>Support</u>												
Program Office Support for RAIDRS	Various	SMC, El Segundo	8.821	3.637	Oct-07	4.788	Oct-08	3.392	Oct-09	Continuing	TBD	TBD
Subtotal Support			8.821	3.637		4.788		3.392		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
RAIDRS Block 10 Test Support	Various	Various	0.000	0.030	Jan-08	0.111	Apr-08	0.100	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.030		0.111		0.100		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:										Continuing	TBD	TBD
(U) Total Cost			71.737	33.692		37.464		25.816		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

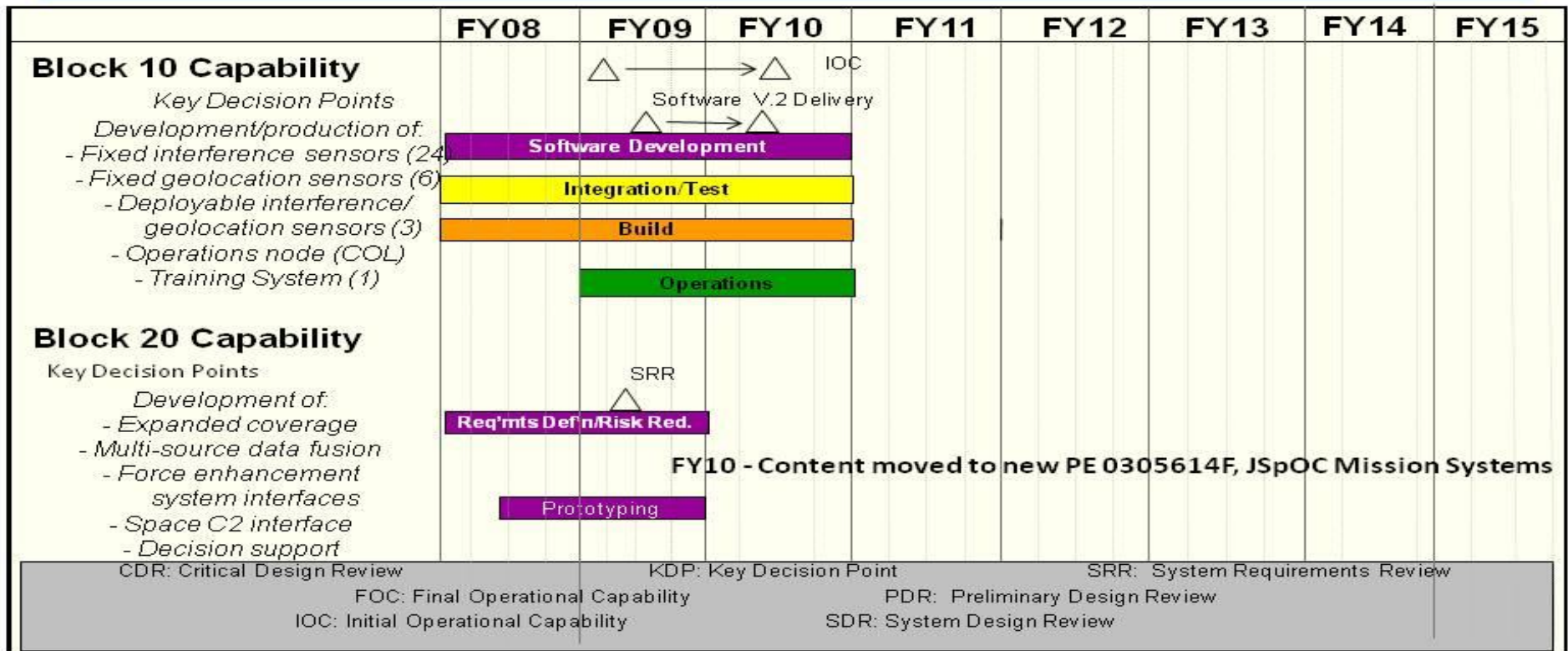
PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A003 Rapid Identification Detection and Reporting System (RAIDRS)



U.S. AIR FORCE

RAIDRS Schedule



FY10 OSD/OMB Budget Hearing

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604421F Counterspace Systems	PROJECT NUMBER AND TITLE A003 Rapid Identification Detection and Reporting System (RAIDRS)
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) RAIDRS Block 10 Initial Delivery			3Q
(U) RAIDRS Block 10 Initial Operational Capability			3Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604421F Counterspace Systems		PROJECT NUMBER AND TITLE A005 Counterspace C2	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A005 Counterspace C2	10.073	9.021	7.323	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This effort supports the development of command and control and mission planning capabilities in support of the fielding and employment of Counterspace Systems. It provides for the integration and development of collaborative tools to link deployable counterspace systems with Joint Warfighting C2 systems and to enable integrated planning and execution of the counterspace mission. Developed capabilities will be integrated into current and future command and control systems. This program will also leverage the Joint Execution and Tasking System for Space (JETSS) efforts in support of space control and the counterspace mission areas.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</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.	3.720	1.600	0.000
(U) Continue development of Counterspace mission planning and command and control capability (JETSS)	4.392	5.561	5.358
(U) Counterspace C2 Architecture Development	0.817	0.924	0.954
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	1.144	0.936	1.011
(U) Total Cost	10.073	9.021	7.323

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

All contracts will be awarded using competitive procedures to the maximum extent possible to acquire next generation capabilities through incremental acquisitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604421F Counterspace Systems					A005 Counterspace C2				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology, Huntsville, AL	13.148	3.720	Mar-08	1.600	Jan-09	0.000		Continuing	TBD	TBD	
Develop Counterspace Planning and C2 System (JETSS)	CPAF	General Dynamics, Santa Clara, CA	4.307	4.392	Dec-07	5.561	Jan-09	5.358	Jan-10	Continuing	TBD	TBD	
Subtotal Product Development			17.455	8.112		7.161		5.358		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u> Counterspace Architecture Development	CPFF	Northrup Grumman Mission Systems, Redondo Beach, CA	1.506	0.817	Dec-07	0.924	Dec-08	0.954	Dec-09	Continuing	TBD	TBD	
Subtotal Support			1.506	0.817		0.924		0.954		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test & Evaluation</u>										Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u> Program Office and Other Technical Support	Various	SMC, El Segundo, CA	1.137	1.144	Nov-07	0.936	Oct-08	1.011	Oct-09	Continuing	TBD	TBD	
Subtotal Management			1.137	1.144		0.936		1.011		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			20.098	10.073		9.021		7.323		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

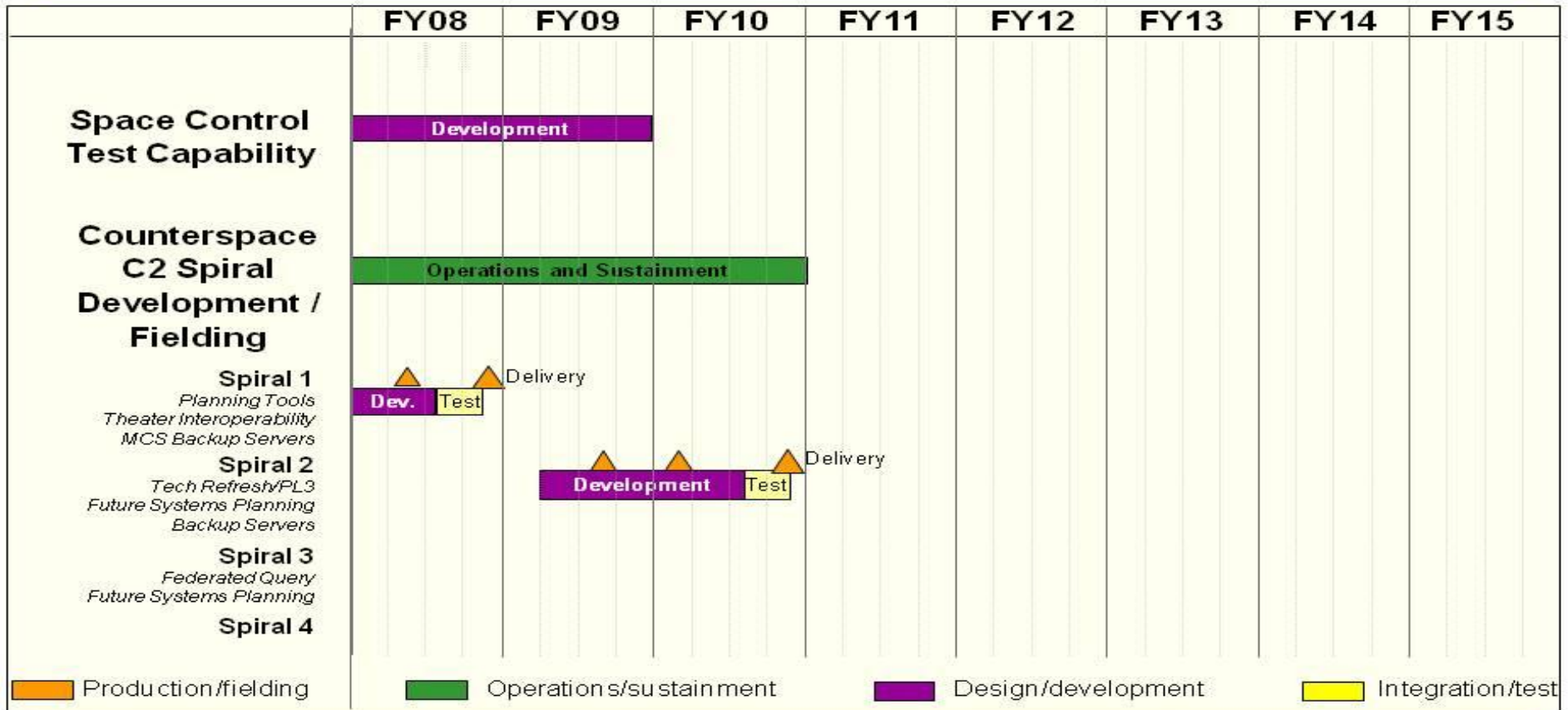
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE
A005 Counterspace C2



Counterspace C2 Schedule



FY10 OSD/OMB Budget Hearing

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A005 Counterspace C2

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Modeling, "virtual test," analysis

1Q

2-4Q

(U) Develop/test JETTS Spiral

1-4Q

1-4Q

1-4Q

(U) C2 Spiral Delivery

4Q

4Q

UNCLASSIFIED

PE NUMBER: 0604425F
 PE TITLE: Space Situation Awareness Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	206.362	209.266	308.134	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A006 Space-Based Space Surveillance	169.167	120.039	177.104	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A008 Integrated Space Situation Awareness	23.347	44.220	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A009 Space Fence	13.848	45.007	90.228	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A012 Net-centric Sensors and Data Sources	0.000	0.000	18.357	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A037 Space Surveillance Telescope	0.000	0.000	6.895	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A038 SSA Environmental Monitoring	0.000	0.000	15.550	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(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, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element develops new Air Force sensors for the SSA network and improved information capabilities for integration across it; also includes developmental planning and technology needs forecasting for future blocks and emerging needs. A companion program element, 0305940F, Space Situation Awareness Operations, fields, upgrades, operates, and sustains sensors and information integration capabilities within that network. Development activities are necessary to deploy new, advanced sensors capable of finding, fixing, tracking, and reconnoitering the expanding number of debris objects on orbit as well as the increasing number of satellites launched by other nations, many of them smaller and more capable than previous spacecraft. These activities are also required to better integrate the disparate elements of SSA in order to enable rapid, responsive space operations.

These efforts are in Budget Activity 5, System Development and Demonstration, because they develop new SSA capabilities.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	196.363	210.501	319.962
(U) Current PBR/President's Budget	206.362	209.266	308.134
(U) Total Adjustments	9.999	-1.235	
(U) Congressional Program Reductions		-0.667	
Congressional Rescissions		-0.568	
Congressional Increases			
Reprogrammings	9.999		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY 08: \$9.999M reprogramming for SBSS Block 10 development baseline contract & SBSS Block 10 support on the Minotaur IV contract.

FY10: Reduced \$173.7M in FY10 due to delay of SBSS Block 20 program and transfer of ISSA project into JSpOC Mission System, PE 35614F.

FY10: Increased \$161.9M to develop an SBSS Block 10 Follow-on program; to accelerate SSN sensor and other sensor and data source integration; to provide adequate funding for first site of the Space Fence radar; to transition the DARPA developed SST demonstration program to the Air Force; and to procure the SSA Environmental Monitoring payload and integrate onto host.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems		PROJECT NUMBER AND TITLE A006 Space-Based Space Surveillance	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A006 Space-Based Space Surveillance	169.167	120.039	177.104	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	1	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Building upon the success of the Space-Based Visible (SBV) technology demonstration, which proved the utility of surveilling orbiting objects from space, the Space-Based Space Surveillance (SBSS) project will develop a constellation of optical sensing satellites to search, detect, and track objects in Earth orbit. It will accomplish this via collecting and processing space object identification and satellite metric data, then communicating it to command and control nodes. Surveillance from space augments existing ground sensors with timely 24-hour, all-weather object search capabilities. In conjunction with information from other Space Situation Awareness network sensors, SBSS data will enable more timely detection and tracking of space objects, particularly those in geosynchronous orbits.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new spacecraft system.

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

	FY 2008	FY 2009	FY 2010
(U) Block 10 design, development, and risk reduction	133.418	38.930	0.500
(U) Block 10 launch vehicle integration	16.248	13.619	0.500
(U) Block 10 contractor ops & Interim Contractor Support	9.680	44.394	62.000
(U) SBSS Follow-on Design, development and risk reduction	0.000	7.586	94.126
(U) Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration	9.821	15.510	19.978
(U) Total Cost	169.167	120.039	177.104

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) None										

(U) D. Acquisition Strategy

This system is being acquired via a block approach. Block 10 will develop and field a satellite-based capability to replace the SBV sensor with a capability significantly improving the timeliness of data on objects in geosynchronous orbit. Block 10 was awarded competitively under an option on the existing Mission Area Prime Integrating contract for the space control mission area. The planning portion of the Block 10 contractor ops & interim contractor support effort was previously included in the design, development and risk reduction effort.

The specific contracting approach for additional capabilities is being determined. The Air Force is considering multiple approaches for the Follow-on system each with the intent of improving the timeliness capability of the system while minimizing program risk and a potential capability gap.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604425F Space Situation Awareness Systems					A006 Space-Based Space Surveillance			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Block 10 design and development	C/CPAF	Northrop Grumman, Redondo Beach, CA	131.946	130.958	Nov-07	35.660	Nov-08	0.400	Nov-09	0.000	298.964	
Technical risk reduction, mission planning & mission data processing	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA	3.070	2.460	Jan-08	3.270	Jan-09	0.100	Jan-10	0.000	8.900	
Launch vehicle integration	MIPR	Space and Missile Systems Center Det., Kirtland AFB, NM	9.176	16.248	Nov-07	13.619	Nov-08	0.500	Nov-09	0.000	39.543	
Block 10 contractor ops & Interim Contract Support	SS/CPAF	Boeing, Huntington Beach, CA	0.000	9.680	Jun-08	44.394	Jan-09	62.000	Nov-09	Continuing	TBD	
SBSS Follow-on Design & Development	TBD	TBD	0.000	0.000		7.586	Dec-08	94.126	Feb-10	Continuing	TBD	
Subtotal Product Development			144.192	159.346		104.529		157.126		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Program Office Support, Technical Studies & Analysis, Systems Engineering & Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA	11.248	9.821	Oct-07	15.510	Oct-08	19.978	Oct-09	Continuing	TBD	
Subtotal Support			11.248	9.821		15.510		19.978		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u> Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			155.440	169.167		120.039		177.104		Continuing	TBD	0.000

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Project A006

Exhibit R-3 (PE 0604425F)

Exhibit R-4, RDT&E Schedule Profile

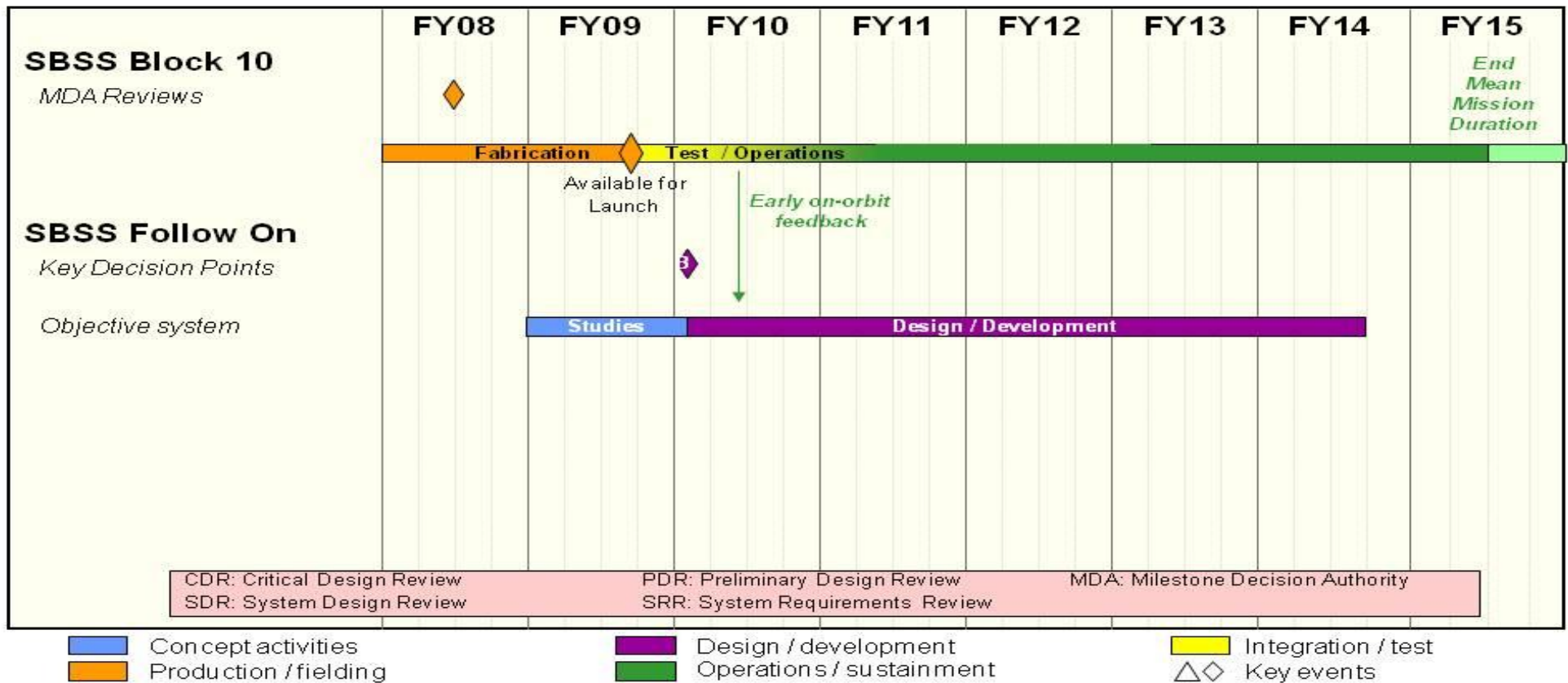
DATE

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A006 Space-Based Space Surveillance



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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A006 Space-Based Space Surveillance
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Block 10 MDA Review	3Q		
(U) Block 10 Available for Launch		3Q	
(U) SBSS Follow-on Key Decision Point B			1Q

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0604425F Space Situation Awareness Systems						A008 Integrated Space Situation Awareness		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A008 Integrated Space Situation Awareness	23.347	44.220	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY10 efforts formerly in the ISSA project have transferred to the JSPOC Mission System (JMS), PE 35164F, except for the ESSA ACTD, which is now executed in the Net-Centric Sensors and Data Sources project.

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

Integrated Space Situation Awareness (ISSA) efforts provide the knowledge environment necessary to enable rapid, responsive decisions by the Commander, U.S. Strategic Command's Joint Functional Component Command for Space and other space capability users ensuring the protection of U.S. space assets from proliferating adversary threats. ISSA's focus is the integration of disparate data components of Space Situation Awareness (SSA) to create the timely, actionable knowledge necessary for maintaining space superiority and exercising command and control of Space Surveillance Network (SSN) sensors. The current priority is to migrate and upgrade the legacy space surveillance capabilities from the Space Defense Operations Center (SPADOC) into a net-centric based enterprise enabling automated, real-time correlation, integration, and distribution of data obtained across the traditional sensors in the SSN. In addition to the space surveillance function which detects and tracks space objects, ISSA also develops applications and tools to improve the characterization of non-cooperative space objects by exploiting data from intelligence products and threat processing, reconnaissance and environment communities. This characterization is fundamental to the understanding and predicting of the consequences of space events, threats, and activities. To do so also requires the timely insight into the system status, capabilities and constraints of U.S. military, commercial and allied space assets. To accomplish these efforts ISSA conducts architecture, modeling, and prototyping efforts to keep pace with a changing threat and leverage emerging technology. The ISSA system integrator integrates and delivers this and other applications and services developed to achieve SSA.

These efforts are in Budget Activity 5, System Development and Demonstration, because they develop and demonstrate capabilities for better integration of SSA data or develop architectures guiding associated technical and budgetary planning.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ISSA Integrator and Test & Evaluation	2.887	10.177	
(U) Surveillance and Reconnaissance	10.021	16.804	
(U) Intelligence Products and Threat Processing	1.004	3.300	
(U) Environment	0.987	2.323	
(U) Capability Integration (includes Blue Force Status)	1.437	3.050	
(U) Extended Space Sensors Architecture Advanced Concept Technology Demonstration (ESSA ACTD)	2.797	1.264	
(U) Program Office and related support activities, such as, Systems Engineering and Integration, Technical Studies & Analysis	4.214	7.302	
(U) Total Cost	23.347	44.220	0.000

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Project A008

Exhibit R-2a (PE 0604425F)

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A008 Integrated Space Situation Awareness
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other Procurement, Air Force (836790, Space Mods Space)	0.000	8.983								8.983

(U) D. Acquisition Strategy

Ongoing ISSA activities utilize existing engineering and study contracts and a competitively selected system integrator and developer. ISSA's focus is on employing a rapid prototyping approach to deploy new systems and tools to progressively advance operational capabilities toward the truly integrated SSA envisioned by existing architectures and roadmaps. The ISSA System Integrator will provide high-level technical oversight support and assist the timely deployment of prototypes and services to the warfighter. ISSA Prototype Developer (IPD) will develop prototypes that provide subsets of the capabilities described in the draft ISSA Capabilities Development Document (CDD) and other documents. For each prototype, the IPD shall perform architecting, systems engineering, prototype development, integration and program management - including requirements analysis and allocation, systems integration, DT&E, prototype "fielding", configuration control and prototype sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE May 2009		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems				PROJECT NUMBER AND TITLE A008 Integrated Space Situation Awareness				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ISSA Integrator, T&E	CPFF	Booz Allen Hamilton, LA, CA	1.500	2.887	Feb-08	10.177	Nov-08				14.564	
Surveillance and Reconnaissance Intelligence Products and Threat Processing	C/CPAF Various	Various Booz Allen Hamilton, Colorado Springs, CO; TBD	13.421	10.021	Sep-08	16.804	Nov-08				40.246	
Environment Capability Integration (includes Blue Force Status)	Various Various	Various Northrop Grumman, Azuza, CA; Boeing, Seal Beach, CA; MIT Lincoln Laboratory, Lexington, MA; TBD	2.137	1.004	Nov-07	3.300	Oct-08				6.441	
ESSA ACTD	Various	MIT Lincoln Laboratory, Lexington, MA; ITSP, Colorado Springs, CO	2.326	0.987	Nov-07	2.323	Nov-08				5.636	
Subtotal Product Development Remarks:			23.937	19.133		36.918		0.000		0.000	79.988	0.000
(U) <u>Support</u> Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA	1.127	4.214	Nov-07	7.302	Nov-08				12.643	
Subtotal Support Remarks:			1.127	4.214		7.302		0.000		0.000	12.643	0.000
(U) <u>Test & Evaluation</u>												0.000

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Project A008

Exhibit R-3 (PE 0604425F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0604425F Space Situation Awareness Systems				A008 Integrated Space Situation Awareness		
Subtotal Test & Evaluation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>							0.000	
Not applicable								
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	25.064	23.347	44.220	0.000	0.000	92.631	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

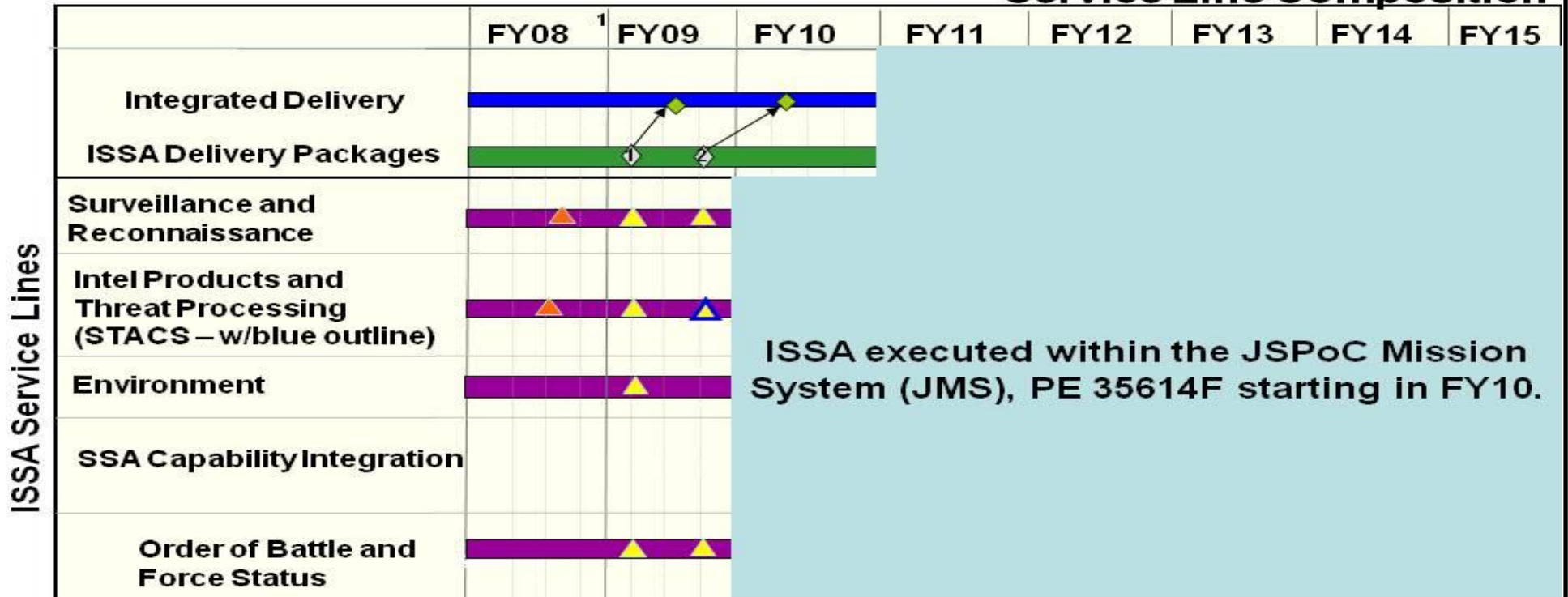
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A008 Integrated Space Situation Awareness

**ISSA Delivery Package
Schedule and Mission
Service Line Composition**



- ◊ Delivery Package
- ▲ Service(s) from STACS BPAC
- ◆ JI integrated delivery to JSpOC
- ▲ Pre-Delivery Package approach
- ▲ Service(s) from line item part of delivery package

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A008 Integrated Space Situation Awareness

(U) Schedule Profile

- (U) Surveillance and Reconnaissance Ops Prototype Delivery
- (U) Intelligence Products & Threat Processing Ops Prototype Delivery
- (U) Environment Ops Prototype Delivery
- (U) Capability Integration Ops Prototype Delivery

FY 2008

3Q
3Q

FY 2009

2-4Q
2-4Q
2Q
2-4Q

FY 2010

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems		PROJECT NUMBER AND TITLE A009 Space Fence		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A009 Space Fence	13.848	45.007	90.228	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Space Fence effort will develop a system of ground-based sensors to replace the aging Air Force Space Surveillance System (AFSSS), a Very High Frequency radar operational since 1961. By using higher radio frequencies in conjunction with radar transmitters and receivers co-located at sites dispersed worldwide, the Space Fence will provide timely detection of smaller orbiting objects, primarily those in low earth orbit (LEO). As a result, it will expand the uncued detection and tracking capacity of the Space Surveillance Network by an order of magnitude, from 10,000 to 100,000 objects, while working in concert with other network sensors.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new system of ground-based sensors.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design and development	10.424	38.471	84.026
(U) Design review, management, and support	3.424	6.536	6.202
(U) Total Cost	13.848	45.007	90.228

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U)									Continuing	TBD

(U) D. Acquisition Strategy

The Air Force competitively awarded requirements definition contracts for the effort in FY 2006.

The acquisition strategy consists of competitively awarding up to three (3) Phase A System Design Review (SDR) contracts in FY2009. Following SDR, a full and open competition is planned for award of up to two contracts through Preliminary Design Review (PDR), with a down-select to a single contractor for Block 10 and beyond. The block approach will deliver Space Fence capabilities that follow the principles of time-certain capability/ development and considers user needs and required delivery dates, technology maturity, program risk, and fiscal constraints. Initial Operational Capability (IOC) consisting of the first radar site is desired no later than FY15. The final schedule will be determined in Phase A.

Award of the first competitively awarded contract(s) planned for 4Q FY09.

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Exhibit R-3, RDT&E Project Cost Analysis

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May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems				PROJECT NUMBER AND TITLE A009 Space Fence		
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Design and development	C/TBD	TBD		7.689	Jan-08	32.571	Jul-09	78.304	Jan-10	Continuing	TBD	
Design evaluation	SS/FP-LOE	MIT Lincoln Laboratory, Lexington, MA		2.100	Oct-07	2.200	Oct-08	2.266	Oct-09	Continuing	TBD	
Design evaluation	SS/FP-LOE	MITRE Corp., Bedford, MA		0.635	Oct-07	3.700	Oct-08	3.456	Oct-09	Continuing	TBD	
Subtotal Product Development			0.000	10.424		38.471		84.026		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Electronic Systems Center, Hanscom AFB, MA; others		1.020	Nov-07	2.084	Nov-08	1.660	Nov-09	Continuing	TBD	
Development review and management	C/FP LOE	Odyssey Systems, Wakefield, MA		1.018	Feb-08	1.743	Feb-09	1.795	Feb-10	Continuing	TBD	
Development review and management	C/FP LOE	Jacobs Technology, Tullahoma, TN		1.226	Jan-08	2.709	Jan-09	2.747	Jan-10	Continuing	TBD	
Development review and management	C/FP LOE	L3/Engility, Billerica, MA		0.160	Oct-07					Continuing	TBD	
Subtotal Support			0.000	3.424		6.536		6.202		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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)											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	13.848		45.007		90.228		Continuing	TBD	0.000

R-1 Line Item No. 73

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Project A009

Exhibit R-3 (PE 0604425F)

Exhibit R-4, RDT&E Schedule Profile

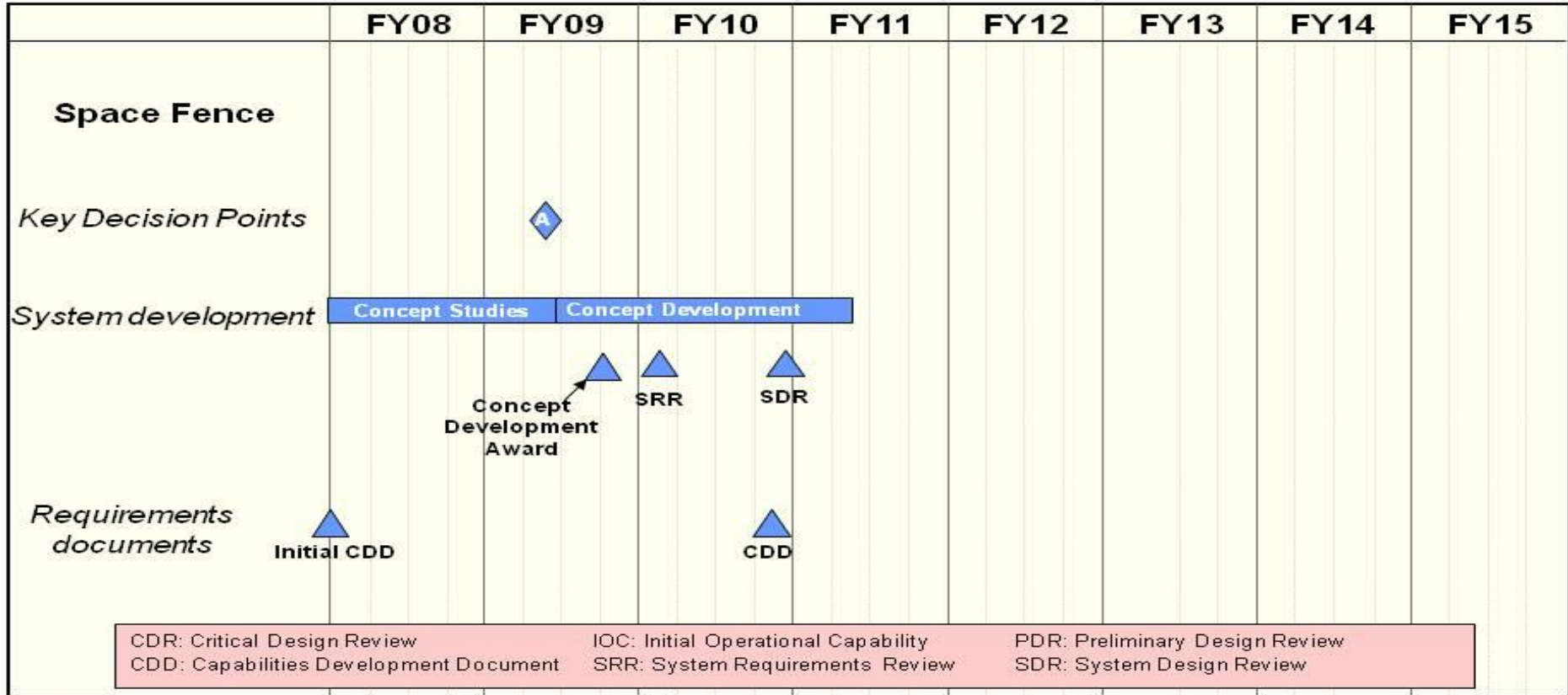
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A009 Space Fence



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

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A009 Space Fence

(U) Schedule Profile

(U) Initial CDD

(U) Key Decision Point A

(U) Concept Definition Contract Award

(U) System Requirements Review

(U) Capability Development Document

(U) System Design Review

FY 2008

1Q

FY 2009

2Q

4Q

FY 2010

1Q

4Q

4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems				PROJECT NUMBER AND TITLE A012 Net-centric Sensors and Data Sources		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A012 Net-centric Sensors and Data Sources	0.000	0.000	18.357	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Net-centric Sensors and Data Sources, 65A012, is a new project in FY10, with the exception of the ESSA ACTD transition effort which was included previously in the ISSA program and is now associated with the JSPOC Mission System in PE 35614F.

(U) A. Mission Description and Budget Item Justification

Net-centric Sensors and Data Sources efforts migrates the space surveillance network, non-traditional sensors and data sources for use by any entity (primarily the JSPOC) into a net-centric enterprise enabling more rapid distribution of data to the warfighter based on an AFSPC provided prioritization list. This effort will define and implement the operational concept, technical architecture, and support concept to provide the foundational data necessary to enable rapid, responsive decisions by the Commander, US Strategic Command's Joint Functional Component Commander for Space and other national capability users to enable the protection of US space assets from proliferating adversary threats. This effort builds upon the successful Extended Space Sensor Architecture Advanced Concept Technology Demonstration (ESSA ACTD) and prototypes how disparate and legacy space sensor network data can be translated into a net-centric operating environment. Data will be exposed as defined by published DoD and community interface standards to ensure technical interoperability.

These efforts are in Budget Activity 5, System Development & Demonstration, because they develop and demonstrate capabilities for better integration of SSA data.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Concept Definition/Research and Analysis	0.000	0.000	4.659
(U) Sensor & Data Source Integration (Net-centric data interface)	0.000	0.000	10.151
(U) Extended Space Sensors Architecture ACTD (ESSA ACTD)	0.000	0.000	0.100
(U) Program Office and related support activities, such as, Technical Studies and Analysis, Systems Engineering and Integration	0.000	0.000	3.447
(U) Total Cost	0.000	0.000	18.357

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U)

(U) D. Acquisition Strategy

Sensor and data sources activities utilize existing engineering and study contracts and a competitively selected system engineering team. Sensor integration focus is on supporting the migration of the space surveillance network sensors, non-traditional sensors and data sources to a net-centric architecture based on a AFSPC provided prioritization list. The systems engineering team will provide high-level technical oversight support and assist in the proper execution of the prioritized sensors and

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A012 Net-centric Sensors and Data Sources

data sources.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604425F Space Situation Awareness Systems					A012 Net-centric Sensors and Data Sources			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Concept Definition Research and Analysis	Various	Various	0.000	0.000		0.000		4.659	Nov-09	Continuing	TBD	TBD
Sensor & Data Source Integration	Various	Various	0.000	0.000		0.000		10.151	Nov-09	Continuing	TBD	TBD
Systems Engineering and Integration	Various	Various	0.000	0.000		0.000		2.500	Nov-09	Continuing	TBD	TBD
ESSA ACTD	Various	MIT Lincoln Laboratory, Lexington, MA; ITSP, Colorado Springs, CO	0.000	0.000		0.000		0.100	Nov-09		0.100	
Subtotal Product Development			0.000	0.000		0.000		17.410		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office and related support activities, such as Technical Studies and Analysis, Systems Engineering and Integration	Various	Various	0.000	0.000		0.000		0.947	Oct-09	Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		0.947		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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		0.000		18.357		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A012 Net-centric Sensors and Data Sources

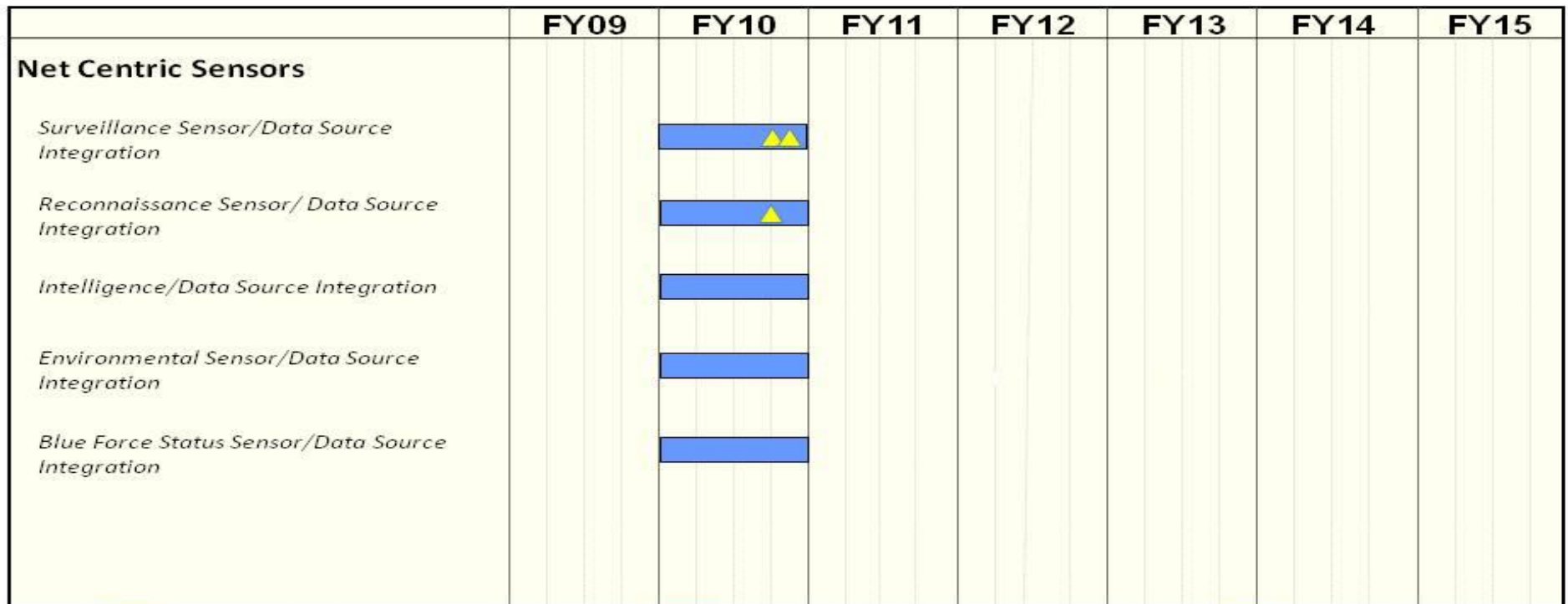


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A012 Net-centric Sensors and Data Sources

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Surveillance Sensor/Data Source Exposed

4Q

(U) Reconnaissance Sensor/Data Source Exposed

4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems			PROJECT NUMBER AND TITLE A037 Space Surveillance Telescope		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A037 Space Surveillance Telescope	0.000	0.000	6.895	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Space Surveillance Telescope, 65A037, is a new project in FY10.

(U) A. Mission Description and Budget Item Justification

The Space Surveillance Telescope (SST) is a Defense Advanced Research Projects Agency (DARPA) development program intended to improve US space surveillance capabilities to find, fix, track and characterize small objects in Deep Space (DS) to a level that will address warfighter requirements. SST is a ground based, electro-optical telescope that will demonstrate technologies in curved, charge coupled device (CCD) development as well as large telescope control methods. This effort transitions the SST into normalized Air Force operations in support of SSA. In particular, SST provides a capability for uncued detection and tracking of small satellite objects in all deep space orbits. This is a new start in FY10.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Space Surveillance Telescope Transition to Operations	0.000	0.000	6.895
(U)			
(U)			
(U) Total Cost	0.000	0.000	6.895

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) D. Acquisition Strategy

Following the DARPA/MIT-LL demonstration period (est to complete third quarter FY10), AFSPC will oversee a 12-18 month transition period in which the CONOPs for SST will be completed. Several tactics, techniques and procedures (TTPs) will be considered to determine the maximum benefit SST can provide to achieving Space Situation Awareness. Preliminary transition activities such as obtaining critical spares and completing the net-centric infrastructure will begin in FY10 prior to IOC. After the completion of a positive Joint Military Utility Assessment (JMUA) decision in FY11, sustainment of the operationalized SST capabilities will follow.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604425F Space Situation Awareness Systems					A037 Space Surveillance Telescope			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Space Surveillance Telescope Transition	TBD	MIT Lincoln Laboratory, Lexington, MA	0.000	0.000		0.000		4.334	Oct-09	0.000	4.334	
Space Surveillance Telescope Data Delivery	C/CPAF	ITT Corporation, Colorado Springs, CO	0.000	0.000		0.000		1.870	Oct-09	0.000	1.870	
Subtotal Product Development			0.000	0.000		0.000		6.204		0.000	6.204	0.000
Remarks:												
(U) <u>Support</u> Program Office Support	Various	Electronic Systems Center, Peterson AFB, CO	0.000	0.000		0.000		0.691	Oct-09	0.000	0.691	
Subtotal Support			0.000	0.000		0.000		0.691		0.000	0.691	0.000
Remarks:												
(U) <u>Test & 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)												0.000
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		6.895		0.000	6.895	0.000

Exhibit R-4, RDT&E Schedule Profile

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May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A037 Space Surveillance Telescope

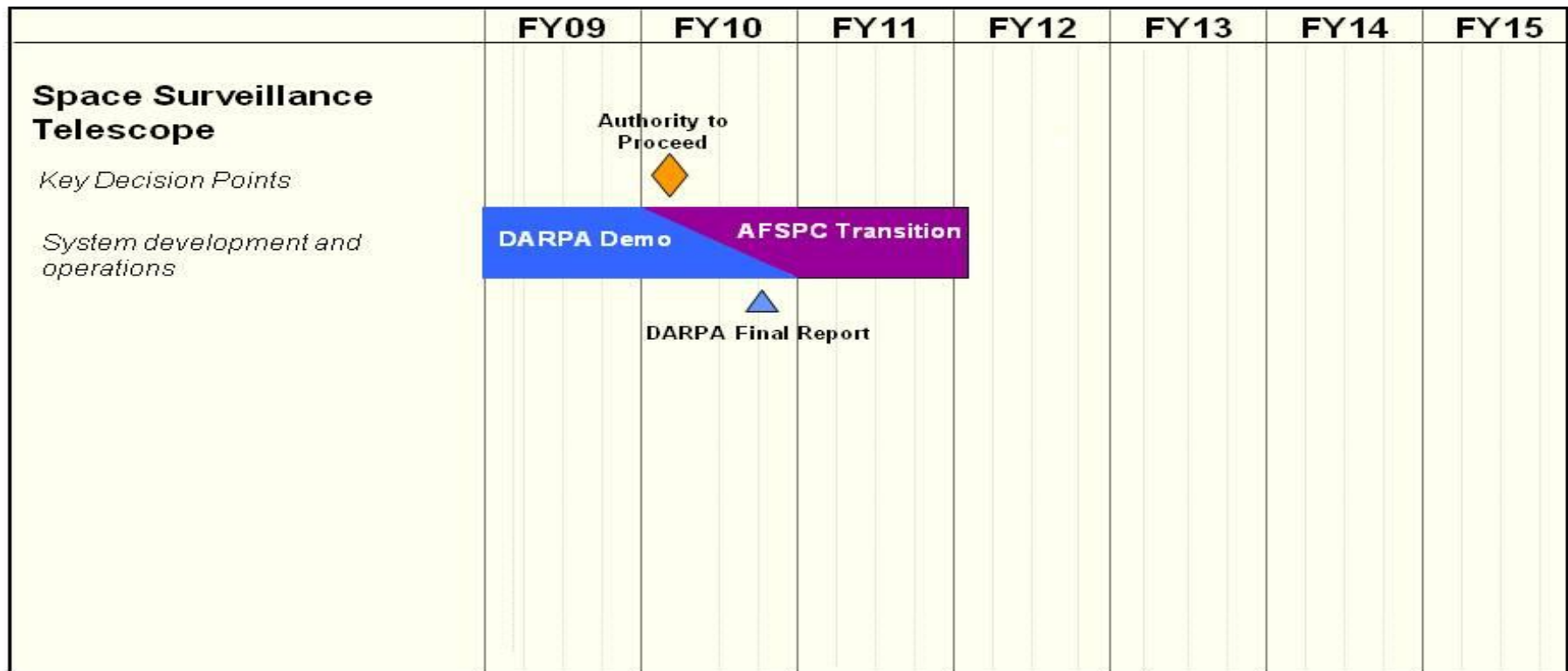


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A037 Space Surveillance Telescope

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Authority to proceed

1Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems		PROJECT NUMBER AND TITLE A038 SSA Environmental Monitoring		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A038 SSA Environmental Monitoring	0.000	0.000	15.550	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Space Situation Awareness Environmental Monitoring (SSAEM), 65A038, is a new project in FY10.

(U) A. Mission Description and Budget Item Justification

Space Situational Awareness Environmental Monitoring (SSAEM) continues the key legacy space environment measurements of the DMSP program de-manifested from the planned next generation weather program. These measurements are critical inputs to the nation's space environment analysis and forecasting models supporting the pervasive nature of space environmental support to all aspects of SSA, offensive and defensive space control, system anomaly resolution, attribution and responsive actions, and force protection from communication outages modulated by solar activity. The key components of SSAEM include a space-based sensing capability to acquire space environment measurement data, ground processing software to generate required products and development/modifications of environmental models/databases and application algorithms to assimilate the SSAEM sensor data. SSAEM will support risk reduction for space sensors by leveraging funding on prototypes, operational systems and Joint/Advanced Concept Technology Demonstration (JCTDs/ACTDs). SSAEM will seamlessly integrate into the overall SSA mission, comply with net-centricity requirements, and provide timely critical decision making data to the SSA battlespace management infrastructure. This will be a new start in FY10.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SSA Environmental Monitoring sensors			5.631
(U) Data development of SSA Environmental Monitoring			7.091
(U) Program Office and related support activities, such as Technical Studies & Analysis, Systems Engineering & Integration			2.828
(U) Total Cost	0.000	0.000	15.550

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

The space environment measurement data sources will be acquired through competitive awards of contracts. Studies will be conducted to determine the optimum concept to acquire environment measurement data sources. Existing sensors with Technology Readiness Level (TRL) 7 or higher will be leveraged. Hosting sensors on rides of opportunity shall be a priority, however other concepts shall be considered also.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604425F Space Situation Awareness Systems					A038 SSA Environmental Monitoring			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
SSA Environmental Monitoring Sensors	TBD							5.631	Jun-10	Continuing	TBD	
SSA Environmental Monitoring Data Development	TBD							7.091		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		12.722		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Management								2.828		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		2.828		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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		0.000		15.550		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

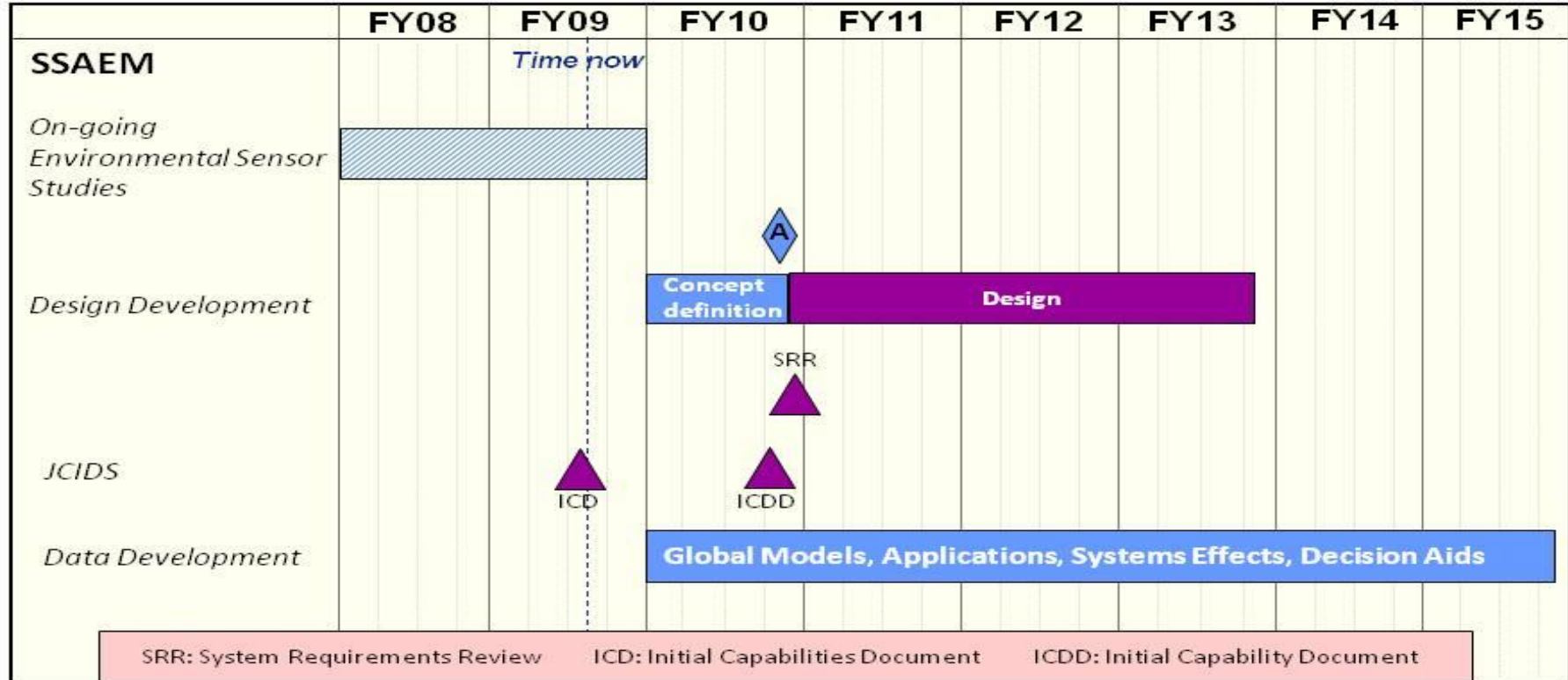
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE
A038 SSA Environmental Monitoring



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

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604425F Space Situation Awareness Systems	PROJECT NUMBER AND TITLE A038 SSA Environmental Monitoring
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Milestone A			4Q
(U) Systems Requirements Review			4Q

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PE NUMBER: 0604429F
 PE TITLE: AIRBORNE ELECTRONIC ATTACK

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.170	43.123	11.107	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5192 Network & Sys -of-Sys Dev	23.170	43.123	11.107	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program element supports the development of the critical electronic attack capabilities, from technology demonstrations through transition to operational capability, for Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. The Joint SEAD presentation identified the Navy AEA components as the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms and indicated the Air Force will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) and its stand-in jammer variant called MALD-J, the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration and Active Electronically Scanned Array (AESA) radar equipped aircraft, and potentially, recoverable unmanned stand-in and manned long range stand-off jammer platforms.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	23.826	34.279	53.310
(U) Current PBR/President's Budget	23.170	43.123	11.107
(U) Total Adjustments	-0.656	8.844	
(U) Congressional Program Reductions		-0.039	
Congressional Rescissions		-0.117	
Congressional Increases		9.000	
Reprogrammings			
SBIR/STTR Transfer	-0.656		

(U) Significant Program Changes:

FY09 \$9M Congressional Increase for Core Component Jammer (CCJ)
 FY10 Reduction of \$42M for higher Air Force priorities

Exhibit R-2a, RDT&E Project Justification

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 5192 Network & Sys -of-Sys Dev		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5192 Network & Sys -of-Sys Dev	23.170	43.123	11.107	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program element supports the development of the critical electronic attack capabilities, from technology demonstrations through transition to operational capability, for Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. The Joint SEAD presentation identified the Navy AEA components as the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms and indicated the Air Force will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) and its stand-in jammer variant called MALD-J, the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration and Active Electronically Scanned Array (AESA) radar equipped aircraft, and potentially, recoverable unmanned stand-in and manned long range stand-off jammer platforms.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AEA Synchronization Office Support	1.250	1.300	1.300
(U) AEA System of Systems engineering/architecture development/requirements refinement/technology maturation	12.617	24.554	6.399
(U) AEA virtual test/modeling & simulation/EW capability investment strategy/technology demonstrations	5.303	8.269	3.408
(U) B-52 Core Component Jammer (CCJ) technology demonstration	4.000	9.000	
(U) Total Cost	23.170	43.123	11.107

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) None

(U) D. Acquisition Strategy

Project 5192 "Network and System of Systems Development" uses existing ASC, AFRL, and other contracts and instruments to provide engineering, architecture development, and other support for the AEA System of Systems.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK	PROJECT NUMBER AND TITLE 5192 Network & Sys -of-Sys Dev
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2010</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>												
AEA system of systems engineering	MIPR & CPFF	Various	9.400	4.644	Dec-07	10.154	Dec-08	5.274	Dec-09	Continuing	TBD	
Low band array technology maturation	CPFF	Various		3.537	Jun-08	6.000					9.537	
Mid band array technology maturation	CPFF	Various		0.891	Jun-08	4.000					4.891	
Aircraft integration systems engineering	CPFF	Boeing; Wichita, KS		4.000	Jun-08	9.000					13.000	
Exciter technology maturation	CPFF	Various		2.438	Jun-08	3.300					5.738	
Subtotal Product Development			9.400	15.510		32.454		5.274		Continuing	TBD	0.000
Remarks:	Includes system of systems engineering; architecture development; network requirements development; EW assessments; technology maturation; working group support; engineering, test planning, and milestone preparation assistance for AF AEA SoS components											
(U) <u>Support</u>												
AEA requirements support	MIPR	Various	2.100	1.107	Dec-07	1.100	Dec-08	1.125	Dec-09	Continuing	TBD	
Subtotal Support			2.100	1.107		1.100		1.125		Continuing	TBD	0.000
Remarks:	Requirements support includes contracted requirements refinement support for ACC and AF/A5R											
(U) <u>Test & Evaluation</u>												
AEA Virtual test/AFEWICS/Technology Demonstrations	Various	Various	17.143	5.303	Nov-07	8.269	Dec-08	3.408	Dec-09	Continuing	TBD	
Subtotal Test & Evaluation			17.143	5.303		8.269		3.408		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	2.099	1.250	Oct-07	1.300	Oct-08	1.300	Oct-09	Continuing	TBD	
Subtotal Management			2.099	1.250		1.300		1.300		Continuing	TBD	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by program offices. Costs include travel, office equipment, office supplies, printing, contract services, program management administrative and communications expenses.											
(U) Total Cost			30.742	23.170		43.123		11.107		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604429F AIRBORNE ELECTRONIC
ATTACK

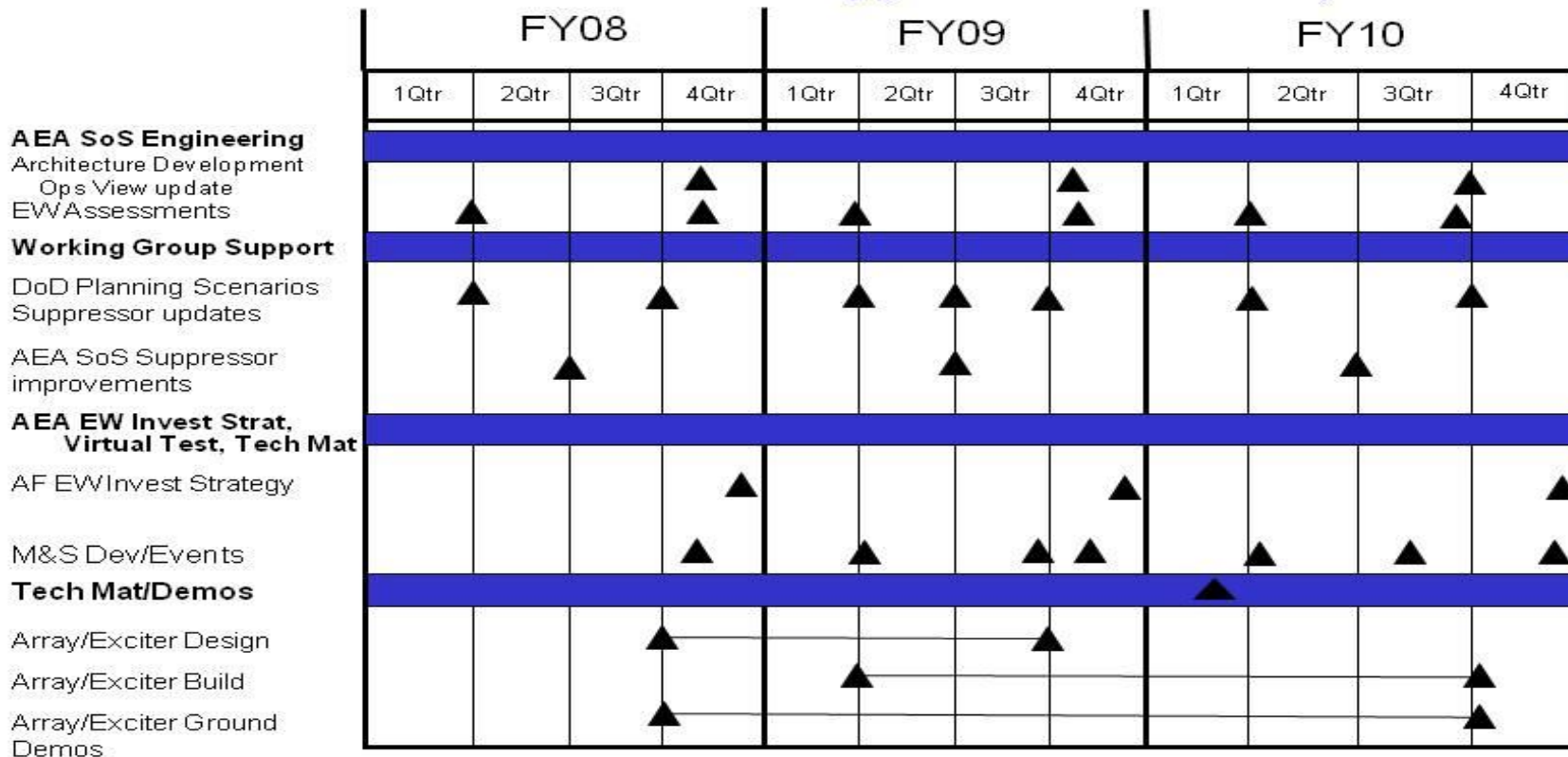
PROJECT NUMBER AND TITLE
5192 Network & Sys -of-Sys Dev



AEA SoS Schedule FY08-FY10



Dominant Air Power: Design for Tomorrow... Deliver Today



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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604429F AIRBORNE ELECTRONIC ATTACK	PROJECT NUMBER AND TITLE 5192 Network & Sys -of-Sys Dev
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>		<u>FY 2010</u>
(U) Continuing to support ongoing AEA systems engineering efforts	1-4Q	1-4Q		1-4Q

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PE NUMBER: 0604441F

PE TITLE: Space Based Infrared Systems (SBIRS) High EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	583.305	542.411	512.642	0.000	0.000	0.000	0.000	0.000	0.000	7,799.654
3616 SBIRS High Element EMD	583.305	542.411	512.642	0.000	0.000	0.000	0.000	0.000	0.000	7,799.654

(U) A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies, as well as technology needs forecasting, to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is accepted and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations. The HEO-2 payload is in orbit and is conducting on-orbit checkout and testing. HEO-2 is scheduled for certification and subsequent operations in late summer 2009.

(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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	583.317	529.771	443.268
(U) Current PBR/President's Budget	583.305	542.411	512.642
(U) Total Adjustments	-0.012	12.640	
(U) Congressional Program Reductions	-0.012	-0.887	
Congressional Rescissions		-1.473	
Congressional Increases		15.000	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY09: Congressional add of \$15M for HEO Ground Integration
 FY10: Additional funds added for GEO-1 & 2 development and test program completion

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
3616 SBIRS High Element EMD	583.305	542.411	512.642	0.000	0.000	0.000	0.000	0.000	0.000	7,799.654	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies, as well as technology needs forecasting, to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is accepted and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations. The HEO-2 payload is in orbit and is conducting on-orbit checkout and testing. HEO-2 is scheduled for certification and subsequent operations in late summer 2009.

(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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO development, GEO 1&2 integration, assembly and test, design activities for GEO block upgrades, proposal preparation, HEO integration and test, HEO message certification, Ground System Development, System Engineering and Program Management, Host program office support, Technical Intelligence activities, Data Exploitation activities, Combined Task Force (CTF) support activities, continuation of systems integration and test studies, and related support activities).	528.414	487.125	468.003
(U) Continue Program Office and related support activities to include SETA and Systems Engineering and Integration.	17.379	23.186	19.768
(U) Continue technical analysis and independent verification and validation of contractor.	37.512	32.100	24.871
(U) Total Cost	583.305	542.411	512.642

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement (PE 0305915F, BA-03,)	3.952	80.168	34.440	0.000	0.000	0.000	0.000	0.000	0.000	118.560
(U) Missile Procurement (PE 0305915F, BA-05, P-30)	395.310	1712.976	466.456	0.000	0.000	0.000	0.000	0.000	0.000	2,574.742

(U) **D. Acquisition Strategy**

The pre-SDD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1995 for the pre-SDD phase. A single contract was awarded to Lockheed Martin in 1996 for the SDD phase.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604441F Space Based Infrared Systems (SBIRS) High EMD					3616 SBIRS High Element EMD			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600							0.000	159.600	159.600
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	5,599.922	528.414	Oct-07	487.125	Oct-08	468.003	Oct-09	0.000	7,083.464	7,083.464
SBIRS Pre-SDD Contract Adjustment			4.780							0.000	4.780	4.780
Technology	Various		11.600							0.000	11.600	11.600
Phenomenology	Various		17.350							0.000	17.350	17.350
Sandia Natl Lab (Cobra Brass)	Various		10.000							0.000	10.000	10.000
Subtotal Product Development			5,803.252	528.414		487.125		468.003		0.000	7,286.794	7,286.794
Remarks:												
(U) <u>Support</u>												
Aerospace Corp	Reimbursable Order	Aerospace Corp, El Segundo CA	251.470	37.512	Oct-07	32.100	Oct-08	24.871	Oct-09	0.000	345.953	345.953
Prgm Mgmt Supt	Various	Various	106.574	17.379	Oct-07	23.186	Oct-08	19.768	Oct-09	0.000	166.907	166.907
Subtotal Support			358.044	54.891		55.286		44.639		0.000	512.860	512.860
Remarks:												
(U) <u>Test & Evaluation</u>												
Not Applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			6,161.296	583.305		542.411		512.642		0.000	7,799.654	7,799.654

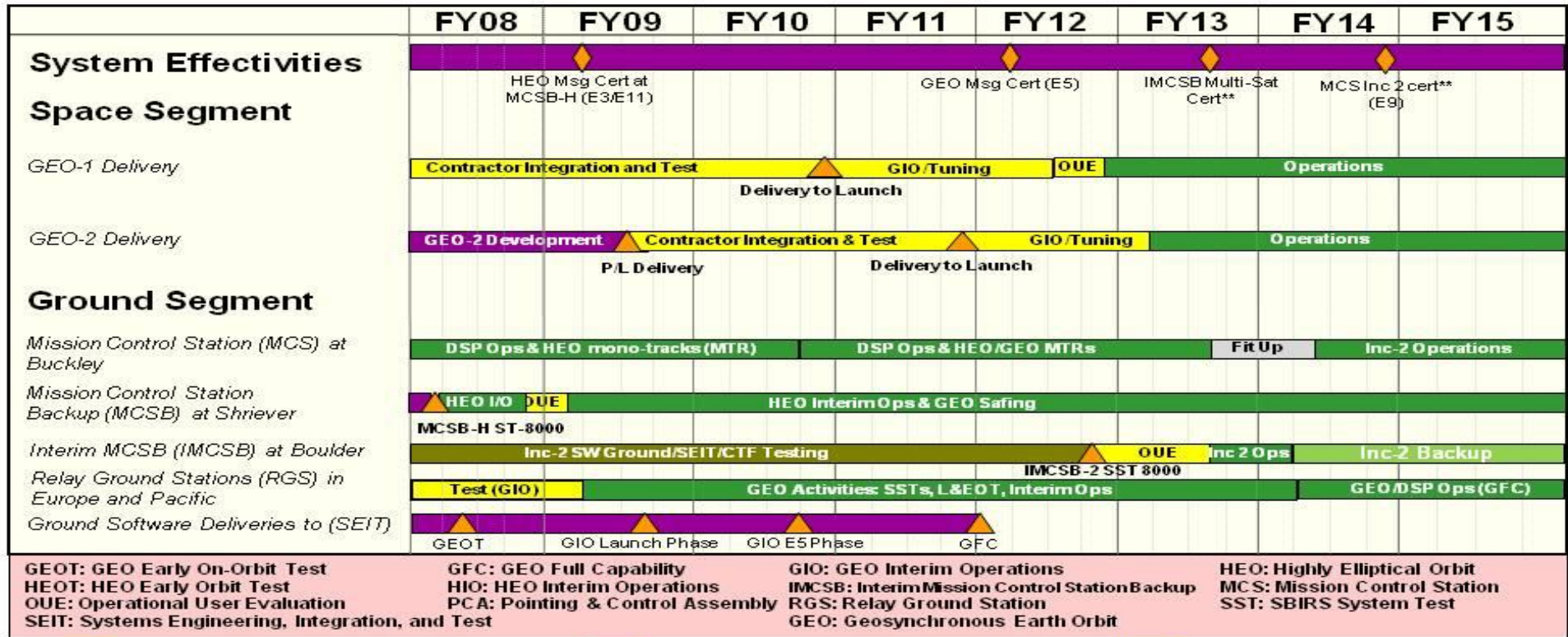
Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

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



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

**Denotes dates are under review pending the determination of ground delivery/implementation strategy

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD	PROJECT NUMBER AND TITLE 3616 SBIRS High Element EMD
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Delivery of Mission Control Station Backup-HEO (MCSB-H) to SEIT	1Q		
(U) GEO Early On-Orbit Test (GEOT) Software Delivery	2Q		
(U) GEO-1 GEOT-E Software Delivery to Integration	2Q		
(U) GEO-1 SPA Software Item Qualification Test (SIQT) Complete		1Q	
(U) HEO message certification		1Q	
(U) HEO back-up operations		2Q	
(U) GEO-2 Payload delivery to prime for integration with spacecraft		3Q	
(U) GEO Interim Operations (GIO) Software Delivery		4Q	
(U) GEO-2 Acoustic Test Complete			2Q
(U) GEO-2 TVAC Open Door Test Complete			3Q
(U) GEO Satellite 1 Delivery			4Q

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PE NUMBER: 0604443F

PE TITLE: Third Generation Infrared Surveillance (3GIRS)

Exhibit R-2, RDT&E Budget Item Justification									DATE May 2009	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604443F Third Generation Infrared Surveillance (3GIRS)					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	75.410	0.953	143.169	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A020 3GIRS	75.410	0.953	143.169	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) 3rd Generation Infrared Surveillance (3GIRS) continues risk reduction and maturation of full-earth, Wide Field of View (WFOV) infrared (IR) sensor technology, enabling improved detection sensitivities and faster warning times of new and emerging worldwide missile threats against the U.S., its deployed forces, and its allies. 3GIRS will investigate and mature both space and ground capabilities to process new full-earth sensor data for use across the missile warning, missile defense, battlespace awareness, and technical intelligence mission areas. Sensor test and evaluation efforts in FY10 will include hosting an IR payload prototype on a commercial host, WFOV algorithm development, and planning for integration into existing Space Based Infrared System (SBIRS) ground architecture.

(U) In FY09, Congress transferred \$75M from 3GIRS to the Operationally Responsive Space (ORS) program, PE 0604857F, for IR sensor payload development and demonstration. Efforts in 2009 actively continue on the integration of a quarter-earth WFOV IR payload onto a commercial host for on-orbit testing in 2010-2011, WFOV sensor testing, and algorithm development. System Definition activities were discontinued.

(U) In order to reduce schedule and technical risk, 3GIRS will evolve Overhead Persistent Infrared (OPIR) WFOV sensor technology and ground processing capabilities over multiple blocks to achieve full capabilities. Block 0 developed two WFOV sensors in 2008 and will progress WFOV technology maturation activities from prototype sensor development/testing to flight qualified payload development/testing and on-orbit demonstration. Specific Block 0 activities in FY10 include the upgrade of WFOV prototype sensors to flight qualified payloads, payload integration and testing using the Integrated Test Bed satellite simulators, development and testing of WFOV data processing algorithms, delivery of a quarter-earth prototype payload for a commercial host launch in 2010, and the initial phase of the quarter-earth on-orbit demonstration. Block 1 begins in late FY10/early FY11 and will focus on delivering hosted full-earth staring WFOV prototype payloads and ground processing prototypes to mature sensor technology and ground processing algorithms in theater missile warning, missile defense, technical intelligence, and battlespace awareness applications. Potential start of evolution to next generation OPIR is dependent on the outcome of a 2009-2011 Joint AFSPC/NGA OPIR Analysis of Alternatives (AoA) for a future space and ground OPIR architecture. If a future acquisition is initiated to evolve SBIRS High capabilities, it is envisioned to focus on meeting OPIR requirements derived from an in-progress 2009 OPIR ICD and will be based on results from the OPIR AoA.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for evolving the SBIRS High next generation of missile warning satellites.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Third Generation Infrared Surveillance (3GIRS)

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	75.410	149.064	145.358
(U) Current PBR/President's Budget	75.410	0.953	143.169
(U) Total Adjustments	0.000	-148.111	
(U) Congressional Program Reductions	0.000	-149.064	
Congressional Rescissions	0.000		
Congressional Increases		0.953	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress reduced the 3GIRS program by the entire FY2009 request of \$149.064. Congress transferred \$75M to the Operationally Responsive Space (ORS) program, PE 0604857F, for infrared sensor payload development and demonstration. \$.953M Congressional add for Advanced Staring Infrared Testbed (ASIRT) technology demonstration.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604443F Third Generation Infrared Surveillance (3GIRS)		PROJECT NUMBER AND TITLE A020 3GIRS		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A020 3GIRS	75.410	0.953	143.169	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) 3rd Generation Infrared Surveillance (3GIRS) continues risk reduction and maturation of full-earth, Wide Field of View (WFOV) infrared (IR) sensor technology, enabling improved detection sensitivities and faster warning times of new and emerging worldwide missile threats against the U.S., its deployed forces, and its allies. 3GIRS will investigate and mature both space and ground capabilities to process new full-earth sensor data for use across the missile warning, missile defense, battlespace awareness, and technical intelligence mission areas. Sensor test and evaluation efforts in FY10 will include hosting an IR payload prototype on a commercial host, WFOV algorithm development, and planning for integration into existing Space Based Infrared System (SBIRS) ground architecture.

(U) In FY09, Congress transferred \$75M from 3GIRS to the Operationally Responsive Space (ORS) program, PE 0604857F, for IR sensor payload development and demonstration. Efforts in 2009 actively continue on the integration of a quarter-earth WFOV IR payload onto a commercial host for on-orbit testing in 2010-2011, WFOV sensor testing, and algorithm development. System Definition activities were discontinued.

(U) In order to reduce schedule and technical risk, 3GIRS will evolve Overhead Persistent Infrared (OPIR) WFOV sensor technology and ground processing capabilities over multiple blocks to achieve full capabilities. Block 0 developed two WFOV sensors in 2008 and will progress WFOV technology maturation activities from prototype sensor development/testing to flight qualified payload development/testing and on-orbit demonstration. Specific Block 0 activities in FY10 include the upgrade of WFOV prototype sensors to flight qualified payloads, payload integration and testing using the Integrated Test Bed satellite simulators, development and testing of WFOV data processing algorithms, delivery of a quarter-earth prototype payload for a commercial host launch in 2010, and the initial phase of the quarter-earth on-orbit demonstration. Block 1 begins in late FY10/early FY11 and will focus on delivering hosted full-earth staring WFOV prototype payloads and ground processing prototypes to mature sensor technology and ground processing algorithms in theater missile warning, missile defense, technical intelligence, and battlespace awareness applications. Potential start of evolution to next generation OPIR is dependent on the outcome of a 2009-2011 Joint AFSPC/NGA OPIR Analysis of Alternatives (AoA) for a future space and ground OPIR architecture. If a future acquisition is initiated to evolve SBIRS High capabilities, it is envisioned to focus on meeting OPIR requirements derived from an in-progress 2009 OPIR ICD and will be based on results from the OPIR AoA.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for evolving the SBIRS High next generation of missile warning satellites.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Risk reduction activities	50.461	0.953	113.348
(U) Block Engineering & Definition	15.315	0.000	
(U) Block Development	0.000	0.000	8.800
(U) FFRDC, Development Planning, SE/TA, and Systems Engineering and Integration Technical Support	9.634	0.000	21.021

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Third Generation Infrared Surveillance (3GIRS)	PROJECT NUMBER AND TITLE A020 3GIRS
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Total Cost	75.410	0.953	143.169

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
(U)	<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>Complete</u>	<u>Total Cost</u>

(U) **D. Acquisition Strategy**

(U) 3GIRS will plan and pursue new capabilities for WFOV sensor and ground processing development using a block approach. Block 0 will upgrade WFOV sensors to flight qualified payloads, develop ground processing algorithms, and culminates in a system level on-orbit demonstration of a quarter-earth WFOV payload proving IR data which will be processed by newly developed algorithms. Block 1 will develop ground processing prototypes and hosted full-earth WFOV prototypes to reduce risk in theater missile warning, missile defense, technical intelligence, and battlespace awareness applications. If a future acquisition is initiated as a result of the OPIR AoA, it will evolve SBIRS High capabilities to meet emerging warfighter requirements.

(U) The program's technology maturation efforts are focused on fostering competition and growing the industrial base to ensure we have ready access to the technology needed to respond in the next decade to new and emerging threats and requirements. The acquisition strategy will evolve current Missile Warning capabilities in response to new JROC-approved requirements since approval of the 1996 SBIRS Operational Requirements Document (ORD). All contracts will be awarded using competitive procedures to the maximum extent possible.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604443F Third Generation Infrared Surveillance (3GIRS)					A020 3GIRS			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Risk reduction activities	Various	Various	46.450	50.461	Oct-07	0.953	Mar-09	113.348	Oct-09	Continuing	TBD	TBD
Block Engineering & Definition	Various	Various	16.838	15.315	Oct-07	0.000				Continuing	TBD	TBD
Block Development	Various	Various	0.000	0.000		0.000		8.800	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			63.288	65.776		0.953		122.148		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program office, developmental planning, and technical support including federally funded research and development center (FFRDC/SETA)	Various	Space and Missile Center, El Segundo, CA	4.264	9.634	Oct-07	0.000		21.021	Oct-09	Continuing	TBD	TBD
Subtotal Support			4.264	9.634		0.000		21.021		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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			67.552	75.410		0.953		143.169		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

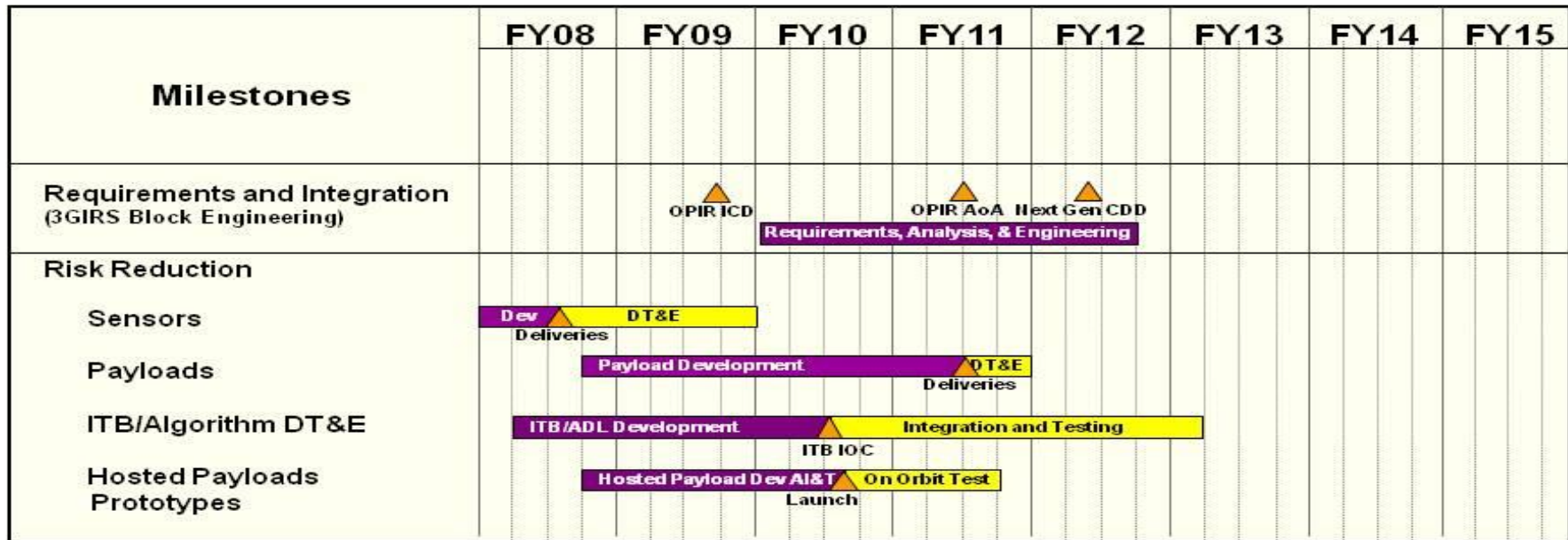
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604443F Third Generation Infrared
Surveillance (3GIRS)

PROJECT NUMBER AND TITLE
A020 3GIRS



AI&T: Assembly, Integration & Test ADL: Algorithm Development Lab AoA: Analysis of Alternatives DT&E: Development Test & Evaluation
 ICD: Initial Capabilities Document IOC: Initial Operational Capability ITB: Integrated Test Bed

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

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604443F Third Generation Infrared Surveillance (3GIRS)	PROJECT NUMBER AND TITLE A020 3GIRS
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Risk Reduction Sensor Deliveries	2Q		
(U) Risk Reduction Sensors DT&E	3-4Q	1-4Q	
(U) 3rd Generation System Design Reviews (SDR)	4Q		
(U) Commerical Host Flight Demo Contract Award	3Q		
(U) Algorithm DT&E Deliveries	4Q	3Q	2Q
(U) Commerical Host Flight Demo Launch			3Q
(U) ITB IOC			3Q
(U) SE&I/Ground Development Contract Awards			4Q
(U) Hosted Payload Prototype Contract Awards			4Q
(U) Commerical Host Flight Demo			3-4Q

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PE NUMBER: 0604602F
 PE TITLE: Armament/Ordnance Development

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.558	2.089	18.671	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3133 Armament Subsystems	7.558	2.089	11.986	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5361 Stores-Aircraft Interface	0.000	0.000	6.685	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY2008 funding total includes \$3.870M in supplemental funding.

In FY2008, all funds and activities from Projects 4696 Armament Standardization and 5613 Containers moved to Project 3133 Armament Subsystems (new name, old name was Bombs & Fuzes). This was done to consolidate and simplify the program element.

In FY 2010, Project 5361, Stores-Aircraft Interface (new), efforts were transferred from PE 0605011F, RDT&E for Aging Aircraft, Project 654685, Universal Armament Interface (UAI), in order to properly fund the maturing technology.

(U) A. Mission Description and Budget Item Justification

The Armament Ordnance Development program provides for initial and continuing development of weapons/munitions (kinetic and non-kinetic) and munitions equipment for support and operational use. This PE develops and improves the following weapons and weapons subsystems: bomb fuzes, insensitive explosive fills (Insensitive Munitions - IM), aircraft ammunition, stores-aircraft interface upgrades to include the Universal Armament Interface (UAI), directed energy technology transition to weapons, munitions materiel handling equipment (MMHE), munitions containers, and other weapon subsystems.

Armament Subsystems: This project develops and improves conventional weapons/munitions (kinetic and non-kinetic) and fuzes. The project also provides an opportunity to quickly insert emerging technologies into existing and developing aircraft munitions. It currently includes enhancing and improving the reliability of the Joint Programmable Fuze (JPF), integration of the JPF on legacy weapons, and other fuze development, notably the Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD). The project helps the AF meet Insensitive Munitions (IM) compliance through strategic planning, development of an insensitive explosive fill, and bomb case modifications for MK-80 and BLU- series bombs to make these weapons insensitive to unplanned stimuli. Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE) is a continuing project to develop and improve the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project also 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.

Stores-Aircraft Interface: This project conducts stores-aircraft interface upgrades and standards development to include the Universal Armament Interface (UAI). UAI is an Air Force initiative to develop standardized software interfaces in aircraft, weapons and mission planning to support integration of future weapons independent of aircraft Operation Flight Program (OFF) cycles.

This program is in Budget Activity 5 - System Development and Demonstration because the projects support the SDD phase of several munitions related items and

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

functions.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.165	2.095	2.117
(U) Current PBR/President's Budget	7.558	2.089	18.671
(U) Total Adjustments	4.393	-0.006	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.006	
Congressional Increases	3.870		
Reprogrammings	0.591		
SBIR/STTR Transfer	-0.068		

(U) **Significant Program Changes:**

FY2008 funding total includes \$3.870M in supplemental funding. The Air Force also reprogrammed funds to support Insensitive Munitions (IM) strategic planning (\$0.350M) and for the Hard Target Void Sensing Fuse (HTVSF) (\$0.241M).

In FY 2010, the program received additional funding in the amount of \$10.1M for the Hard Target Void Sensing Fuse (HTVSF) Joint Capability Technology Demonstration (JCTD).

In FY 2010, the program also received a funding transfer in the amount of \$6.8M from PE 0605011F, RDT&E for Aging Aircraft, for Universal Armament Interface (UAI) efforts in order to properly fund the maturing technology.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0604602F Armament/Ordnance Development						3133 Armament Subsystems		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3133 Armament Subsystems	7.558	2.089	11.986	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2008: funding total includes \$3.870M in supplemental funding

In FY2008, all funds and activities from BPACs 4696 Armament Standardization and 5613 Containers moved to BPAC 3133 Armament Subsystems (new name, old name was Bombs & Fuzes). This was done to consolidate and simplify the program element.

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

The Armament Subsystems BPAC contains a variety of work:

- Bombs/munitions and fuzes. The Joint Programmable Fuze (JPF) was developed primarily for JDAM and funded by the JDAM program. This project funds the integration of JPF on other AF legacy weapons and improvements to the JPF program, including reliability enhancements and producibility improvements. In addition, the project supports other fuze development activity, including characterization of the Hard Target Void Sensing Fuze (HTVSF), and AF participation in the DOD Fuze Integrated Product Team (IPT). This project is also conducting an Eglin Steel Producibility Enhancement (ESPE) for warhead manufacture (the BLU-122).
- Insensitive Munitions (IM). IM develops explosive fill and bomb case modifications to make conventional weapons insensitive to unplanned stimuli. The project also supports AF IM strategic planning to achieve IM compliance IAW U.S. Code, Title 10, Subtitle A, Part N, Chapter 141, Section 2389, "Ensuring safety regarding insensitive munitions."
- Munitions Materiel Handling Equipment (MMHE) and Container Design Retrieval System (CDRS). Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE) is a continuing project to develop and improve the standardization and commonality of munitions handling and armament equipment to preclude duplication. 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. The tri-service Container Design Retrieval System (CDRS) is a database intended 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 project 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Hard Target Void Sensing Fuze (HTVSF) Joint Capability Tech Demo (JCTD)	4.111		9.930
(U) I-1000 Warhead Technology Demonstration	1.166	0.000	
(U) JPF legacy weapons integration and other fuze activity. Conduct UAI activities.	0.614	0.749	0.738
(U) Design, prototype, test and develop various Munitions Material Handling Equipment (MMHE) projects for AF use	1.029	1.170	1.150
(U) Provide container design expertise and technical support to AF munitions/weapons containers developers. Manage and operate the Tri-Service Container Design Retrieval System (CDRS) database.	0.143	0.170	0.168
(U) Development planning/transition: Insensitive Munitions (IM) strategic planning, Eglin Steel Producibility	0.495		

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Project 3133

Exhibit R-2a (PE 0604602F)

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 3133 Armament Subsystems
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Enhancement (ESPE)			
(U) Total Cost	7.558	2.089	11.986

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) RDT&E AF, PE 0604635F											
Ground Attack Weapons Fuze				18.778						Continuing	TBD
Development, R-1 Line Item											
No. 57											
Funds SDD follow-on for the HTVSF JCTD											

(U) **D. Acquisition Strategy**
 Fuzes (including JPF) is a continuing effort with most activities performed in-house or through contracted services (small contracts). HTVSF JCTD is a two-contractor competition leading to down-select for SDD.
 MMHE and container project activities performed in-house with limited technical and analysis contract support.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604602F Armament/Ordnance Development					3133 Armament Subsystems			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Kaman Precision Products, Inc. (JPF)	FPIF	Orlando, FL	9.020	0.208	Oct-07	0.200	Oct-08	0.197	Oct-09	Continuing	TBD	8.699
Wright Patterson AFB (JPF Mantech Effort)	In-house	Wright Patterson AFB, OH	0.524	0.233	Dec-07	0.250	Oct-08	0.246	Oct-09	Continuing	TBD	
Picatinny Arsenal, NJ (ESPE)	CPFF	Various	6.334	0.000						0.000	6.334	TBD
Air Force Research Lab/RWF - Support (ESPE)	In-house	Eglin AFB, FL	0.180	0.090	Jun-08					0.000	0.270	TBD
Air Force Research Lab/RWF - Contracts Support (ESPE)	CPFF	Various	0.520	0.000						0.000	0.520	TBD
Air Force Research Lab/RWM - Support (IM)	In-house	Eglin AFB, FL		0.170							0.170	
General Dynamics (I-1000)	FFP	Niceville, FL	0.000	0.714	Jul-08					0.000	0.714	TBD
Alliant Techsystems		Minneapolis, MN		1.593	Apr-08			3.674			5.266	
Thales Electronics		Basingstoke, UK		1.593	Apr-08			3.674			5.266	
96 LRS	In-house	Eglin AFB, FL	0.015	0.017		0.016		0.016		Continuing	TBD	TBD
EDSC	In-house	Eglin AFB, FL	0.006	0.000		0.007		0.007		Continuing	TBD	TBD
Prototype Fabrication Shop	In-house	Eglin AFB, FL	0.234	0.223		0.242		0.209		Continuing	TBD	TBD
Subtotal Product Development			16.833	4.840		0.715		8.023		Continuing	TBD	TBD
Remarks:	Kaman Dayron changed its name to Kaman Precision Products											
(U) <u>Support</u>												
AAC/XR (IM, I-1000, ESPE))	In-house	Eglin AFB, FL	1.591	0.687						0.000	2.278	1.761
TEAS/TAMS				0.374				0.767			1.141	
ECO & GFE	In-house	Eglin AFB, FL						0.502			0.502	
AAC/679 ARSS (Program Office - Fuzes)	In-house	Eglin AFB		0.137				0.473			0.610	
External Support (HTVSF: ManTech, Stratcom, AFOTEC, Safety)	In-house			0.287				0.837			1.124	
AAC/688 ARSS (Program Office - MMHE)	In-house	Eglin AFB, FL	0.882	0.789		0.905		0.921		Continuing	TBD	TBD
AAC/688 ARSS (Program Office - Containers)	In-house	Eglin AFB, FL	0.157	0.143		0.170		0.168		Continuing	TBD	TBD
Subtotal Support			2.630	2.417		1.075		3.668		Continuing	TBD	TBD
Remarks:	TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. FFP = Firm Fixed Price											
(U) <u>Test & Evaluation</u>												
46th Test Wing (Fuzes)	In-house	Eglin AFB, FL	0.516	0.301	Oct-07	0.299	Oct-08	0.295	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.516	0.301		0.299		0.295		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			19.979	7.558		2.089		11.986		Continuing	TBD	TBD

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Project 3133

Exhibit R-3 (PE 0604602F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE
3133 Armament Subsystems

Hard Target Void Sensing Fuze

JCTD Schedule

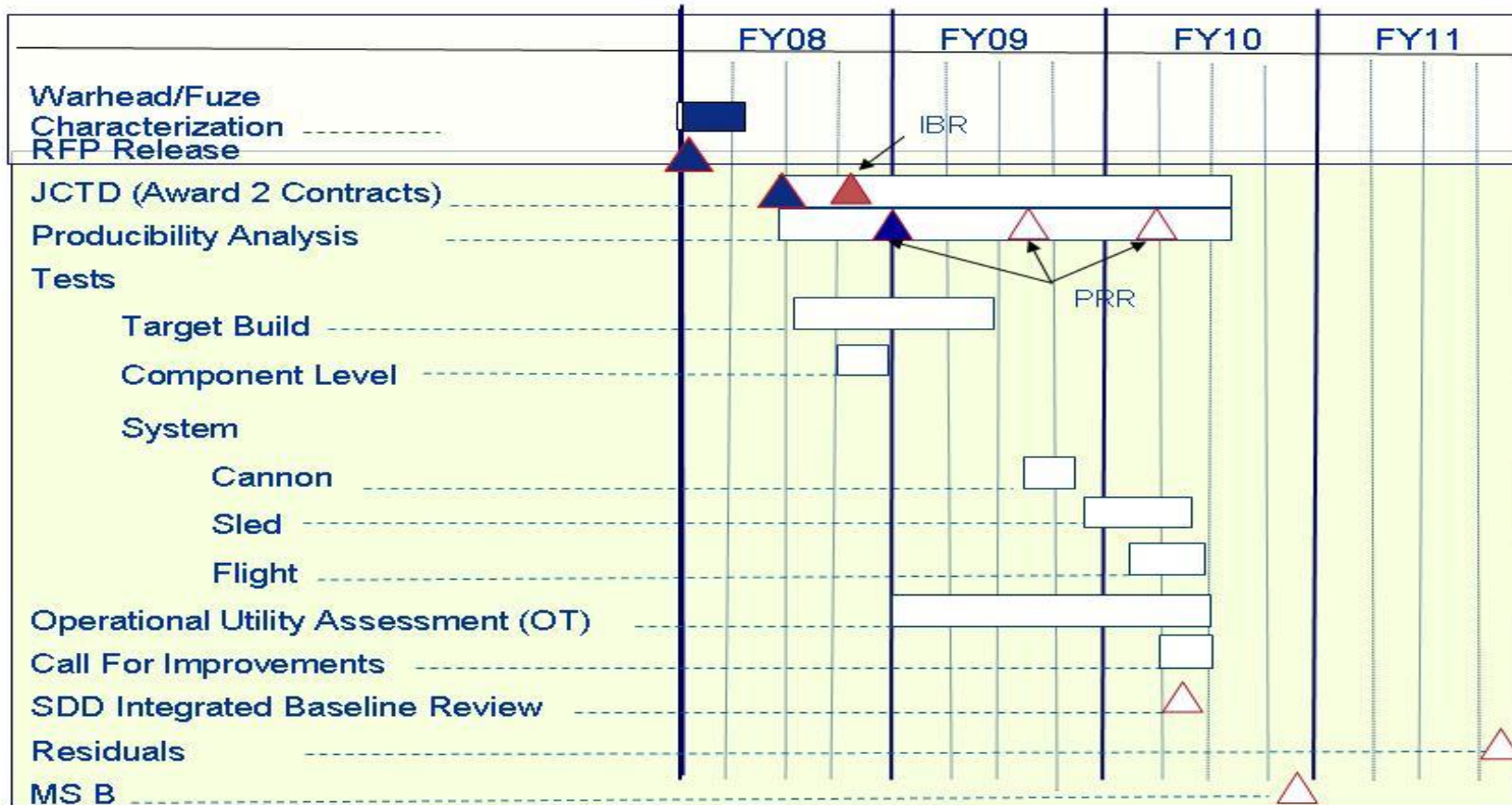


Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

The Fuze, Insensitive Munitions (IM), Munitions Materiel Handling Equipment (MMHE), and Munitions Container programs are continuing activities that support fuze development, IM compliance, MMHE design and development, and container standardization activities throughout the year. IM strategic planning is also an ongoing activity.

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT NUMBER AND TITLE 3133 Armament Subsystems
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) FUZES: JPF Integration on Legacy Weapons & Other Fuze Activity	1-4Q	1-4Q	1-4Q
(U) HTVSF JCTD	3-4Q	1-4Q	1-4Q
(U) HTVSF JCTD - MS B, Contractor Downselect			4Q
(U) Insensitive Munitions (IM) Strategic Planning	1-4Q		
(U) Hard Target Void Sensing Fuze (HTVSF) Characterization Study	1-4Q		
(U) Eglin Steel Producibility Enhancement (ESPE)	1-4Q		
(U) I-1000 Warhead Technology Demonstration	3-4Q	1-3Q	
(U) Study, design, and test MMHE	1-4Q	1-4Q	1-4Q
(U) Support CDRS Activities/Meetings	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development			PROJECT NUMBER AND TITLE 5361 Stores-Aircraft Interface			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5361 Stores-Aircraft Interface	0.000	0.000	6.685	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2010, Project 5361, Stores-Aircraft Interface (new), efforts were transferred from PE 0605011F, RDT&E for Aging Aircraft, Project 654685, Universal Armament Interface (UAI), in order to properly fund the maturing technology.

(U) A. Mission Description and Budget Item Justification

Universal Armament Interface (UAI) is an Air Force initiative to develop, enhance, and implement standardized interfaces in aircraft, weapons and mission planning to support integration of weapons independent of aircraft Operation Flight Program (OFP) cycles. UAI is currently being implemented on the F-15E and F-16 Block 40/50 aircraft, Small Diameter Bomb (SDB) I and II, Joint Direct Attack Munition (JDAM), Joint Air-to-Surface Stand-off Missile (JASSM) and Precision Guided Munitions Planning Software (PGMPS). Additional aircraft and weapons have program plans to implement UAI. The UAI program office is responsible for development and enhancement of the standard, provision of certification tools (test assets) and implementation support to aircraft and weapons.

The UAI efforts were transferred (1) to ensure continued funding for UAI through the FYDP (PE 0605011F will be zeroed out in FY 2010 due to higher Air Force priorities), and (2) to properly fund the maturing technology. The new project number is established to provide greater visibility into UAI's budget. Funding UAI via the Arm/Ord PE will ensure that platform and weapon program offices have the support required to implement and update UAI.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because it supports armament integration, an SDD-type activity.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ICD Dev/Updates			5.702
(U) UAI Common Component			0.786
(U) Certification Tool			0.197
(U) Total Cost	0.000	0.000	6.685

This is not a new start; these efforts were performed under PE 0605011F, RDT&E for Aging Aircraft, in FY 2008 and FY 2009.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		

(U) N/A

(U) D. Acquisition Strategy

In December 2004, under the authority of a class Justification and Approval (J&A), the UAI program office awarded individual Cost Plus Fixed Fee (CPFF) contracts to Boeing, Lockheed-Martin, Northrop-Grumman and Raytheon. These four vendors are the Original Equipment Manufacturers (OEMs) for approximately 90% of the Department of Defense' platforms and weapons. Each OEM is responsible for a different piece of the total UAI requirement based on its platform or weapon expertise.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

**0604602F Armament/Ordnance
Development**

PROJECT NUMBER AND TITLE

5361 Stores-Aircraft Interface

The current contracts expire in December 2009 and acquisition strategy planning for continuation of the program in January 2010 is in process.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604602F Armament/Ordnance Development					5361 Stores-Aircraft Interface			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Interface Control Document (ICD) Development/Updates	SS/CPFF	Boeing/NG/L M/Raytheon/V arious						5.014	Oct-09	Continuing	TBD	TBD
UAI Common Component Certification Tool	SS/CPF SS/CPF	NG Boeing/NG/L M/Raytheon/V arious						0.786	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		5.997		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 & 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 Management Administration/Program Support	T&M, FFP	Various						0.688	Oct-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.688		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		6.685		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604602F Armament/Ordnance Development

PROJECT NUMBER AND TITLE
5361 Stores-Aircraft Interface

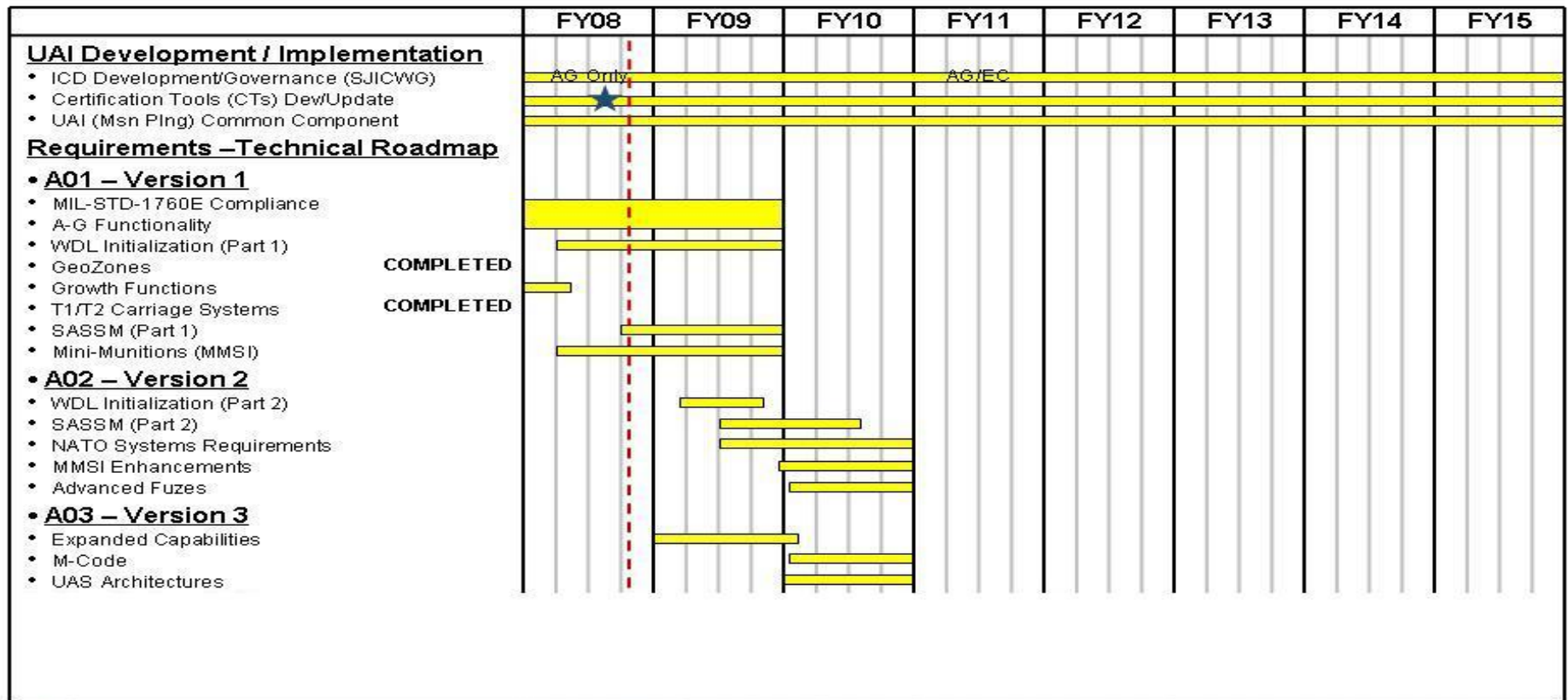


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UAI Technical Roadmap



Dominant Air Power: Design For Tomorrow... Deliver Today



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Exhibit R-4a, RDT&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

5361 Stores-Aircraft Interface

(U) Schedule Profile

(U) A01 - Version 1

(U) A01 - Version 2

(U) A03 - Version 3

FY 2008

1-4Q

FY 2009

1-4Q

2-4Q

1-4Q

FY 2010

1-4Q

1-4Q

In FY 2008 and FY 2009, these efforts were performed under PE 0605011F, RDT&E for Aging Aircraft.

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PE NUMBER: 0604604F
 PE TITLE: Submunitions

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604604F Submunitions
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.970	1.725	1.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3166 Joint Smart Munitions Test and Evaluation	1.970	1.725	1.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Project 3166, Joint Smart Munitions Test and Evaluation Program (aka Project Chicken Little), provides best value research, development, test and evaluation (RDT&E) support to developmental smart munitions and related emerging weapons technologies employed against a wide variety of vehicle targets, theater air defense units, and other foreign ground-based systems. Combat systems exhibit physical characteristics (i.e., signatures), as well as certain vulnerabilities, which may be exploited by smart weapons in order to eliminate or incapacitate these systems. Chicken Little collects physical and functional attributes of actual foreign threat systems to construct high-fidelity models for use in vulnerability assessments (i.e. evaluating the effectiveness of munitions against system vulnerabilities). Chicken Little also collects signature data with a variety of sensors on foreign targets, both with and without the presence of countermeasures or camouflage; the resulting highly reliable, realistic performance data is used to support smart munitions development by defining lethality and sensor requirements to aid in acquisition decision points. The project serves as a major focal point for joint target signature collection and dissemination for development and exploitation purposes. Customers include: the major Defense and Service Intelligence Centers, all Services, the Joint Technical Coordinating Group (JTCG) who develop the Joint Munitions Effectiveness Manuals (JMEmS), Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include: target signature exploitation, target geometric modeling (for identifying vulnerabilities), improving air capabilities against protected structures (specifically hard and deeply buried targets), and testing of multiple seekers and sensors against realistic targets in various environments.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.976	1.730	1.837
(U) Current PBR/President's Budget	1.970	1.725	1.784
(U) Total Adjustments	-0.006	-0.005	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.005	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.006		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604604F Submunitions			PROJECT NUMBER AND TITLE 3166 Joint Smart Munitions Test and Evaluation		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3166 Joint Smart Munitions Test and Evaluation	1.970	1.725	1.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Project 3166, Joint Smart Munitions Test and Evaluation Program (aka Project Chicken Little), provides best value research, development, test and evaluation (RDT&E) support to developmental smart munitions and related emerging weapons technologies employed against a wide variety of vehicle targets, theater air defense units, and other foreign ground-based systems. Combat systems exhibit physical characteristics (i.e., signatures), as well as certain vulnerabilities, which may be exploited by smart weapons in order to eliminate or incapacitate these systems. Chicken Little collects physical and functional attributes of actual foreign threat systems to construct high-fidelity models for use in vulnerability assessments (i.e. evaluating the effectiveness of munitions against system vulnerabilities). Chicken Little also collects signature data with a variety of sensors on foreign targets, both with and without the presence of countermeasures or camouflage; the resulting highly reliable, realistic performance data is used to support smart munitions development by defining lethality and sensor requirements to aid in acquisition decision points. The project serves as a major focal point for joint target signature collection and dissemination for development and exploitation purposes. Customers include: the major Defense and Service Intelligence Centers, all Services, the Joint Technical Coordinating Group (JTCG) who develop the Joint Munitions Effectiveness Manuals (JMEMs), Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include: target signature exploitation, target geometric modeling (for identifying vulnerabilities), improving air capabilities against protected structures (specifically hard and deeply buried targets), and testing of multiple seekers and sensors against realistic targets in various environments.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue weapon effectiveness evaluation and weaponization studies	0.082	0.072	0.264
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies	0.082	0.072	0.150
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink	0.700	0.613	0.250
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development	0.646	0.566	0.720
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons	0.230	0.201	0.250
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)	0.230	0.201	0.150

(U)

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604604F Submunitions	PROJECT NUMBER AND TITLE 3166 Joint Smart Munitions Test and Evaluation
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Total Cost	1.970	1.725	1.784

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
(U) None	<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>Complete</u>	

(U) **D. Acquisition Strategy**

Funds are executed organically in support of test and evaluation activities including studies, analyses, flight tests, model building and simulation. Almost all of the work is performed in-house by the 46th Test Wing.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:	CPIF = Cost Plus Incentive Fee; FFP = Firm Fixed Price											
<u>(U) Test & Evaluation</u>												
46th Test Wing (46 OG and 46 TW)	N/A	Conducting Tests and Analysis, Eglin AFB, FL	90.220	1.970		1.687	N/A	1.745		Continuing	TBD	TBD
Subtotal Test & Evaluation			90.220	1.970		1.687		1.745		Continuing	TBD	TBD
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.											
<u>(U) Management</u>												
46 Test Wing (46 OG)	N/A		7.442			0.038	N/A	0.039	N/A	Continuing	TBD	TBD
Subtotal Management			7.442	0.000		0.038		0.039		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) Total Cost</u>			97.662	1.970		1.725		1.784		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

PROJECT NUMBER AND TITLE

3166 Joint Smart Munitions Test and Evaluation

SCHEDULE

Project 3166, Joint Smart Munition Test and Evaluation program (project Chicken Little) does not execute in accordance with established acquisition milestones. Chicken Little is a continuing test effort: Target/warhead evaluation/analysis, signature tests, and captive carry flight tests are ongoing throughout the year and continue through the FYDP. The type of activities is given in Section B. The timing, duration, and level of effort is decided at the annual Steering Committee meetings.

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604604F Submunitions	PROJECT NUMBER AND TITLE 3166 Joint Smart Munitions Test and Evaluation
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0604617F
 PE TITLE: Agile Combat Support

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.856	5.775	11.261	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2895 CE Readiness	6.963	0.843	5.135	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4910 Aeromedical Readiness	4.893	4.932	6.126	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY10, Project 652895, Civil Engineering Readiness (CE), and Project 654910, Aeromedical Readiness, include New-Start efforts.

(U) A. Mission Description and Budget Item Justification

This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations, command and control activities, and force protection to ensure readiness. In addition, this PE provides tactical and strategic aeromedical evacuation systems, automated information systems; and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. These activities are prerequisites to establishing air superiority. Development of Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids, aeromedical evacuation and treatment equipment; and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	12.146	5.790	9.565
(U) Current PBR/President's Budget	11.856	5.775	11.261
(U) Total Adjustments	-0.290	-0.015	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.015	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.290		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support			PROJECT NUMBER AND TITLE 2895 CE Readiness		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2895 CE Readiness	6.963	0.843	5.135	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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. Also, this project provides crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids; and security and reconnaissance capabilities to support global aircraft deployment, employment, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The Civil Engineering Readiness program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, test, and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, and tactical shelters.

This project includes a new start effort for Airfield Damage Repair starting in FY10.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue(d) SDD for Multimedia Training Systems (MMTS)(Formerly MTS)	2.109	0.843	
(U) Continued Product Evaluation for Civil Engineer Sys & Equipment (CESEA)	3.303		
(U) Improvised Ordnance Detonator - Advanced Development (Congressional Add)	1.551		
(U) Develop and certify advanced repair materials, techniques, and equipment for the rapid assessment and repair of runway and airfield damage after attack			5.135
(U) Total Cost	6.963	0.843	5.135

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Other Base and Maintenance Support, Air Base Operability PE 0208028F (WSC 845100)	14.657	6.464	22.973						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

(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.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604617F Agile Combat Support					2895 CE Readiness			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Multimedia Training Systems (MMTS)(Formerly MTS)	FFP	Multiple	10.414	2.109	Jan-08	0.843	Jan-09			0.000	13.366	
Civil Engineer Systems & Equipment Analysis (CESEA)	MIPR	AFCESA, Tyndall AFB, FL	7.062	3.303	Jan-08					0.000	10.365	
Improvised Ordnance Detonator - Advanced Development (Congressional Add)	MIPR	Naval Surface Warfare Center, Crane Division, Indiana	0.000	1.551						0.000	1.551	1.551
Airfield Damage Repair	TBD	TBD						5.135	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			17.476	6.963		0.843		5.135		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 & 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			17.476	6.963		0.843		5.135		Continuing	TBD	TBD
NOTE: This is a level of effort Program Element with 20+ years of projects. Prior years breakout not available.												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

	FY08	FY09	FY10	FY11
(U) Schedule Profile				
MULTIMEDIA TRAINING SYSTEMS (MMTS)				
• Conduct FY08 MMTS Projects	▲	▲		
• Conduct FY09 MMTS Projects		▲	△	
CIVIL ENGINEERING SYSTEMS AND EQUIPMENT ANALYSIS (CESEA)				
• Conduct FY08 CESEA Projects	▲	▲		
AIRFIELD DAMAGE REPAIR				
• Begin SDD activities			△	

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604617F Agile Combat Support	PROJECT NUMBER AND TITLE 2895 CE Readiness
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MULTIMEDIA TRAINING SYSTEMS (MMTS)			
(U) Begin FY08 MTS Projects	2Q		
(U) Complete FY08 MTS Projects		2Q	
(U) Begin FY09 MTS Projects		2Q	
(U) Complete FY09 MTS Projects		4Q	
(U) CIVIL ENGINEERING SYSTEMS & EQUIPMENT ANALYSIS (CESEA)			
(U) Begin FY08 CESEA Product Evaluations	2Q		
(U) Complete FY08 CESEA Product Evaluations		2Q	
(U) AIRFIELD DAMAGE REPAIR			
(U) Begin SDD activities			2Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support			PROJECT NUMBER AND TITLE 4910 Aeromedical Readiness		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4910 Aeromedical Readiness	4.893	4.932	6.126	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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. Current efforts include the Deployable Oxygen System (DOS), Field Intravenous Resuscitation (FIVR), and the Blood Oxygenation System (BOS) programs.

The Aeromedical Readiness program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing, and evaluation of systems and equipment for patient care during contingency operations and aeromedical evacuations.

This project includes a new start effort for the Blood Oxygenation System (BOS) starting in FY10.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of oxygen systems to meet deployable oxygen requirements.	0.100	0.100	1.936
(U) Continue System Development and Demonstration of the Field Intravenous Reconstitution (FIVR) system for Expeditionary Trauma Resuscitation (ETR)	4.149	4.195	3.027
(U) Begin System Development and Demonstration of the Blood Oxygenation System for ETR			0.500
(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.	0.644	0.637	0.663
(U) Total Cost	4.893	4.932	6.126

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Under the lean initiative, procurement of Aeromedical Systems is being accomplished using O&M funds.										

(U) D. Acquisition Strategy

All major projects are awarded under best-value competitive solicitation.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604617F Agile Combat Support					4910 Aeromedical Readiness			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Deployable Oxygen Generation System - Small gas generators and storage units	TBD	TBD	0.243	0.025		0.100		1.936	Jan-10	Continuing	TBD	TBD
Field Intravenous Resuscitation (FIVR) - ETR	CPFF	Applied Research Associates, Inc, Albuquerque, NM	1.383	4.156	Apr-08	3.895	Jan-09	2.382	Jan-10	Continuing	TBD	TBD
Blood Oxygenation System - ETR	TBD	TBD						0.500		Continuing	TBD	TBD
Aeromedical Systems Analysis to include Analysis of Solutions for planned aeromedical and Surgeon General initiatives	N/A	N/A	0.745	0.149		0.149		0.153		Continuing	TBD	TBD
Subtotal Product Development			2.371	4.330		4.144		4.971		Continuing	TBD	TBD
Remarks:												
(U) Support												
Technical Engineering And Management Support (TEAMS)	Delivery Order	Core6, San Antonio, TX	1.144	0.411	Feb-08	0.418	Feb-09	0.438		Continuing	TBD	TBD
Program Management Support & Operations	N/A	77 AESG, Brooks City-Base, TX	0.350	0.084	Nov-07	0.070	Nov-08	0.072		Continuing	TBD	TBD
Subtotal Support			1.494	0.495		0.488		0.510		Continuing	TBD	TBD
Remarks:												
(U) Test & Evaluation												
DOS Test and Evaluation	MIPRs	AFMESA, Fort Detrick, MD	0.193							Continuing	TBD	0.000
FIVR Test and Evaluation	MIPRs	28 TES, Eglin AFB, FL		0.068		0.300		0.645		Continuing	TBD	0.000
Subtotal Test & Evaluation			0.193	0.068		0.300		0.645		Continuing	TBD	0.000
Remarks:												
(U) Management												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			4.058	4.893		4.932		6.126		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

4910 Aeromedical Readiness

Aeromedical Readiness Schedule

0604617F Agile Combat Support

	FY08	FY09	FY10	FY11
<p>(U) Schedule Profile</p> <p>DEPLOYABLE OXYGEN SYSTEM (DOS)</p> <ul style="list-style-type: none"> Small Oxygen Generator and Storage Unit <p>EXPEDITIONARY TRAUMA RESUSCITATION</p> <ul style="list-style-type: none"> Field Intravenous Resuscitation (FIVR) Blood Oxygenation System (BOS) 			MS B △ SDD	
	MS B ▲ SDD			
			Market Analysis △	

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

(U) Schedule Profile	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) DEPLOYABLE OXYGEN SYSTEM			
(U) Initiate Systems Development and Demonstration for the Small oxygen generation and storage system			2Q
(U) EXPEDITIONARY TRAUMA RESUSCITATION			
(U) Initiate Systems Development and Demonstration for the Field Intravenous Resuscitation (FIVR) System	3Q		
(U) Initiate Systems Development and Demonstration for the Blood Oxygenation System (BOS)			2-Q

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PE NUMBER: 0604706F
 PE TITLE: Life Support Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.247	16.553	10.711	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
412A Life Support Systems	13.247	16.553	10.711	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program element provides for the recapitalization, continuing research and development, and integration of aircrew life support/airmen combat effectiveness equipment and subsystems to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew life support/airmen combat effectiveness systems consist of human-centered programs that enable weapons systems to use more of their full mission envelopes, maximize combat capabilities, and protect airmen. This includes, but is not limited to, the following projects: directed energy protective equipment, flight helmets and visors, oxygen breathing equipment for aviators, radios and locator beacons support equipment, nuclear flashblindness protection, night vision devices, noise reduction devices, anti-g suits, flame resistant/retardant and blast protective gear, aircraft seating, impact protection, flotation devices, and personnel parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, evaluate and demonstrate the feasibility of new technologies, provide for the transition of new technologies to development programs/projects, conduct business case analyses, assess suitability of commercially available items, and support all current aircrew life support/airmen combat effectiveness programs.

The Life 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 aircrew/airmen protection systems and subsystems for airmen operations, escape and descent, and survival and recovery.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	13.563	10.998	14.666
(U) Current PBR/President's Budget	13.247	16.553	10.711
(U) Total Adjustments	-0.316	5.555	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.045	
Congressional Increases		5.600	
Reprogrammings			
SBIR/STTR Transfer	-0.316		
(U) <u>Significant Program Changes:</u>			
- FY 2009: \$5.6M ACES 5 Ejection Seat (Congressional Add)			
- FY 2010: \$3.9M Reduced To Support Higher AF Priorities			

Exhibit R-2a, RDT&E Project Justification

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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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
412A Life Support Systems	13.247	16.553	10.711	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program element provides for the recapitalization, continuing research and development, and integration of aircrew life support/airmen combat effectiveness equipment and subsystems to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew life support/airmen combat effectiveness systems consist of human-centered programs that enable weapons systems to use more of their full mission envelopes, maximize combat capabilities, and protect airmen. This includes, but is not limited to, the following projects: directed energy protective equipment, flight helmets and visors, oxygen breathing equipment for aviators, radios and locator beacons support equipment, nuclear flashblindness protection, night vision devices, noise reduction devices, anti-g suits, flame resistant/retardant and blast protective gear, aircraft seating, impact protection, flotation devices, and personnel parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, evaluate and demonstrate the feasibility of new technologies, provide for the transition of new technologies to development programs/projects, conduct business case analyses, assess suitability of commercially available items, and support all current aircrew life support/airmen combat effectiveness programs.

The Life 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 aircrew/airmen protection systems and subsystems for airmen operations, escape and descent, and survival and recovery.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ACES Ejection Seat Improvements (Congressional Add)	0.932	5.555	
(U) Aircrew Laser Eye Protection (ALEP) Block II SDD	5.715	1.348	
(U) Helicopter Aircrew Restraint	0.300		
(U) Integrated Aircrew Ensemble (IAE) SDD		2.677	6.426
(U) Modular Aircrew Common Helmet (MACH) SDD	2.480	4.629	2.150
(U) Program Management Support/Travel/Supplies/Technical Engineering & Acquisition Support/Test & Evaluation	3.820	2.344	2.135
(U) Total Cost	13.247	16.553	10.711

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF Night Vision Goggles WSC 842140.	23.606	18.571	28.226							70.403
(U) Other Procurement, AF Items Less than \$5M (Safety and Rescue) WSC 842990.	0.000	0.000	13.280							13.280

Exhibit R-2a, RDT&E Project Justification

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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) Other Procurement, AF Items

Less than \$5M (Base Support

Equip) WSC 845990. FY

2009 Congressional Add:

Radio Test Sets for ANG

(\$1.0M).

14.419

6.894

0.000

21.313

(U) **D. Acquisition Strategy**

Acquisition Strategy Is Carried Out At The Project Level.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ACES Ejection Seat Improvements (Congressional Add)	CPFF	Goodrich, CO	11.116	0.932	Dec-07	5.555	Jun-09				17.603	40.000
Aircrew Laser Eye Protection (ALEP) Block II SDD	FFP	Teledyne Imaging, CA	10.163	5.715	Dec-07	1.348	Jan-09				17.226	17.226
Helicopter Aircrew Restraint	MIPR	US Navy	0.980	0.300	Feb-08						1.280	1.280
Integrated Aircrew Ensemble (IAE) SDD	FPI	TBD	0.091			2.677	Feb-09	6.426	Jan-10	Continuing	TBD	TBD
Modular Aircrew Common Helmet (MACH) SDD	FPI	Gentex, PA	1.753	2.480	Jan-08	4.629	Jan-09	2.150	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			24.103	9.427		14.209		8.576		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Management Support	77 AESG, Brooks City-Base, TX			0.522		0.505		0.430		Continuing	TBD	
Travel				0.344		0.259		0.180		Continuing	TBD	
Supplies and Equipment				0.028				0.016			0.044	
Technical Engineering & Acquisition Support	A&AS	Terra Health, Brooks City Base, TX		1.623		1.580		1.509		Continuing	TBD	
Subtotal Support			0.000	2.517		2.344		2.135		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Program Tests (ACES, AHNR, Beacon, etc.)				1.303							1.303	
Subtotal Test & Evaluation			0.000	1.303		0.000		0.000		0.000	1.303	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			24.103	13.247		16.553		10.711		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Life Support Systems Schedule

0604706F Life Support Systems

412A Life Support Systems

(U) Schedule Profile

ACES EJECTION SEAT IMPROVEMENTS

- B-2 Modular Seat Development
(Congressional Add)

AIRCREW HELMET NOISE REDUCTION (AHNR)

- SDD

AIRCREW LASER EYE PROTECTION (ALEP)

- Block II SDD
- Block II CDR
- Block II LRIP

HELICOPTER AIRCREW RESTRAINT

IMPROVED RESCUE BEACON

- SDD

INTEGRATED AIRCREW ENSEMBLE (IAE)

- SDD

MODULAR AIRCREW COMMON HELMET (MACH)

- SDD
- PDR
- CDR

	FY08				FY09				FY10				FY11				FY12				FY13				FY14				FY15			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACES EJECTION SEAT IMPROVEMENTS																																
▪ B-2 Modular Seat Development (Congressional Add)	▲															△																
AIRCREW HELMET NOISE REDUCTION (AHNR)												△																				
▪ SDD												△																				
AIRCREW LASER EYE PROTECTION (ALEP)																																
▪ Block II SDD								△																								
▪ Block II CDR					▲																											
▪ Block II LRIP								△				△																				
HELICOPTER AIRCREW RESTRAINT								△																								
IMPROVED RESCUE BEACON																																
▪ SDD								▲																								
INTEGRATED AIRCREW ENSEMBLE (IAE)																																
▪ SDD								▲																								△
MODULAR AIRCREW COMMON HELMET (MACH)																																
▪ SDD																△																
▪ PDR																																
▪ CDR																																

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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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) Schedule Profile

(U) ACES Ejection Seat Improvements (B-2 Mod Seat Dev)

FY 2008

FY 2009

FY 2010

1Q

1-4Q

1-4Q

(U) ALEP Block II CDR

1Q

(U) ALEP Block II LRIP

4Q

1-4Q

(U) IAE SDD Contract Award

2Q

(U) MACH SDD Contract Award

2Q

(U) MACH PDR

3Q

(U) MACH CDR

3Q

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PE NUMBER: 0604735F
 PE TITLE: Combat Training Ranges

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.541	27.971	29.718	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2286 Combat Training Range Equipment	15.541	27.971	29.718	0.000	0.000	0.000	0.000	0.000	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 evolutionary upgrades to facilitate live/virtual/constructive connectivity and standardization across all platforms to include coalition, F-22A and F-35 aircraft, and interoperability for joint test/training exercises in varied environments.

The P5 Combat Training System (P5CTS), a collaborative development between USAF and USN, provides air combat training systems for both services at operational locations worldwide. Increments include hardware and software upgrades, an updated Real-Time Operating System, an encrypted Joint Tactical Radio System (JTRS) Advanced Data Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to enable live virtual constructive capabilities.

This PE also includes the development of advanced threat emitters. The Joint Threat Emitter (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. JTE Increment 1 is currently in production. Consistent with the evolutionary acquisition strategy and documented ACC training requirements, development will continue with Increment 2 to provide a mobile double digit threat capability. Increases beginning in FY10 and extending across the FYDP enables the inclusion of a multi-target tracking capability to meet critical warfighter needs, while ensuring the development schedule meets warfighter development timeline. Future increments will continue to add additional capability to the warfighter's training ranges. This PE includes Legacy Range Threat Systems including Miniature Multiple Threat Emitter Systems-M3P (Mini-MUTES), Multiple Threat Emitter System (MUTES), Modular Threat Emitter (MTE) and Tactical Radar Threat Generator (TRTG) and Unmanned Modular Threat Emitter (UMTE) Systems, which are being considered for modernization that will extend the system's service life and allow for upgrades to antiquated components for increased reliability and capabilities. The FYDP funding allows for evolution of these potential upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

Exhibit R-2, RDT&E Budget Item Justification

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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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	17.546	28.047	17.652
(U) Current PBR/President's Budget	15.541	27.971	29.718
(U) Total Adjustments	-2.005	-0.076	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.076	
Congressional Increases			
Reprogrammings	-1.556		
SBIR/STTR Transfer	-0.449		
(U) <u>Significant Program Changes:</u>			
FY10 - \$12.576M in additional funding for P5CTS			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2286 Combat Training Range Equipment	15.541	27.971	29.718	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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 evolutionary upgrades to facilitate live/virtual/constructive connectivity and standardization across all platforms to include coalition, F-22A and F-35 aircraft, and interoperability for joint test/training exercises in varied environments.

The P5 Combat Training System (P5CTS), a collaborative development between USAF and USN, provides air combat training systems for both services at operational locations worldwide. Increments include hardware and software upgrades, an updated Real-Time Operating System, an encrypted Joint Tactical Radio System (JTRS) Advanced Data Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to enable live virtual constructive capabilities.

This PE also includes the development of advanced threat emitters. The Joint Threat Emitter (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. JTE Increment 1 is currently in production. Consistent with the evolutionary acquisition strategy and documented ACC training requirements, development will continue with Increment 2 to provide a mobile double digit threat capability. Increases beginning in FY10 and extending across the FYDP enables the inclusion of a multi-target tracking capability to meet critical warfighter needs, while ensuring the development schedule meets warfighter development timeline. Future increments will continue to add additional capability to the warfighter's training ranges. This PE includes Legacy Range Threat Systems including Miniature Multiple Threat Emitter Systems-M3P (Mini-MUTES), Multiple Threat Emitter System (MUTES), Modular Threat Emitter (MTE) and Tactical Radar Threat Generator (TRTG) and Unmanned Modular Threat Emitter (UMTE) Systems, which are being considered for modernization that will extend the system's service life and allow for upgrades to antiquated components for increased reliability and capabilities. The FYDP funding allows for evolution of these potential upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development, integration and testing of P5 Combat Training Systems (P5CTS) evolutionary upgrades to provide software/hardware upgrades, aircraft/pod integration, upgrades for range applications, interoperability improvements, encrypted communication, Joint Tactical Radio System (JTRS) compliant Advanced Data Link, 5th generation aircraft interoperability, simulations, security improvements, and interactive live-virtual-constructive capabilities.	10.976	17.449	14.812
(U) Continue Air Combat Training Systems (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), the Unmanned Modular Threat Emitter System (UMTE) and program operating, acquisition and engineering support.	4.565	10.522	14.906
(U) Total Cost	15.541	27.971	29.718

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other Procurement, AF, Combat Training Ranges, 3080 BP83	78.480	40.684	31.474	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Initial Spares, 3080 BP86	0.867	0.887	0.911	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Total OPAF 3080, PEC 0207429F	79.347	41.571	32.372	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19	15.424	15.580	15.430	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Initial Spares, 3010 BP16	1.336	1.277	1.663	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Total APAF 3010, PEC 0207429F	16.760	16.857	17.063	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) D. Acquisition Strategy
The acquisition strategy is competitive, with cost plus and fixed price contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604735F Combat Training Ranges					2286 Combat Training Range Equipment			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Cubic Defense Applications (P5CTS)	CPIF/FFP		10.029	0.700	Feb-08	4.584	Feb-09	4.777	Feb-10	Continuing	TBD	
SRI (P5CTS)	FFP		1.710	0.160	Feb-08	0.170	Apr-09	0.166	Apr-10	Continuing	TBD	
TBD (JTE Increment 2)	CPFF		0.000	4.231	Feb-09	10.066	Dec-09	14.502	Feb-10	Continuing	TBD	
Rockwell-Collins, Inc (P5CTS)	FFP		3.097	2.700	Feb-08	2.700	Feb-09	2.000	Feb-10	Continuing	TBD	
Army JTRS-HMS (P5CTS)	FFP		1.925	4.200	Feb-08	6.400	Feb-09	5.000	Feb-10	Continuing	TBD	
National Security Agency (NSA)	FFP		0.245	0.100	Feb-08	0.250	Feb-09	0.200	Feb-10	Continuing	TBD	
Boeing - F15 SPO OFP (P5CTS)	FFP		2.218	0.230	Apr-08	0.260	Apr-09	0.165	Apr-10	Continuing	TBD	
Lockheed - F16 SPO OFP (P5CTS)	FFP		1.621	0.000	Apr-08	0.100	Apr-09	0.100	Apr-10	Continuing	TBD	
Subtotal Product Development			20.845	12.321		24.530		26.910		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
OO/ALC/LH, Hill AFB, UT	Various		1.800	0.334		0.456		0.410		Continuing	TBD	
AAC/689 ARSS, Eglin AFB, FL - Other	Various		12.975	1.006		1.120		1.160		Continuing	TBD	
AAC/689 ARSS, Eglin AFB - Direct Msn Spt	Various		8.211	1.780		1.815		1.188			12.994	
Subtotal Support			22.986	3.120		3.391		2.758		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46 Test Wing, Eglin AFB FL	Various		1.089	0.100		0.050		0.050		Continuing	TBD	
Subtotal Test & Evaluation			1.089	0.100		0.050		0.050		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			44.920	15.541		27.971		29.718		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE
2286 Combat Training Range Equipment



U.S. AIR FORCE

CTR Schedule

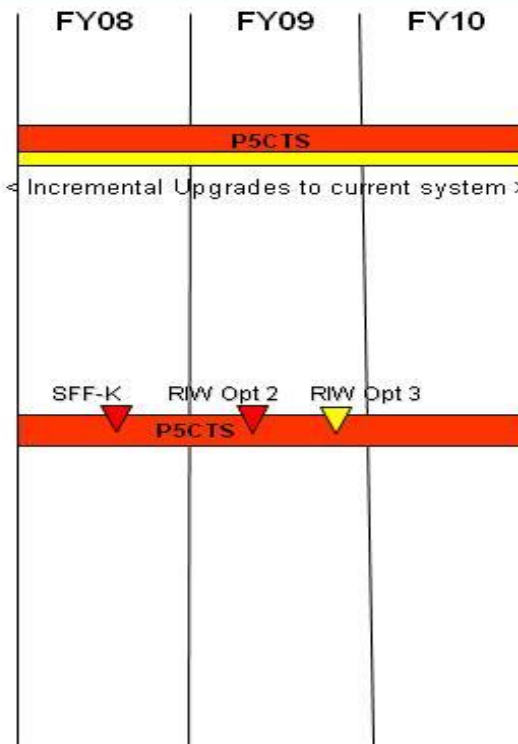
P5CTS

P5 Combat Training System

Spiral 1 – NDI System with Incremental Software Updates

Spiral 2 & 3 – Internal Subsystem and Rack Mounted Subsystem are Navy development efforts only and are currently on hold .

Spiral 4 – Advanced Data Link (ADL)



Requirements Definition █ Actual Contract Award ▼ EMD █ Projected Contract Award ▼ Production █ Fielding ▲ Other Activity △

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

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

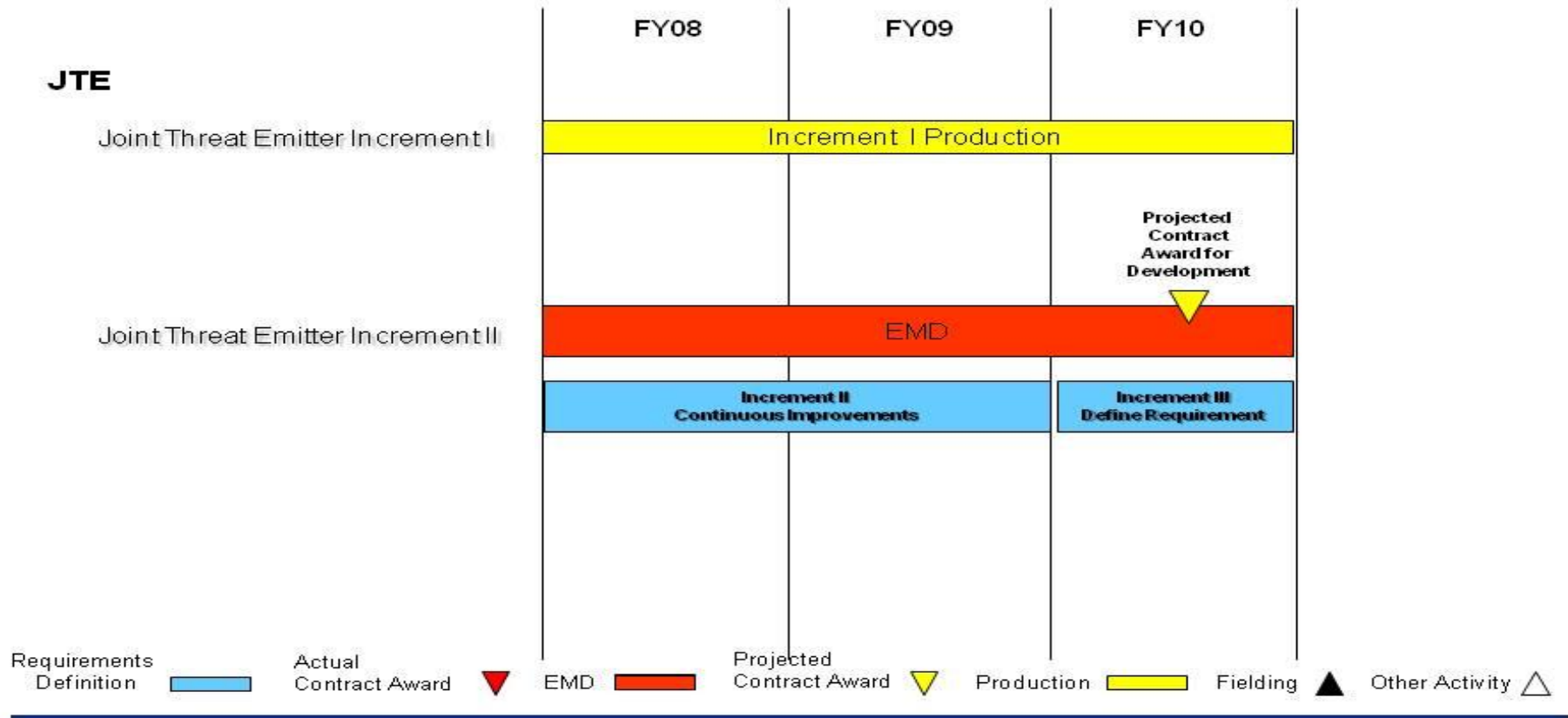


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Schedule Profile			
(U) P5CTS Development			
(U) -- Small Form Factor K Radio (SFFK) Contract Award	3Q		
(U) -- Range Instrumentation Waveform (RIW) Contract Award		2Q	
(U) -- Advanced Data Link (ADL) Integration System Requirements Review		3Q	
(U) -- ADL Integration System Functional Review			1Q
(U) -- ADL Integration Preliminary Design Review			3Q
(U) JTE Development			
(U) --AFRL Antenna Risk Reduction		3Q	
(U) -- EMD Contract Award (Inc 2)			2Q

UNCLASSIFIED

PE NUMBER: 0604740F

PE TITLE: Integrated Command & Control Applications

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	27.804	9.704	0.010	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2523 Product Lines	0.330	0.130	0.010	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2524 Reuse and Component Support	27.474	9.574	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The goal of the Integrated Command & Control Applications (IC2A) program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented Command & Control (C2) capability by defining a reference architecture to enhance common application use and reuse.

Project 2523, Product Lines provides program management of the IC2A program.

Project 2524, Reuse and Component Support (RCS) identifies, develops, tests, and provides re-useable software components and products to the IC2A program and other programmed systems of record. RCS minimizes development cost and time by defining a Command & Control (C2) architecture approach consistent with net-centric principles and guidance that ensures 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 enabling the Air Force to achieve a net-centric operations and warfare capability.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	26.593	0.177	0.182
(U) Current PBR/President's Budget	27.804	9.704	0.010
(U) Total Adjustments	1.211	9.527	
(U) Congressional Program Reductions		-0.073	
Congressional Rescissions			
Congressional Increases		9.600	
Reprogrammings	1.950		
SBIR/STTR Transfer	-0.739		

(U) Significant Program Changes:

FY09: Congressional Increases by line number:

- R-77, Distributed Mission Interoperability Toolkit, \$1.6M
- R-77, ASSET eWing and Data Fusion Technology Integration, \$4M
- Technical adjustment redirected the Command and Control Service Level Management (C2SLM) Program, \$4M increase, from Program Element 0303150F, Global

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

Command and Control System, R-164 to R-77

FY10: Changes in President's Budget due to reprogramming to meet higher Air Force priorities.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2523 Product Lines	0.330	0.130	0.010	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Product Lines project provides program management support of the Integrated Command & Control Applications (IC2A) program.

Program management is the process whereby a single leader exercises centralized authority and responsibility for planning, organizing, staffing, controlling, and leading the combined efforts of participating/assigned civilian and military personnel and organizations, for the management of a specific defense acquisition program or programs, throughout the system life cycle.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Program management support	0.330	0.130	0.010
(U) Total Cost	0.330	0.130	0.010

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

All major contracts were awarded after full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604740F Integrated Command & Control Applications					2523 Product Lines			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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 & 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	PASS/ETA SS	ESC Hanscom AFB, MA	0.000	0.330	Oct-07	0.130	Oct-08	0.010	Oct-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.330		0.130		0.010		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.330		0.130		0.010		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines



Product Lines Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Program Management Support								



Concept activities



Design / development



Integration / test



Production / fielding



Pre-Production



Key events

PB10 R-Docs

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Program management support

1-4Q

1-4Q

1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT NUMBER AND TITLE 2524 Reuse and Component Support		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2524 Reuse and Component Support	27.474	9.574	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Reuse and Component Support (RCS) project identifies, develops, tests and provides reusable software components and products to the Integrated Command and Control Applications (IC2A) program and to other programmed systems of record.

For Fiscal Year 2008 and 2009, the software architecture products developed by this project form vital components and provide a pre-defined reference architecture which is the foundation of the Department of Defense (DoD) enterprise Command & Control (C2) capability. All product lines and components are based on net-centric principles, service oriented architecture, and Core Enterprise Services. These efforts ensure that components and systems are developed with a view of operating within a C2 enterprise instead of a stovepipe functionality. Their 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.

The RCS project develops reusable software components based on Service Oriented Architectures and Web Services that enables the Air Force to achieve a net-centric operations and warfare capability.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

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

	FY 2008	FY 2009	FY 2010
(U) Distributed Mission Interoperability Toolkit (DMIT)	3.834	1.600	0.000
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	2.862	0.000	0.000
(U) Airborne Web Services (AWS) Spiral 3	0.800	0.000	0.000
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	2.261	0.000	0.000
(U) Asset/Data Fusion	3.832	3.987	0.000
(U) Command and Control Service Level Management (C2SLM)	7.712	3.987	0.000
(U) Program Engineering Interoperability Framework (PEIF)	1.491	0.000	0.000
(U) Medical Data Storage and Retrieval System (MEDSTARS)	1.491	0.000	0.000
(U) net-CDS Dashboard	1.700	0.000	0.000
(U) TPMM/Stage Gating	0.400	0.000	0.000
(U) Research Visualization Facility (RVF)	1.091	0.000	0.000
(U) Total Cost	27.474	9.574	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications	PROJECT NUMBER AND TITLE 2524 Reuse and Component Support
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Distributed Mission Interoperability Toolkit (DMIT)	CPFF	Accenture, Pennsylvania	13.053	3.473	Mar-08	1.408	Feb-09			0.000	17.934	3.570
Enterprise Services for Reach Back Capabilities (ESRBC)	CPFF	Accenture, Pennsylvania	4.262	2.611	Jul-08					0.000	6.873	2.708
Airborne Web Services (AWS) Spiral 3	CPFF	SAIC, West Virginia	2.358	0.696	Jul-08					0.000	3.054	0.696
Global Awareness Presentation System for USSTRATCOM	CPFF	ProLogic, West Virginia	3.102	2.137	Feb-08					0.000	5.239	2.234
Asset/Data Fusion	CPFF	Fenwick, West Virginia	7.332	3.425	Mar-08	3.509	Feb-09			0.000	14.266	3.522
Command and Control Service Level Management (C2SLM)	CPFF	Accenture, Pennsylvania	7.200	6.958	Jul-08	3.509	Feb-09			0.000	17.667	7.056
Program Engineering Interoperability Framework (PEIF)	CPFF	Parametric Technology Corp, Mass	1.451	1.425	Feb-08					0.000	2.876	1.522
MEDSTARS	CPFF	ProLogic, West Virginia	1.451	1.425	Feb-08					0.000	2.876	1.522
net-CDS Dashboard	CPFF	Accenture, Pennsylvania		1.700	Aug-08					0.000	1.700	TBD
TPMM/Stage Gating	MIPR	USASMDC, Huntsville, ALA		0.150	Dec-08					0.000	0.150	TBD
Research Visualization Facility (RVF)	CPFF	University of Nevada Las Vegas, Nevada	1.104	1.068	Jul-08					0.000	2.172	1.104
Subtotal Product Development			41.313	25.068		8.426		0.000		0.000	74.807	TBD
Remarks:												
<u>(U) Support</u>												
Contractor Support	T&M	ESC Hanscom AFB, MA	3.318	2.406	Mar-08	1.148	Feb-09			0.000	6.872	2.438
Subtotal Support			3.318	2.406		1.148		0.000		0.000	6.872	2.438
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>											0.000	

R-1 Line Item No. 82

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Exhibit R-3 (PE 0604740F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604740F Integrated Command & Control Applications	2524 Reuse and Component Support
Subtotal Management	0.000	0.000
Remarks:		
(U) <u>Not applicable.</u>		
(U) Total Cost	44.631	27.474
Remarks:		

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

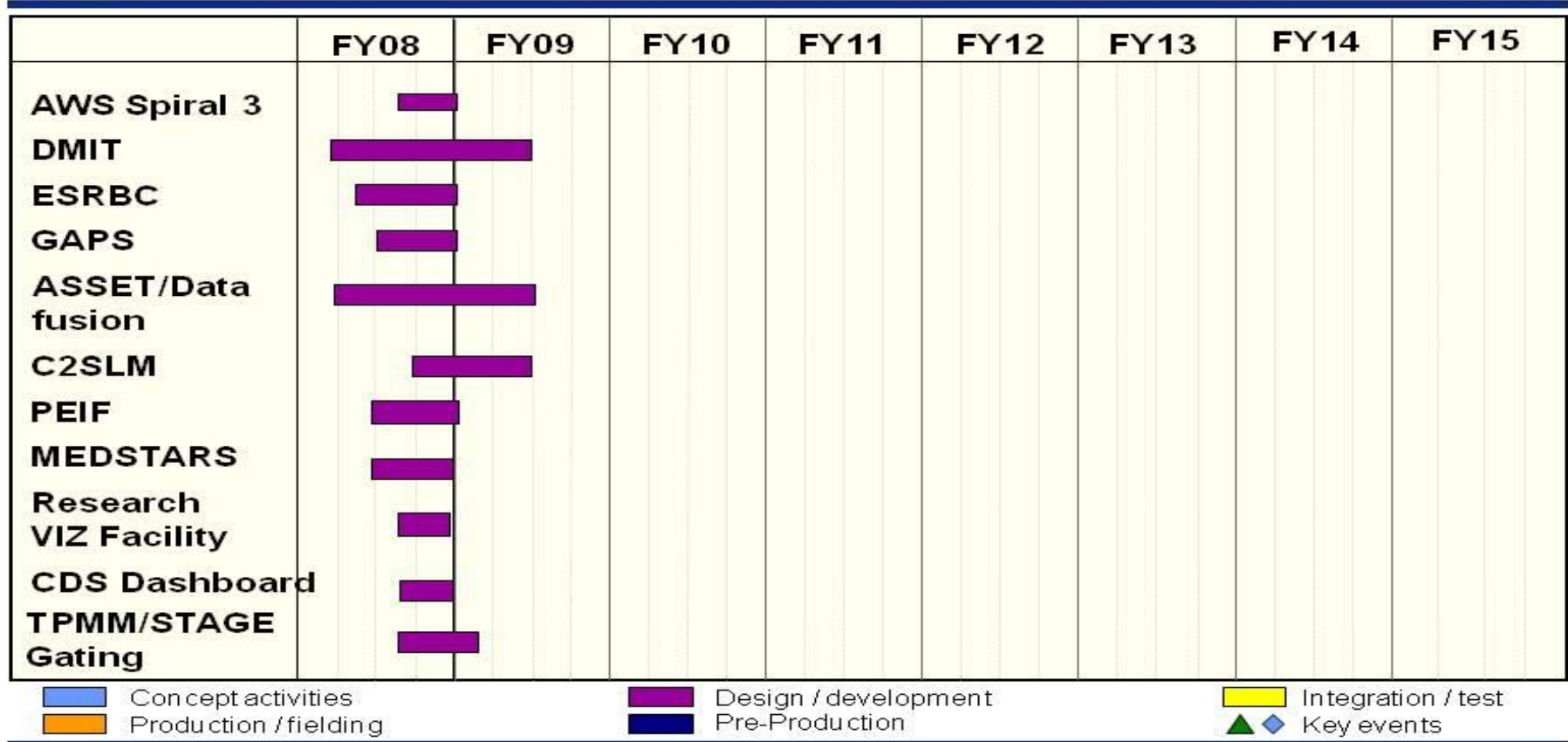
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE
2524 Reuse and Component Support



Reuse Component Support Schedule



PB10 R-Docs

Depicted by in stallation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications	PROJECT NUMBER AND TITLE 2524 Reuse and Component Support
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) AWS Spiral 3	4Q		
(U) DMIT	2-4Q	2Q	
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	4Q		
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	2-4Q		
(U) ASSET/Data Fusion	2-4Q	2Q	
(U) C2SLM	4Q	2Q	
(U) Program Engineering Interoperability Framework (PEIF)	2-4Q		
(U) MEDSTARS	2-4Q		
(U) Research Visualization Facility (RVF)	4Q		

UNCLASSIFIED

PE NUMBER: 0604750F
 PE TITLE: Intelligence Equipment

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.037	2.282	1.495	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2053 National Air Intel Center	5.037	2.282	1.495	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Intelligence Equipment (IE) Program Element (PE) performs the engineering development of software, and/or automated information operations techniques to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical intelligence information. 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 policymaking. IE accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces. IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution. IE 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. Each of the development projects within the IE program portfolio transition technologies to the operational communities through the incremental release of upgraded versions over a period of years as the development projects progress towards the final configuration. IE may reallocate existing resources to support out-of-cycle new/updated warfighter requirements.

This PE is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technologies into existing systems and models to keep existing systems current.

Requirements for this PE are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AF ISR Agency). Development of new/improved capabilities to meet the requirements is managed by AFRL/RIEB.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.037	1.488	1.521
(U) Current PBR/President's Budget	5.037	2.282	1.495
(U) Total Adjustments	0.000	0.794	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.006	
Congressional Increases		0.800	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

In FY09 Congress added \$0.8M for Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2053 National Air Intel Center	5.037	2.282	1.495	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Intelligence Equipment (IE) Program Element (PE) performs the engineering development of software, and/or automated information operations techniques to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical intelligence information. 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 policymaking. IE accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces. IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution. IE 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. Each of the development projects within the IE program portfolio transition technologies to the operational communities through the incremental release of upgraded versions over a period of years as the development projects progress towards the final configuration. IE may reallocate existing resources to support out-of-cycle new/updated warfighter requirements.

This PE is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technologies into existing systems and models to keep existing systems current.

Requirements for this PE are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AF ISR Agency). Development of new/improved capabilities to meet the requirements is managed by AFRL/RIEB.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Complete Upgrade of TEL-SCOPE Tool with Expanded Operational Capability (EOC)	0.290	0.290	0.000
(U) Completed Electronic Warfare Modeling & Simulation (FY08 Congressional Add for Idaho National Laboratory)	3.568	0.000	0.000
(U) Completed Integrated Air Defense System (IADS) -- TEL-SCOPE / Air Defense Net (ADNet) Machine-to-Machine (M2M) Integration	0.256	0.000	0.000
(U) Continue Radio Frequency (RF) Detection & Analysis Capabilities	0.340	0.337	0.190
(U) Continue Electronic Warfare (EW) Flagging	0.483	0.560	0.824
(U) Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)	0.100	0.295	0.360
(U) Initiate High Performance Aero Vehicle Modeler	0.000	0.000	0.121
(U) Initiate/continue/complete Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR) (FY09 Congressional Add)	0.000	0.800	0.000
(U) Total Cost	5.037	2.282	1.495

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) **D. Acquisition Strategy**

Requirements for new / upgraded intelligence analysis tools are gathered and prioritized by the Air Force Intelligence, Surveillance and Reconnaissance Agency (AF ISR Agency, formerly the Air Intelligence Agency). Development of capabilities to meet those requirements is managed by the AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604750F Intelligence Equipment					2053 National Air Intel Center			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> TEL-SCOPE Expanded Operational Capability (EOC)	C/CPFF & C/FFP	Prediction Systems, Inc., Spring Lake, NJ & Northrop Grumman Mission Systems, Fairborn, OH	0.725	0.290	Dec-07	0.290	Dec-08	0.000		0.000	1.305	1.305
Electronic Warfare Modeling & Simulation (FY08 Congressional Add for Idaho National Laboratory)	MIPR	Idaho National Laboratory, Idaho Falls, ID	2.192	3.568	Mar-08	0.000		0.000		0.000	5.760	5.760
Integrated Air Defense System (IADS) Model / ADNet TEL-SCOPE M2M Integration	C/CPFF & C/FFP	Prediction Systems Inc, Spring Lake, NJ & BAE Systems, Burlington, MA & Northrop Grumman Mission Systems, Fairborn, OH	0.560	0.256	Nov-07	0.000		0.000		0.000	0.816	0.816
Radio Frequency Detection & Analysis Capabilities	MIPR & C/FFP	Idaho National Laboratory, Idaho Falls, ID	0.452	0.340	Nov-07	0.337	Nov-08	0.190	Nov-09	Continuing	TBD	TBD
Electronic Warfare Flagging	TBD	TBD	0.000	0.483	Nov-08	0.560	Nov-08	0.824	Nov-09	Continuing	TBD	TBD
Project Theo (Automated Text Retrieval, Analysis & Exploitation Capability)	C/FFP	Northrop Grumman Mission Systems, Fairborn, OH	0.000	0.100	Jan-08	0.295	Nov-08	0.360	Nov-09	Continuing	TBD	TBD
High Performance Aero Vehicle	TBD	TBD	0.000	0.000		0.000		0.121	Nov-09	Continuing	TBD	TBD
Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR) (FY09 Congressional Add)	C/TBD	CACI/GTS Division, Dayton, OH	0.000	0.000		0.800	Apr-09	0.000		0.000	0.800	0.800
Subtotal Product Development			3.929	5.037		2.282		1.495		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			3.929	5.037		2.282		1.495		Continuing	TBD	TBD

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Project 2053

Exhibit R-3 (PE 0604750F)

Exhibit R-4, RDT&E Schedule Profile

DATE

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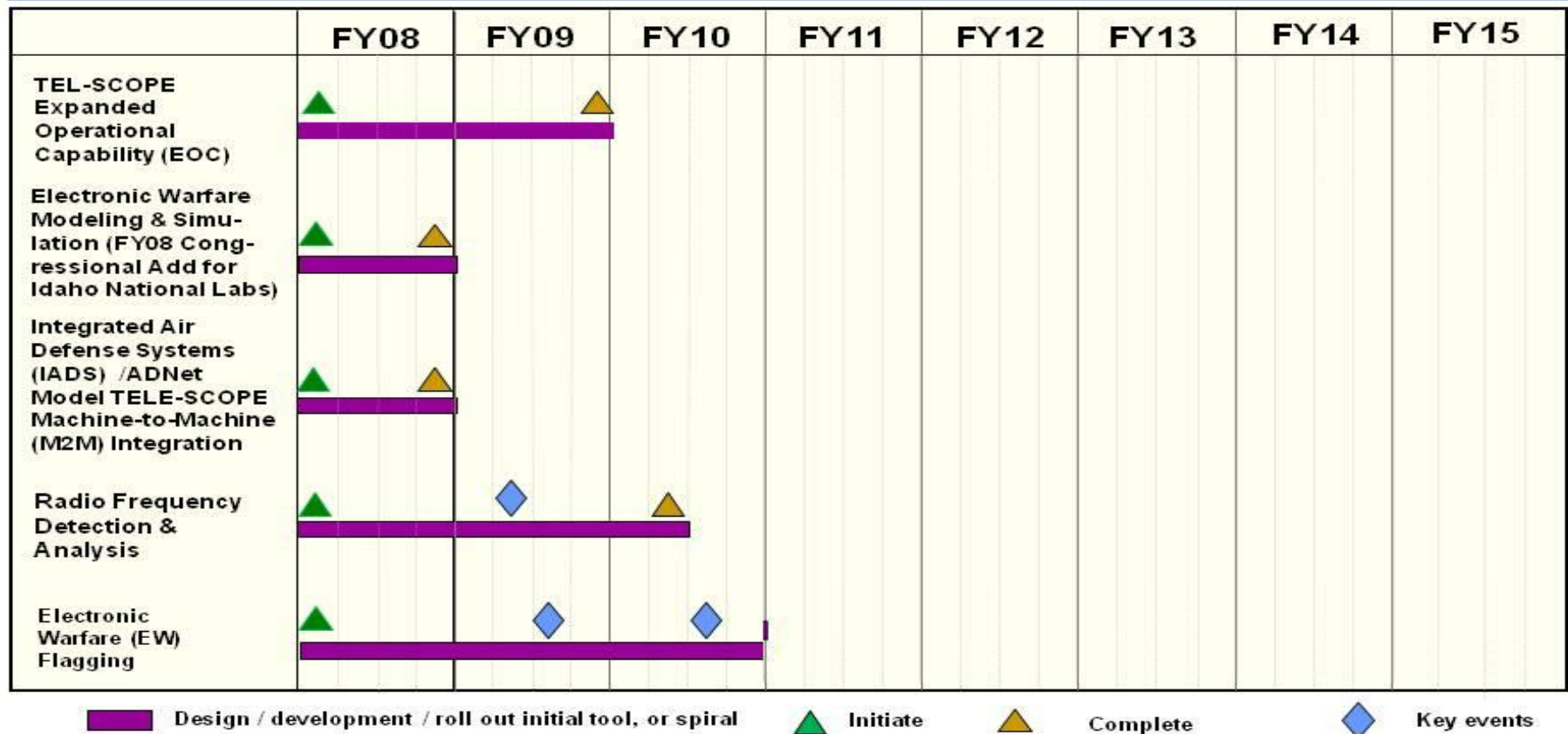
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE
2053 National Air Intel Center



Intelligence Equipment Program Schedule (p 1 of 2)



PB10 R-Docs

Depicted by installation/production flow

1

Exhibit R-4, RDT&E Schedule Profile

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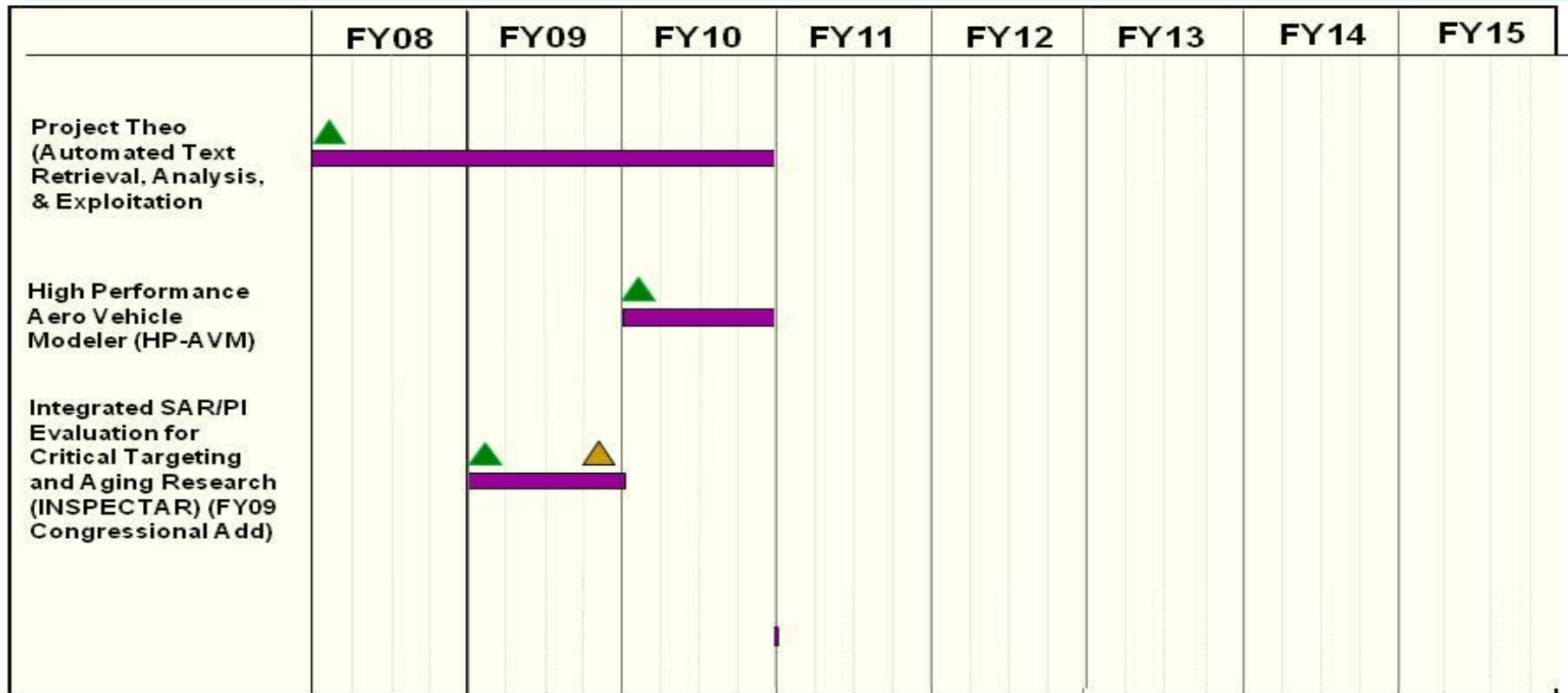
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE
2053 National Air Intel Center



Intelligence Equipment Program Schedule (p 2 of 2)



■ Design / development / roll out initial tool, or spiral ▲ Initiate ▲ Complete ◆ Key events

PB10 R-Docs

Depicted by installation/production flow

2

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Exhibit R-4 (PE 0604750F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT NUMBER AND TITLE 2053 National Air Intel Center
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Completed TEL-SCOPE Expanded Operational Capability (EOC)	1-4Q	1-4Q	
(U) Completed Electronic Warfare Modelling & Simulation (FY08 Congressional Add for Idaho National Laboratory)	1-4Q		
(U) Completed Integrated Air Defense System (IADS) Model--TEL-SCOPE / ADNET M2M Integration	1-4Q		
(U) Complete Radio Frequency (RF) Detection & Analysis Capabilities	1-4Q	1-4Q	1-2Q
(U) Continue Electronic Warfare (EW) Flagging	1-4Q	1-4Q	1-4Q
(U) Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)	1-4Q	1-4Q	1-4Q
(U) Initiate High Performance Aero Vehicle Modeler			1-4Q
(U) Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR) (FY09 Congressional Add)		1-4Q	

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PE NUMBER: 0604800F
 PE TITLE: Joint Strike Fighter EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1,939.107	1,734.299	1,858.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3831 Joint Strike Fighter	1,939.107	1,734.299	1,858.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries, and three Foreign Military Sales cases 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 19 RDT&E articles reflect flight test articles (including 1 asset in FY06, 1 in FY08, 9 in FY09, and 8 in FY10); 6 ground test articles are also budgeted in SDD which includes total program quantities for Navy and AF. Fiscal year phasing of aircraft reflects asset ferry dates.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1,991.537	1,524.016	1,132.458
(U) Current PBR/President's Budget	1,939.107	1,734.299	1,858.055
(U) Total Adjustments	-52.430	210.283	
(U) Congressional Program Reductions		-0.003	
Congressional Rescissions	0.181	-4.714	
Congressional Increases		215.000	
Reprogrammings			
SBIR/STTR Transfer	-52.611		

(U) Significant Program Changes:

FY09 congressional add for F-136 Alternate Engine. FY10 increase of \$726M reflects topdown program adjustments and program extension.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD			PROJECT NUMBER AND TITLE 3831 Joint Strike Fighter		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	1,939.107	1,734.299	1,858.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries, and three Foreign Military Sales cases are participants in the JSF program.

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Quantity of 19 RDT&E articles reflect flight test articles (including 1 asset in FY06, 1 in FY08, 9 in FY09, and 8 in FY10); 6 ground test articles are also budgeted in SDD which includes total program quantities for Navy and AF. Fiscal year phasing of aircraft reflects asset ferry dates.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue System Development and Demonstration SDD execution of the Air System, with Lockheed Martin including International Commonality Effort (ICE) which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.	2,926.312	2,355.639	2,793.947
(U) Continue SDD execution of the F135 Propulsion System, with Pratt & Whitney using (ICE) which includes engine testing, autonomic logistics, integration and performing technology maturation efforts.	654.258	594.154	405.000
(U) Continue the Fighter Engineering 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. Congressional Add actions restored \$480M in FY08 and \$430M in FY09.	463.609	417.000	0.000
(U) Continue SDD Systems Engineering (SE) including systems operations requirements analysis, program integration, requirements integration, and interoperability support. Government Development Test and Evaluation (DT&E) continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents (PIDs). Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.	291.152	333.014	482.538
(U) Total Cost	4,335.332	3,699.806	3,681.485

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

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

FY 2008

FY 2009

FY 2010

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) USN RDT&E	1843.505	1714.892	1709.350							
(U) USN RDT&E - USRL	5.378	29.678	31.946							
(U) Int'l Partner Funding	552.720	250.615	114.080							
(U) USN PROCUREMENT	1223.640	1650.088	4478.048							
(U) USAF PROCUREMENT	1412.097	1660.628	2349.430							
(U) USN Other Procurement	0.855	2.972	6.036							
(U) USN Initial Spares and Repair Parts	0.000	32.653	248.958							
(U) USAF Initial Spares and Repair Parts	69.756	60.930	129.710							
(U) USN MILCON	0.000	0.000	27.567							
(U) USAF MILCON 0207142F	74.300	22.100	48.800							
(U) USAF Modifications										
(U) USAF RDT&E 0207142F										

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

Note: The USAF PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,056; and International Partner contributions of \$253.921 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:

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable, engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts through FY08 when program funding ends.

The updated JSF Acquisition Strategy and program schedule were approved following the May 05 DAB. APR 06 DAB authorized full funding for LRIP I procurement. USAF LRIP I Advanced Procurement funding was awarded during FY06, followed by the USAF Regular Procurement award in FY07. USAF and DoN Advanced Procurement funding for LRIP II was awarded during FY07. USAF LRIP II full-funding contract award occurred in April 08. DoN LRIP II full funding contract was awarded July 08, upon successful first flight of the DoN STOVL aircraft.

USAF and DoN Advance Procurement funding for LRIP III was awarded in May 08; LRIP III full funding to be awarded in April 09. LRIP IV advanced procurement was awarded in February 09, and full funding contract award will occur in February 10.

Budget reflects a one-year flight test extension approved by the Executive Steering Committee.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604800F Joint Strike Fighter EMD	3831 Joint Strike Fighter

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Ft. Worth, TX	17,707.048	2,926.312	Oct-07	2,355.247	Oct-08	2,793.947	Oct-09		25,782.555	
Lockheed Martin	SS/BOA	Ft. Worth, TX	5.630	0.000		0.000		0.000			5.630	
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	17.613	0.000	Oct-07	0.391		0.000			18.004	
Pratt & Whitney	SS/CPAF	Hartford, CT	4,857.742	654.258	Oct-07	594.041	Oct-08	405.000	Oct-09		6,511.041	
Pratt & Whitney	SS/BOA	Hartford, CT	36.016	0.000		0.000		0.000			36.016	
Pratt & Whitney	SS/IDIQ	Hartford, CT	14.677	0.000		0.113		0.000			14.790	
General Electric	SS/CPAF	Cincinnati, OH	382.753	0.000		0.000		0.000			382.753	
General Electric	SS/BOA	Cincinnati, OH	6.348	0.000		0.000		0.000			6.348	
General Electric	SS/IDIQ	Cincinnati, OH	4.262	0.000		0.000		0.000			4.262	
General Electric	SS/Transiti on	Cincinnati, OH	100.371	0.000		0.000		0.000			100.371	
General Electric	SS/Phase III	Cincinnati, OH	5.216	0.000		0.000		0.000			5.216	
General Electric	SS/CPAF/S DD	Cincinnati, OH	784.218	463.609	Oct-07	417.000		0.000			1,664.827	
Systems Engineering		Various	176.885	23.642	Oct-07	33.642	Oct-08	38.963	Oct-09		273.131	
Subtotal Product Development			24,098.780	4,067.822		3,400.434		3,237.909		0.000	34,804.944	0.000
Remarks:												
(U) <u>Support</u>												
AFFTC/Eglin	Various	Various	41.836	9.397	Oct-07	21.320	Oct-08	17.151	Oct-09		89.703	
ASC/AFRL	Various	Wright Patterson AFB, OH	26.214	2.922	Oct-07	5.259	Oct-08	2.532	Oct-09		36.926	
Bolling AFB	Various	Bolling AFB, DC	3.223	2.520	Oct-07	3.591	Oct-08	0.000	Oct-09		9.334	
DMEA	Various	Wright Patterson AFB, OH	4.112	0.000	Oct-07	0.000	Oct-08	0.000			4.112	
ESC	Various	Hanscom AFB, MA	5.798	0.207	Oct-07	0.280	Oct-08	0.000			6.285	
AEDC/Fuel	Various	Various	48.595	36.032	Oct-07	40.582	Oct-08	49.242	Oct-09		174.452	
Jacksonville	Various	Jacksonville, FL	2.061	1.100	Oct-07	0.000	Oct-08	0.273	Oct-09		3.435	
Miscellaneous	Various	Various	93.252	8.436	Nov-07	5.780	Nov-08	6.040	Nov-09		113.508	
Other	Various	Various	80.745	5.780	Nov-07	0.000	Nov-08	0.000			86.525	
NAWC China Lake	Various	Various	52.387	11.447	Nov-07	15.186	Nov-08	28.271	Nov-09		107.291	
NAWC TSD	Various	Various	2.948	1.508	Nov-07	1.596	Nov-08	1.440	Nov-09		7.491	
NAWC Patuxent River	Various	Patuxent River, VA	173.642	29.430	Nov-07	32.776	Nov-08	31.391	Nov-09		267.240	
NSWC	Various	Various	1.719	0.543	Nov-07	0.591	Nov-08	0.491	Nov-09		3.344	

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Exhibit R-3 (PE 0604800F)

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604800F Joint Strike Fighter EMD				3831 Joint Strike Fighter			
SPAWAR	Various	Various	4.038	1.719	Nov-07	0.711	0.000			6.469	
SBIR Technology Insertion Congressional Add	Various	Various	0.000	24.187	Jan-08	0.000	0.000			24.187	
Subtotal Support			540.570	135.229		127.673	136.831		0.000	940.302	0.000
Remarks:											
(U) <u>Test & Evaluation</u>											
NAWC Patuxent	Various	NAWC Patuxent, MD	92.373	24.986	Oct-07	56.587	Oct-08	107.700	Oct-09	281.646	
Edwards AFB	Various	Edwards AFB, CA	97.741	24.109	Oct-07	32.231	Oct-08	96.600	Oct-09	250.681	
Other (including Classified PIDs)	Various	Various	35.946	0.700	Oct-07	2.070	Oct-08	1.212	Oct-09	39.928	
NAWC China Lake	Various	NAWC China Lake, CA	27.354	3.949	Oct-07	10.210	Oct-08	12.260	Oct-09	53.773	
WEPS/Eglin	Various	Eglin AFB, FL	32.974	19.725	Oct-07	9.785	Oct-08	14.100	Oct-09	76.584	
JITC	Various	Various	0.314	0.191	Oct-07	1.140	Oct-08	0.640	Oct-09	2.285	
OT - UK	Various	Various	0.500	0.700	Oct-07	2.070	Oct-08	5.500	Oct-09	8.770	
OT - AFOTEC/AFFTC	Various	Various	6.105	4.048	Oct-07	8.121	Oct-08	5.300	Oct-09	23.574	
OT - JITC/OPTEV	Various	Various	1.204	0.961	Oct-07	1.879	Oct-08	5.300	Oct-09	9.344	
Subtotal Test & Evaluation			294.511	79.369		124.093	248.612		0.000	746.585	0.000
Remarks:											
(U) <u>Management</u>											
Stanley	SS/CPFF	Arlington, VA	71.427	17.224	Oct-07	18.827	Oct-08	17.700	Oct-09	125.178	
Mantech	SS/CPFF	Arlington, VA	20.406	6.676	Nov-07	6.762	Nov-08	7.100	Dec-09	40.944	
Alion/Jacobs Sverdrup	C/CPAF	Arlington, VA	30.113	13.308	Nov-07	14.670	Nov-08	14.093	Dec-09	72.184	
Wyle/AI-ES	SS/CPFF	Arlington, VA	32.489	12.243	Nov-07	3.036	Nov-08	15.389	Dec-09	63.157	
Program Management Support	Various	Arlington, VA	17.827	3.462	Oct-07	4.310	Oct-08	3.849	Oct-09	29.448	
Subtotal Management			172.262	52.912		47.606	58.132		0.000	330.911	0.000
Remarks:											
(U) Total Cost			25,106.123	4,335.332		3,699.806	3,681.485		0.000	36,822.742	0.000
Remarks: Prior Years reflect \$10,761,858 USAF/\$10,823,896 USN/\$3,521,395 International/Total \$25,107,149											
FY 2008 reflects \$1,939,108 USAF/\$1,843,505 USN/\$552,720 International/Total \$4,335,333											
FY 2009 reflects \$1,734,299 USAF/\$1,714,892 USN/\$250,615 International/Total \$3,699,806											
FY 2010 reflects \$1,858,055 USAF/\$1,709,350 USN/\$114,080 International/Total \$3,681,485											

NOTE: Totals may not add correctly due to rounding.

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

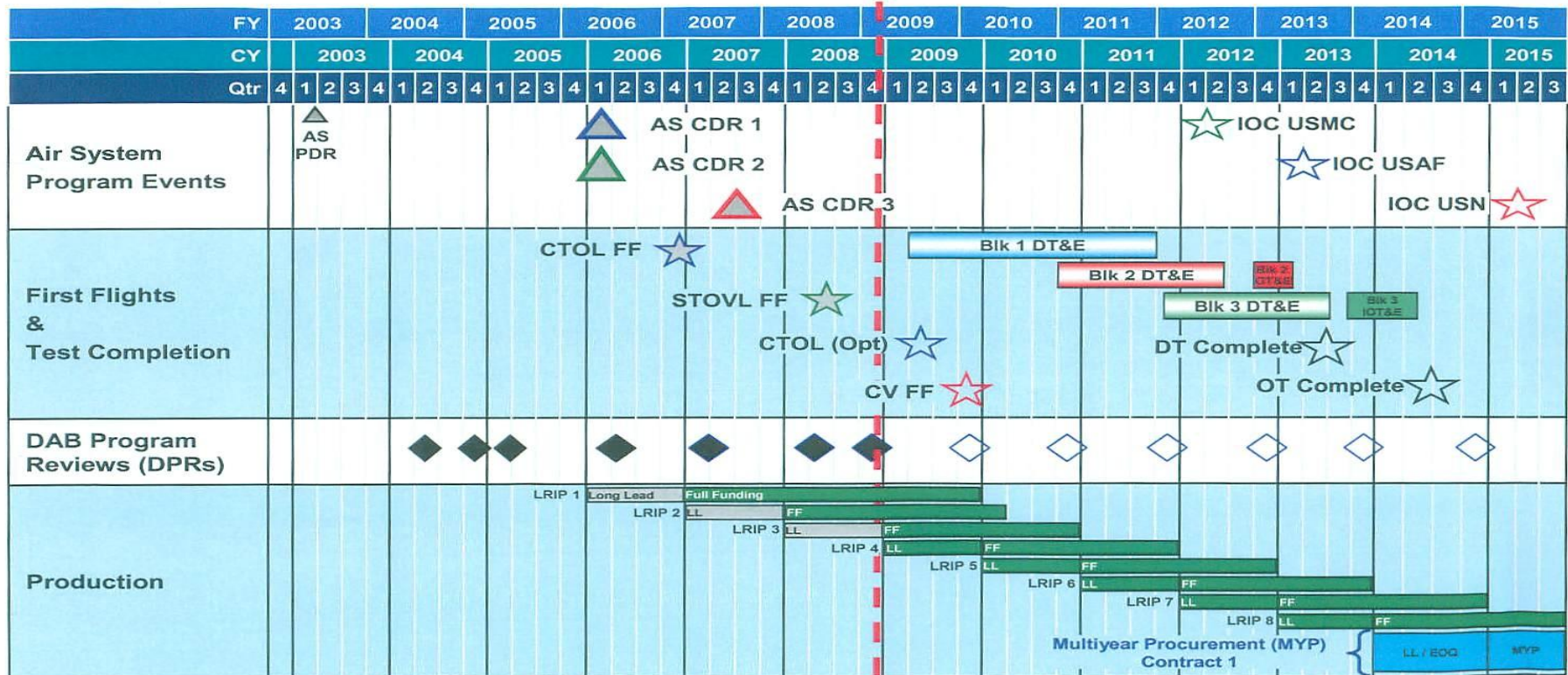
PE NUMBER AND TITLE
0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE
3831 Joint Strike Fighter



DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

JSF Top-Level SDD Program Schedule



DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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 Profile**

(U) DAB Program Review (DPR)

(U) F-35B Short Take Off and Vertical Landing (STOVL) First Flight

(U) F-35A CTOL (Optimized Design) First Flight

(U) F-35C Carrier Variant (CV) First Flight

FY 2008

3Q

3Q

FY 2009

1Q

3Q

FY 2010

1Q

1Q

UNCLASSIFIED

PE NUMBER: 0604851F
 PE TITLE: ICBM - EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604851F ICBM - EMD
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	60.010	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5037 Support Equipment	0.000	0.000	41.331	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5081 ICBM Crypto	0.000	0.000	18.679	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

ICBM Engineering and Manufacturing Development (EMD) efforts will ensure the extension of the operational life of the Minuteman III Intercontinental Ballistic Missile (ICBM) weapon system through 2030.

The Support Equipment program designs, develops, and tests replacement of obsolete/non-serviceable weapon system support equipment. The FY10 effort includes design, development, and testing of replacement Electrical-Electronic Equipment Test Sets, Reentry Field Support Equipment, Minuteman Code Media and the Payload Transporter Tractor and Trailer.

The ICBM Cryptography Upgrade Increment II program expands on the ICBM Cryptography Upgrade Increment 1 program and begins design and development to incorporate remote key/code change and irreversible transformation of launch/enable codes increasing nuclear weapons security during annual code change cycles.

This program is in Budget Activity 05 as it involves system development, integration and demonstration. Production efforts associated with this program are budgeted in Budget Activity 03 within Program Element 0101213F.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	60.010
(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>			

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT NUMBER AND TITLE 5037 Support Equipment		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5037 Support Equipment	0.000	0.000	41.331	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project is a new start in FY10. The ongoing Support Equipment program designs, develops and tests support equipment necessary to extend the operational life of the Minuteman III Weapon System through 2030. The production phase, MPAF 3020 funding, is budgeted under MMIII Support Equipment Replacement, PE 0101213F.

Examples of support equipment to be addressed in FY10 include:

Design and develop the Electrical-Electronic Equipment Test Set (EEETS) necessary for production/pre-launch checkout of MOD 7 wafer required for the ongoing test launch program. The program will replace the current unsupported test set which consists of a non-standard processor, proprietary software, and requires Digital-to-Analog Converter (DAC) cards no longer made (no suitable substitute).

Design and develop Reentry Field Support Equipment (RFSE) to replace the current reentry systems test set. The effort will increase the mean time between failure, eliminate unneeded MK12 functions, and add new MK21 functions. It will provide capability through 2030 to meet DoE mandated Limited Life Component warhead swaps and to test electrical continuity during buildup of MM III Reentry Systems

The Minuteman Code System Media (CSM) effort will develop software to support management of data flow and data products to get the Minuteman III weapon system into operational mode. Current processes utilize DC300 tape cartridges and 9-track tapes. Beginning in FY11 NSA is no longer utilizing DC300 tape cartridges and the shelf life expires in 2013 for the remaining 9-track tapes. The software will be modified for utilization of CD-ROMs as the new media. Ensures capability through 2030 to load codes/software on MM ICBMs--critical to CY12 code change.

Design and develop the capabilities necessary to replace the current Payload Transporter Tractor and Trailer (PT3), mitigating emerging threat technologies and methods. The new Weapons Transporter design increases safety and security during transport activities and improves maintenance operations.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Begin support equipment design, development and evaluation	0.000	0.000	34.171
(U) Begin Nuclear Surety Cross Check Analysis for the support equipment/Independent Validation and Verification (IV&V)	0.000	0.000	0.392
(U) Provide other government support for support equipment	0.000	0.000	5.645
(U) Test and evaluation for ICBM Prime Integration Contract	0.000	0.000	1.123
(U) Total Cost	0.000	0.000	41.331

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5037 Support Equipment

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U)

(U) D. Acquisition Strategy

The support equipment replacement programs will be Cost Plus Award Fee (CPAF) contract adendums added to the ICBM Prime Integration Contractor (IPIC) for everything but the Nuclear Safety Cross Check Analysis (NSCCA)/Independent Validation and Verification (IV&V) efforts, which will be contracted for separately under a CPAF Contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604851F ICBM - EMD					5037 Support Equipment			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	0.000	0.000	N/A	0.000	N/A	34.171	Dec-09		34.171	
Subtotal Product Development			0.000	0.000		0.000		34.171		0.000	34.171	0.000
Remarks:												
(U) <u>Support</u> NSCCA	CPAF	NGIT	0.000	0.000	N/A	0.000	N/A	0.392	Jan-10		0.392	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.000	0.000	N/A	0.000	N/A	5.645	Dec-09		5.645	
Subtotal Support			0.000	0.000		0.000		6.037		0.000	6.037	0.000
Remarks:												
(U) <u>Test & Evaluation</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	0.000	0.000		0.000		1.123	Dec-09		1.123	
Subtotal Test & Evaluation			0.000	0.000		0.000		1.123		0.000	1.123	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	0.000		0.000		41.331		0.000	41.331	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5037 Support Equipment

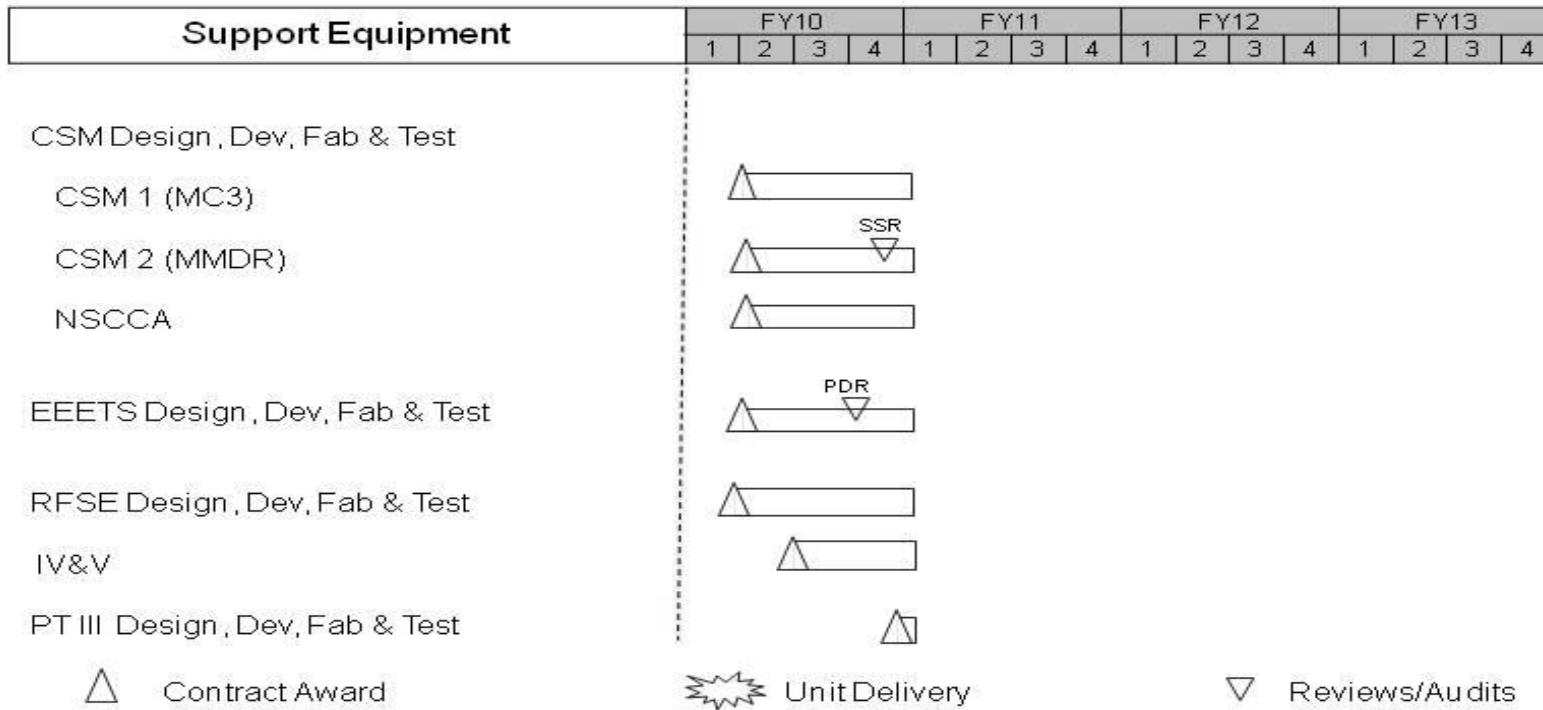


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5037 Support Equipment

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Support Equipment Contract Award			2Q
(U) CSM Magnetic Media Drive Replacement PDR			4Q
(U) Electrical-Electronic Equipment Test Set CDR			4Q
(U) Reentry Field Support Equipment Independent Validation and Verification Kickoff			2Q
(U) RFSE Nuclear Safety Cross Check Analysis Kickoff			3Q
(U) CSM Contract Award			2Q
(U) Payload Transporter Tractor and Trailor Kickoff			4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT NUMBER AND TITLE 5081 ICBM Crypto		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5081 ICBM Crypto	0.000	0.000	18.679	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Increment II of the Inter-Continental Ballistic Missile Cryptography Upgrade program implements the KS-60 capabilities of remote key/code change and irreversible transformation as mandated in the approved Capabilities Development Document (CDD) dated 4 Jan 05 and addresses Nuclear Weapon System Safety Group Operational Safety Review (NWSSG OSR) requirements 98-2, 00-1 and 02-2. These features will greatly increase security during code changes by reducing the frequency of open sites by 75 days annually and reducing associated resource costs for 450 launch facilities (LF) and 45 launch control centers (LCC). The intent of the budgeted (\$120M) effort is to design, develop and test the software upgrades/changes to the Console Operating Program, Launch Facility hardware/software modification and Wing Code Processing System.

This document is for the RDT&E phase of ICBM Cryptography Program Increment II and is in Budget Activity 05. The Production portion of the program is under PE 0101213F MM III Modification.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ICBM cryptography system design and development	0.000	0.000	18.187
(U) Provide other government support	0.000	0.000	0.492
(U) Total Cost	0.000	0.000	18.679

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U)

(U) D. Acquisition Strategy

Cost Plus Award Fee contract will be added to the ICBM Prime Integration Contractor (IPIC).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604851F ICBM - EMD					5081 ICBM Crypto			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield UT						18.187	Jan-10		18.187	
Subtotal Product Development Remarks:			0.000	0.000		0.000		18.187		0.000	18.187	0.000
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB UT						0.492			0.492	
Subtotal Support Remarks:			0.000	0.000		0.000		0.492		0.000	0.492	0.000
(U) <u>Test & Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(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		18.679		0.000	18.679	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD


PROJECT NUMBER AND TITLE

5081 ICBM Crypto

ICBM Cryptography II	FY09				FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Design/Development																																



 Contract Award

 Unit Delivery

 Reviews/Audits

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5081 ICBM Crypto

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Contract Award

2Q

UNCLASSIFIED

PE NUMBER: 0604853F
 PE TITLE: Evolved Expendable Launch Vehicle - EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.500	33.628	26.545	0.000	0.000	0.000	0.000	0.000	0.000	1,486,341.00
0004 Evolved Expendable Launch Vehicle	6.500	33.628	26.545	0.000	0.000	0.000	0.000	0.000	0.000	1,486,341.00

New Start effort:
 In FY10, PE0604853F, Evolved Expendable Launch Vehicle (EELV) includes New Start efforts for Pre-Planned Product Improvements to sustain the EELV capability through 2030.

(U) A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25% over legacy systems.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; complete qualification of the extended mission kit, fleet standardization of the RS-68 main engine upgrade, special studies, Pre-Planned Product Improvements (secondary payload adaptor standard service, etc.), and other related support activities.

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. As of 21 August 2007, the EELV Program has formally entered the sustainment phase. The Air Force Space Command Routine Spacelift Enabling Concept (31 Oct 2007) formally extends the EELV Program an additional 10 years, from 2020 through 2030.

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.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable Launch Vehicle - EMD

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	33.719	0.000
(U) Current PBR/President's Budget	6.500	33.628	26.545
(U) Total Adjustments	6.500	-0.091	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.091	
Congressional Increases			
Reprogrammings	6.500		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Continues RS-68 Upgrade implementation and adds a Pre-Planned Product Improvement New Start effort. Additionally, added \$6.5M to FY08 for GPS Metric Tracking.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
0004 Evolved Expendable Launch Vehicle	6.500	33.628	26.545	0.000	0.000	0.000	0.000	0.000	0.000	1,486,341.00	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

New Start effort:

In FY10, PE0604853F, Evolved Expendable Launch Vehicle (EELV) includes New Start efforts for Pre-Planned Product Improvements to sustain the EELV capability through 2030.

(U) A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25% over legacy systems.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; complete qualification of the extended mission kit, fleet standardization of the RS-68 main engine upgrade, special studies, Pre-Planned Product Improvements (secondary payload adaptor standard service, etc.), and other related support activities.

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. As of 21 August 2007, the EELV Program has formally entered the sustainment phase. The Air Force Space Command Routine Spacelift Enabling Concept (31 Oct 2007) formally extends the EELV Program an additional 10 years, from 2020 through 2030.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue GPS Metric Tracking Development	6.500	0.050	
(U) Fleet Standardization - RS-68 Upgrade		0.050	18.045
(U) Extended Mission Kit Qualification		33.528	
(U) Pre-Planned Product Improvements			8.500
(U) Total Cost	6.500	33.628	26.545

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD	PROJECT NUMBER AND TITLE 0004 Evolved Expendable Launch Vehicle
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
(U) MPAF (BA 05, PE 0305953F, P-28)*	1091.844	1350.283	1295.325							

* The Cost To Complete value is an estimate based on 150 AF launches in the current manifest, FY 2002-2030 (extended from FY 2020 per AFSPC).

(U) D. Acquisition Strategy

The EELV concept of families of launch vehicles emphasizes commonality of hardware and infrastructure to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - The Boeing Company (TBC) and Lockheed Martin (LM) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. In 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LM for the development effort. The contractors have contributed additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor has invested in excess of \$1.5B. At the same time as the award of the development effort, Initial Launch Services (ILS) contracts were awarded to Boeing for 19 missions and to Lockheed Martin for 9 missions.

All of the ILS (Buy 1/awarded) launch services are firm-fixed price contracts. Due to the decrease in the commercial market, the projected costs of the unawarded EELV launches have increased. The new acquisition strategy, implemented in FY06, separates the launch service price from the infrastructure costs. Follow-on (Buy 3) Launch Service procurements will include launch service costs on a fixed-price contract. EELV Launch Capability infrastructure costs (includes launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc.) are funded on an annual basis via a cost-plus, award-fee contract. The 2005 Space System Acquisition Strategy (SSAS) for EELV documents this modified approach to provide assured access to space with two viable launch vehicle families.

The acquisition approach supports the 2004 National Space Transportation Policy, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over legacy systems. The EELV system will launch the majority of the government portion of the NLF through 2030 and the government will continue to work to partner with industry to continuously improve products and processes to enhance reliability and reduce both the contractor's and government's total costs. As of 21 August 2007, the EELV program has formally entered the sustainment phase. The Air Force Space Command Routine Spacelift Enabling Concept (31 Oct 2007) formally extends the EELV Program an additional 10 years, from 2020 through 2030.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604853F Evolved Expendable Launch Vehicle - EMD					0004 Evolved Expendable Launch Vehicle			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Prime Contractor Boeing	Comp/FFP		710.182								710.182	
Prime Contractor Lockheed Martin	Comp/FFP		583.511								583.511	
Prime Contractor United Launch Alliance (ULA)	SS/CPAF			6.500		33.628	Oct-08	26.545	Oct-09		66.673	
Subtotal Product Development			1,293.693	6.500		33.628		26.545		0.000	1,360.366	0.000
Remarks:	All EELV contracts novated from Boeing and Lockheed Martin to ULA in November 2008.											
(U) Support												
SPO/CTF Range Mission Spt	Various		43.617								43.617	
FFRDC	SS/CPAF		67.214								67.214	
Other Cntr Spt	Various		15.144								15.144	
Subtotal Support			125.975	0.000		0.000		0.000		0.000	125.975	0.000
Remarks:												
(U) Test & Evaluation												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Management												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,419.668	6.500		33.628		26.545		0.000	1,486.341	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

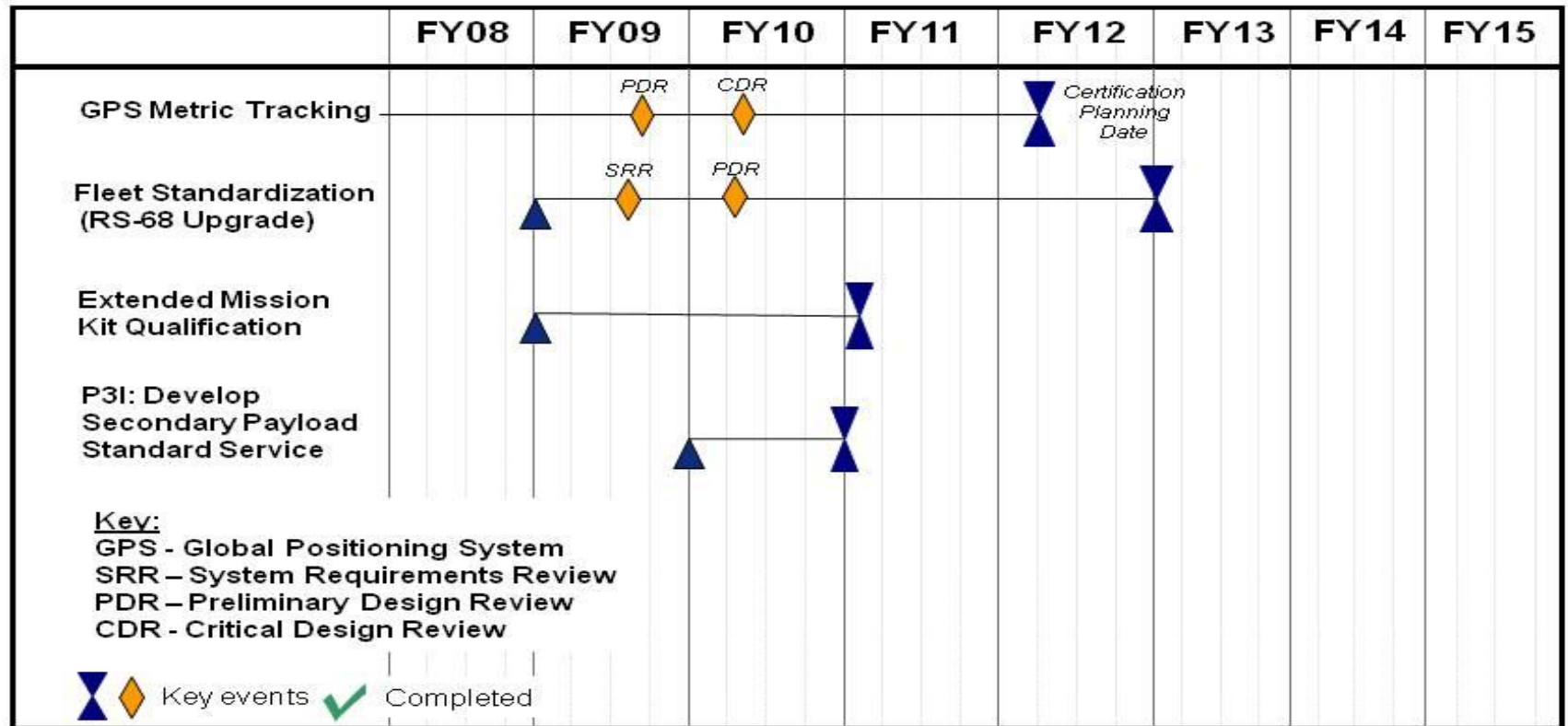
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE
0004 Evolved Expendable Launch
Vehicle

EELV Program - Key Events



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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD	PROJECT NUMBER AND TITLE 0004 Evolved Expendable Launch Vehicle
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) GPS Metric Tracking Development	1-4Q	1-4Q	1-4Q
(U) GPS Metric Tracking Development - Preliminary Design Review		3Q	
(U) GPS Metric Tracking Development - Critical Design Review			2Q
(U) Atlas V Extended Mission Kit Qualification		1-4Q	1-4Q
(U) Fleet Standardization (RS-68 Upgrade)		1-4Q	1-4Q
(U) Fleet Standardization - System Requirements Review		3Q	
(U) Fleet Standardization - Preliminary Design Review			1Q
(U) Pre-Planned Product Improvement (P3I): Secondary Payload Standard Service			1-4Q

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PE NUMBER: 0605011F
 PE TITLE: RDT&E For Aging Aircraft

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.973	13.791	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4685 Aging Aircraft	26.973	13.791	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5278 Assured Fuels - Aging A/C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

Prior to FY 2010, this program developed 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. In FY 2010, this effort will be terminated due to higher Air Force priorities.

The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by operational systems.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	20.491	13.828	20.169
(U) Current PBR/President's Budget	26.973	13.791	0.000
(U) Total Adjustments	6.482	-0.037	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.037	
Congressional Increases		3.200	
Reprogrammings	7.000	-3.200	
SBIR/STTR Transfer	-0.518		

(U) Significant Program Changes:

In FY 2010, this program will be terminated due to higher Air Force priorities.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4685 Aging Aircraft	26.973	13.791	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

- (U) **A. Mission Description and Budget Item Justification**
 Prior to FY 2010, the program identified cross-cutting technologies that reduce total ownership costs and improve reliability, availability, and maintainability. Based on these technologies, the program developed and delivered solutions (to include prototype hardware and software) to address aging aircraft needs. The program also analyzed and recommended changes to existing sustainment processes such as field and depot repair processes. Additionally, the program developed and delivered 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.
- (U) **B. Accomplishments/Planned Program (\$ in Millions)**
- | | | | |
|--|----------------|----------------|----------------|
| | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
| (U) MAJOR THRUST: Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and Air Logistics Center engineers and managers to ensure continued air worthiness, control sustainment cost growth, and improve aircraft availability. | 0.988 | 1.100 | 0.000 |
| (U) In FY 2008: Continued to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focused on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. | | | |
| (U) In FY 2009: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Investigate the use of legacy aircraft airframes for next-generation weapon systems such as directed energy weapons. | | | |
| (U) In FY 2010: Not Applicable. | | | |
| (U) MAJOR THRUST: 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 road maps, 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 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 | 21.421 | 11.591 | 0.000 |

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>			
solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat superiority.			
(U) In FY 2008: Continued to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continued validation of MIL-STD 1553B Notice 5. Provided additional 1553 data bus capabilities, functionality, and enhanced performance and incorporated them into updates/revisions of MIL-STD 1553. Maintained the VCA tool sets, 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. Provided 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. Provided UAI support to 22 platform and stores program offices during implementation. Provided for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Furthered the development modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.			
(U) In FY 2009: Continue to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Maintain the VCA tool sets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure web site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Investigate the use of legacy aircraft avionics for next-generation weapon systems such as directed energy weapons.			
(U) In FY 2010: Not Applicable.			
(U) MAJOR THRUST: Extends service life, controls rapidly rising sustainment costs, and retains 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.	0.988	1.100	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) In FY 2008: Continued to extend service life, control rapidly rising sustainment costs, and retain operational capability of the aging aircraft fleet through aircraft subsystems improvement.			
(U) In FY 2009: Continue to extend service life, control rapidly rising sustainment costs, and retain operational capability of the aging aircraft fleet through aircraft subsystems improvement. Investigate the use of legacy aircraft subsystems for next-generation weapon systems such as directed energy weapons.			
(U) In FY 2010: Not Applicable.			
(U) CONGRESSIONAL ADD: Aging Landing Gear Life Extension.	1.987	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).			
(U) In FY 2009: Not Applicable.			
(U) In FY 2010: Not Applicable.			
(U) CONGRESSIONAL ADD: Enhanced Smart Triple Ejector Rack.	1.589	0.000	0.000
(U) In FY 2008: Conduct Congressionally-directed effort for Enhanced Smart Triple Ejector Rack.			
(U) In FY 2009: Not Applicable.			
(U) In FY 2010: Not Applicable.			
(U) Total Cost	26.973	13.791	0.000

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) Related Activities:

(U) **D. Acquisition Strategy**

Not Applicable.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0605011F RDT&E For Aging Aircraft					4685 Aging Aircraft			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
S&K Technologies, Inc.	IDIQ										0.000	
Edgewater	IDIQ			10.000							10.000	
Anteon	Cost Plus										0.000	
Raytheon/Northrop	CPFF			5.021							5.021	
Grumman/Boeing/Lockheed											0.000	
Raytheon	CPFF										0.000	
United States Air Force Academy	N/A			1.894							1.894	
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ										0.000	
General Atomics	T&M										0.000	
Dynamics Research Corporation	T&M										0.000	
Dynamics Research Corporation	CPFF										0.000	
Raytheon	CPFF										0.000	
Alion Science & Tech	FFP										0.000	
Numerous	Various			10.058		13.791					23.849	
Subtotal Product Development			0.000	26.973		13.791		0.000		0.000	40.764	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 & 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			0.000	26.973		13.791		0.000		0.000	40.764	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE
4685 Aging Aircraft

Aging Aircraft Schedule Summary

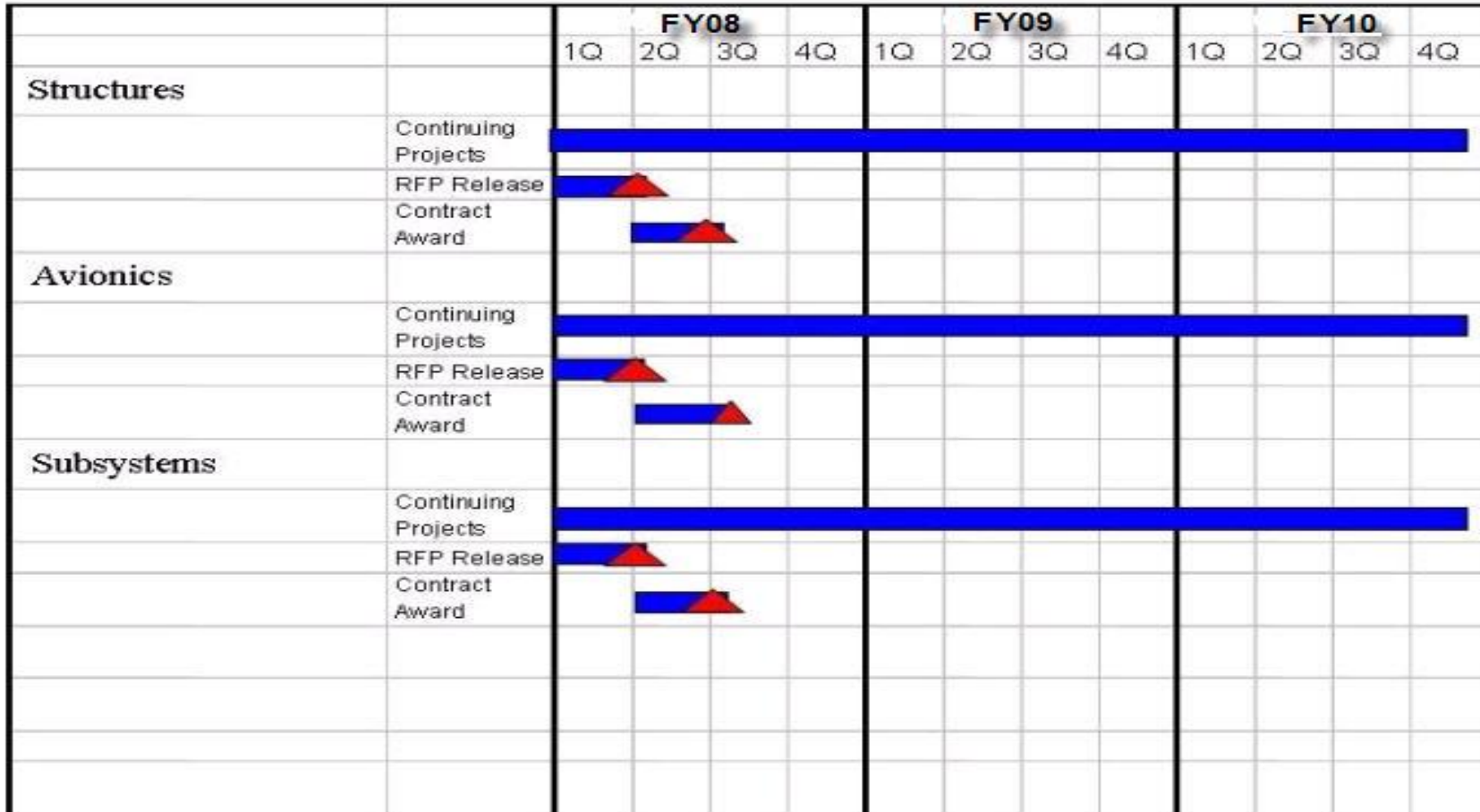


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	
(U) Request for Proposal Release	1Q	1Q	
(U) Contract Award	2Q	2Q	
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	
(U) Request for Proposal Release	1Q	1Q	
(U) Contract Award	2Q	2Q	
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	
(U) Request for Proposal Release	1Q	1Q	
(U) Contract Award	2Q	2Q	

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TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0605011F	654685	3600	26.973		13.791													

Effort Title

Aging Aircraft

Program Description

Program identified cross-cutting technologies that reduced total ownership costs and improved reliability, availability, and maintainability. Based on these technologies, the program developed and delivered solutions (to include prototype hardware and software) to address aging aircraft needs. The program also analyzed and recommended changes to existing sustainment processes such as field and depot repair processes. Additionally, the program developed and delivered 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.

Status to Date

Completing FY 2009 ongoing efforts.

Rationale for Termination

Program terminated due to higher Air Force priorities.

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PE NUMBER: 0605221F

PE TITLE: KC-X, Next Generation Aerial Refueling Aircraft

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605221F KC-X, Next Generation Aerial Refueling Aircraft
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	22.938	439.615	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5271 KC-X RDT&E	0.000	22.938	439.615	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill reduced \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF.

In FY09, KC-X RDT&E efforts were transferred from PE 0401221F, KC-135 Replacement Tanker, 4927, KC-135 Replacement Tanker, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

(U) A. Mission Description and Budget Item Justification

To recapitalize the aging KC-135 fleet of aerial refueling aircraft, the Air Force considered data from an Analysis of Alternatives (AoA), along with industry input that was provided in response to both a Request for Information and two draft Requests for Proposal. Based on this information, the Air Force concluded that a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. The resulting KC-X source selection culminated in a 29 Feb 08 contract award to Northrop Grumman to develop and produce a tanker based on the A330-200. On 13 Mar 08, the Air Force issued a stop-work order to that contract in response to a protest filed by Boeing. On 18 Jun 08, the GAO sustained portions of that protest. On 10 Sep 08, SECDEF announced termination the KC-X competition. The Air Force is preparing for a second competition. On 6 Apr 09, SECDEF announced the KC-X schedule and funding will be maintained with intent to solicit bids in summer of 2009.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and redeployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability to perform missions in chemical and biological environments; will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities; and will have necessary battle space awareness to mitigate survivability threats.

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Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605221F KC-X, Next Generation Aerial Refueling Aircraft

The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft for integration and demonstration of capability that will ultimately be operationally fielded after a successful operational test phase. In addition both aircrew and maintenance Training System Requirements Analyses (TSRA) will be conducted to determine training requirements. Aircrew and Maintenance training systems will be developed and procured via a future trainer-specific source selection, using KC-X funding. A Business Case Analysis will also be conducted to determine if the engines for the production aircraft will be Government Furnished or Contractor Furnished. Initial training and support efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including support of the international Aerial Refueling Systems and Advisory Group (ARSAG), five power Future Technology and Aerial Refueling (FTAR) project, and KC-Y/KC-Z planning activities.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	831.759	450.152
(U) Current PBR/President's Budget	0.000	22.938	439.615
(U) Total Adjustments	0.000	-808.821	
(U) Congressional Program Reductions		-808.759	
Congressional Rescissions		-0.062	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill reduced \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into to the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF. Also after the 10 Sep 08 SECDEF decision to terminate, Congress rescinded \$72M of FY08 RDT&E funds and took \$808.8M of FY09 RDT&E.

In FY09, KC-X RDT&E efforts were transferred from PE 0401221F, KC-135 Replacement Tanker, 4927, KC-135 Replacement Tanker, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605221F KC-X, Next Generation Aerial Refueling Aircraft	PROJECT NUMBER AND TITLE 5271 KC-X RDT&E
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5271 KC-X RDT&E	0.000	22.938	439.615	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill cut \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF. Also after the 10 Sep 08 SECDEF decision to terminate, Congress rescinded \$72M of FY08 RDT&E funds and took \$808.8M of FY09 RDT&E.

In FY09, KC-X RDT&E efforts were transferred from PE 0401221F, KC-135 Replacement Tanker, 4927, KC-135 Replacement Tanker, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

(U) A. Mission Description and Budget Item Justification

To recapitalize the aging KC-135 fleet of aerial refueling aircraft, the Air Force considered data from an Analysis of Alternatives (AoA), along with industry input that was provided in response to both a Request for Information and two draft Requests for Proposal. Based on this information, the Air Force concluded that a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. The resulting KC-X source selection culminated in a 29 Feb 08 contract award to Northrop Grumman to develop and produce a tanker based on the A330-200. On 13 Mar 08, the Air Force issued a stop-work order to that contract in response to a protest filed by Boeing. On 18 Jun 08, the GAO sustained portions of that protest. On 10 Sep 08, SECDEF announced termination the KC-X competition. The Air Force is preparing for a second competition. On 6 Apr 09, SECDEF announced the KC-X schedule and funding will be maintained with intent to solicit bids in summer of 2009.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and redeployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability to perform missions in chemical and biological environments; will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities; and will have necessary battle space awareness to mitigate survivability threats.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605221F KC-X, Next Generation Aerial Refueling Aircraft	PROJECT NUMBER AND TITLE 5271 KC-X RDT&E
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The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft for integration and demonstration of capability that will ultimately be operationally fielded after a successful operational test phase. In addition both aircrew and maintenance Training System Requirements Analyses (TSRA) will be conducted to determine training requirements. Aircrew and Maintenance training systems will be developed and procured via a future trainer-specific source selection, using KC-X funding. A Business Case Analysis will also be conducted to determine if the engines for the production aircraft will be Government Furnished or Contractor Furnished. Initial training and support efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including support of the international Aerial Refueling Systems and Advisory Group (ARSAG), five power Future Technology and Aerial Refueling (FTAR) project, and KC-Y/KC-Z planning activities.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Non-recurring engineering, RDT&E tanker aircraft and support		0.000	414.605
(U) Trainer Development		0.000	0.632
(U) Government Test		0.433	6.202
(U) Studies		2.010	2.150
(U) Mission Support		20.495	16.026
(U) Total Cost	0.000	22.938	439.615

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, BP10	0.000	0.000	0.000						Continuing	TBD
(U) MILCON	0.000	0.000	0.000						Continuing	TBD
(U) O & M	1.047	0.591	16.051						Continuing	TBD

In FY09, KC-X RDT&E efforts were transferred from PE 0401221F, KC-135 Replacement Tanker, 4927, KC-135 Replacement Tanker, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

(U) **D. Acquisition Strategy**
The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605221F KC-X, Next Generation Aerial Refueling Aircraft	PROJECT NUMBER AND TITLE 5271 KC-X RDT&E
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Non-recurring, RDT&E tanker aircraft and support	TBD	Aerospace manufacturer TBD				0.000		414.605		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		414.605		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u> Studies and Analysis	TBD	ASC/EN/XR, AFVB, Edwards, AFMSS, RAND, ARSAG, FTAR, Eglin, trainers, support contractors				2.010		2.150		Continuing	TBD	
Subtotal Support			0.000	0.000		2.010		2.150		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u> Test and Planning	TBD	AFFTC, AFOTEC, Edwards AFB, Survivac, Live Fire, JITC, Seek Eagle				0.433		6.202		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.433		6.202		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u> 836 Aeronautical Systems Group	n/a	836 AESG, Wright Patterson AFB				20.495		16.026		Continuing	TBD	
Subtotal Management			0.000	0.000		20.495		16.026		Continuing	TBD	0.000
Remarks:												
<u>(U) AF WH, Omnibus, Other Sources</u> Air Force withhold, Omnibus, Other Sources	n/a					0.000		0.000		Continuing	TBD	
Subtotal AF WH, Omnibus, Other Sources			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Trainer Development</u>												

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Exhibit R-3 (PE 0605221F)

Project 5271

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0605221F KC-X, Next Generation Aerial Refueling Aircraft			5271 KC-X RDT&E		
Trainer Development	TBD	Trainer manufacturer TBD	0.000	0.000	0.000	0.632	Continuing	TBD	
Subtotal Trainer Development			0.000	0.000	0.000	0.632	Continuing	TBD	0.000
Remarks:									
(U) Total Cost			0.000	0.000	22.938	439.615	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605221F KC-X, Next Generation
Aerial Refueling Aircraft

PROJECT NUMBER AND TITLE
5271 KC-X RDT&E



U.S. AIR FORCE



KC-X Notional Schedule

Dominant Air Power: Design For Tomorrow... Deliver Today

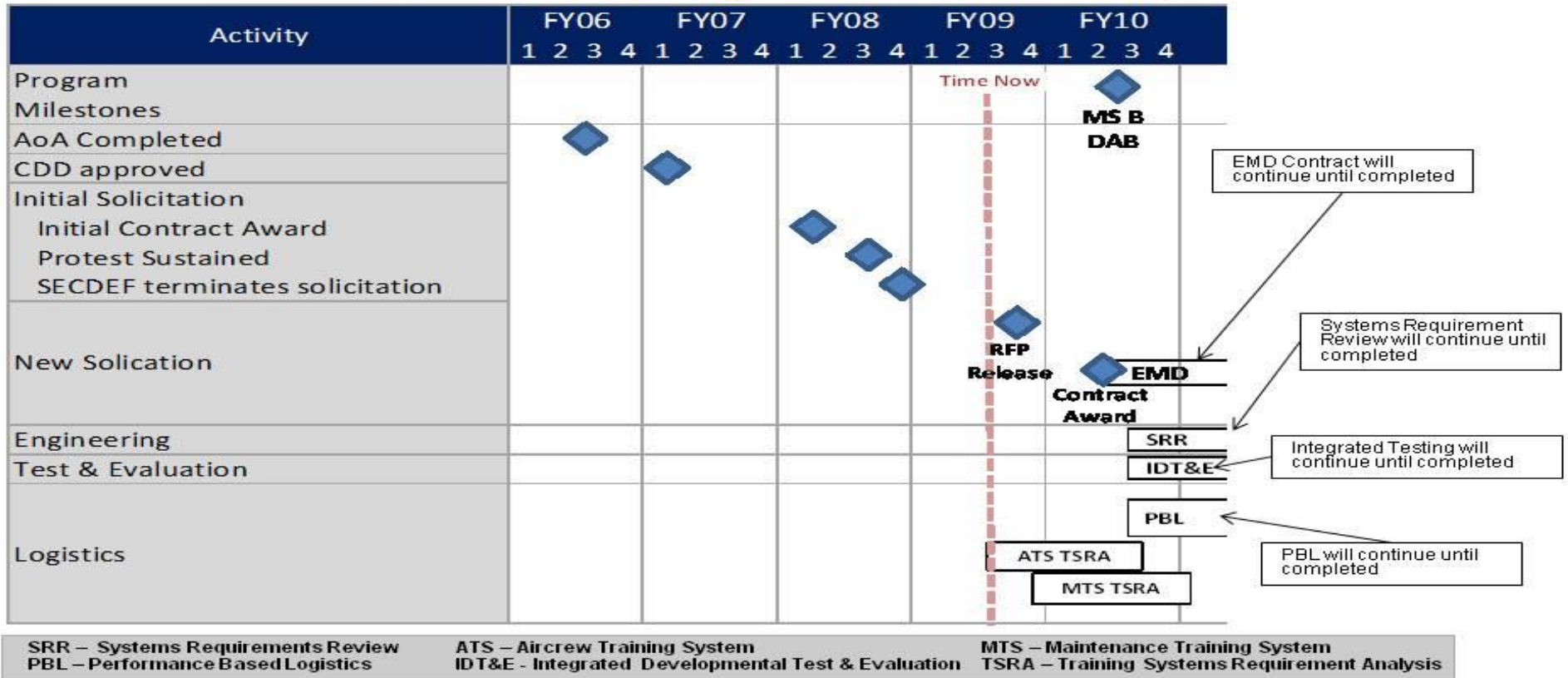


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605221F KC-X, Next Generation
Aerial Refueling Aircraft

PROJECT NUMBER AND TITLE

5271 KC-X RDT&E

(U) **Schedule Profile**

FY 2008

FY 2009

FY 2010

(U) Non-recurring engineering, RDT&E tanker aircraft and support

2-4Q

(U) Trainer Development

2-4Q

(U) Government Test

1-4Q

1-4Q

(U) Studies

1-4Q

1-4Q

(U) Mission Support

1-4Q

1-4Q

In FY09, KC-X RDT&E efforts were transferred from PE 0401221F, KC-135 Replacement Tanker, 4927, KC-135 Replacement Tanker, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605277F CSAR-X
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	232.232	89.975	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5213 CSAR-X	0.000	232.232	89.975	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, and in passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: Per SECDEF guidance to "Terminate CSAR-X program and procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities", the Air Force intends to terminate the existing CSAR-X contract. Funds in FY09 will be used for termination related costs, acquisition planning, studies and analysis, and program office support. Funds in FY10 will be used to develop and execute an acquisition strategy to procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities leveraging existing multi-service solutions. Initially this joint approach will include providing short term relief to the aging HH-60G fleet by purchasing rotary-wing aircraft in production for the Army and modifying them with CSAR mission equipment. These aircraft will create a foundation to procure HH-60 operational loss aircraft as an interim step to maintain combat capability.

Subsequent to the CSAR-X program termination and final budget determination, the Air Force determined that Aircraft Procurement, Air Force (APAF) funds are more appropriate to procure UH-60M production rotorcraft and modify to the fielded HH-60G-like capability. Planned modifications required for the CSAR configuration would leverage previously developed modifications with limited non-recurring engineering.

Therefore, of the \$89.975M FY10 requirement, the Air Force requests Congress appropriate APAF funding in the amount of \$75.009M for HH-60M production and post-production modifications kits and installations. The Air Force requests Congress appropriate RDT&E funding in the amount of \$14.966M RDT&E for non-recurring engineering associated with integrating the CSAR modifications with the UH-60M airframe, qualification testing and program management, and follow on studies and analysis.

The program office will also be working with headquarters Air Force and OSD to support a re-evaluation of the "combat search and rescue requirements in the context of joint force capabilities" as directed by SECDEF. FY 09 and FY10 funding will be used to support this report and any follow on studies and analysis, develop an

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605277F CSAR-X

acquisition strategy and to support subsequent acquisition activities.

Previous year funding for CSAR-X is located in PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget		305.062	364.818
(U) Current PBR/President's Budget	0.000	232.232	89.975
(U) Total Adjustments	0.000	-72.830	
(U) Congressional Program Reductions		-72.035	
Congressional Rescissions		-0.795	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

- Previous year funding for CSAR-X is located in PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.
- FY09 funding includes Omnibus reprogramming of \$111.6M

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0605277F CSAR-X				5213 CSAR-X		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5213 CSAR-X	0.000	232.232	89.975	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, and in passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: Per SECDEF guidance to "Terminate CSAR-X program and procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities", the Air Force intends to terminate the existing CSAR-X contract. Funds in FY09 will be used for termination related costs, acquisition planning, studies and analysis, and program office support. Funds in FY10 will be used to develop and execute an acquisition strategy to procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities leveraging existing multi-service solutions. Initially this joint approach will include providing short term relief to the aging HH-60G fleet by purchasing rotary-wing aircraft in production for the Army and modifying them with CSAR mission equipment. These aircraft will create a foundation to procure HH-60 operational loss aircraft as an interim step to maintain combat capability.

Subsequent to the CSAR-X program termination and final budget determination, the Air Force determined that Aircraft Procurement, Air Force (APAF) funds are more appropriate to procure UH-60M production rotorcraft and modify to the fielded HH-60G-like capability. Planned modifications required for the CSAR configuration would leverage previously developed modifications with limited non-recurring engineering.

Therefore, of the \$89.975M FY10 requirement, the Air Force requests Congress appropriate APAF funding in the amount of \$75.009M for HH-60M production and post-production modifications kits and installations. The Air Force requests Congress appropriate RDT&E funding in the amount of \$14.966M RDT&E for non-recurring engineering associated with integrating the CSAR modifications with the UH-60M airframe, qualification testing and program management, and follow on studies and analysis.

The program office will also be working with headquarters Air Force and OSD to support a re-evaluation of the "combat search and rescue requirements in the context of joint force capabilities" as directed by SECDEF. FY 09 and FY10 funding will be used to support this report and any follow on studies and analysis, develop an acquisition strategy and to support subsequent acquisition activities.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605277F CSAR-X	PROJECT NUMBER AND TITLE 5213 CSAR-X
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Previous year funding for CSAR-X is located in PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SPO Support		5.612	5.410
(U) Studies and Analysis		3.253	3.351
(U) Government Test and Evaluation		0.524	1.205
(U) Operational Loss Replacement Aircraft		0.000	75.009
(U) Non-recurring Engineering		0.000	5.000
(U) Pending Reprogramming Action		111.600	
(U) Termination-Related costs		111.243	
(U) Total Cost	0.000	232.232	89.975

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U)

(U) **D. Acquisition Strategy**

The program office, using results from the Dep SECDEF, will complete an acquisition strategy and any subsequent acquisition activities in FY10-FY11. Production Representative Test Vehicles will be delivered starting in FY12.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0605277F CSAR-X				5213 CSAR-X				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Studies and Analysis	Various	Various				3.253		3.351		Continuing	TBD	
Production Representative Test Vehicles (PRTV)		TBD						80.009		Continuing	TBD	
Subtotal Product Development			0.000	0.000		3.253		83.360		Continuing	TBD	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 & Evaluation</u>												
Government Test and Evaluation		46 TW; Eglin AFB, FL				0.524		1.205		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.524		1.205		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
SPO Support						5.612		5.410		Continuing	TBD	
Termination related costs						111.243					111.243	
Omnibus reprogramming						111.600					111.600	
Subtotal Management			0.000	0.000		228.455		5.410		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		232.232		89.975		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605277F CSAR-X

PROJECT NUMBER AND TITLE

5213 CSAR-X

CSAR-X Schedule

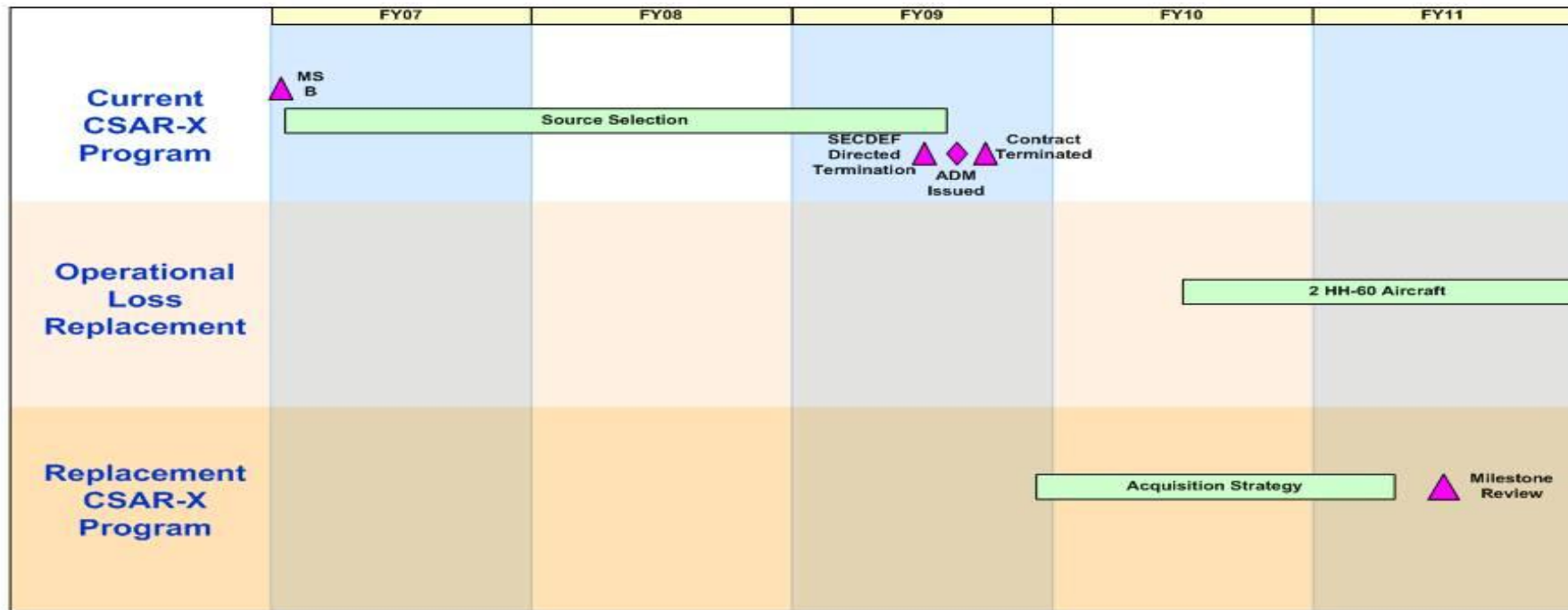


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605277F CSAR-X

PROJECT NUMBER AND TITLE

5213 CSAR-X

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

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PE NUMBER: 0605278F
 PE TITLE: HC/MC-130 Recap

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605278F HC/MC-130 Recap
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	11.660	20.582	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5249 HC/MC-130 Recap	0.000	11.660	20.582	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Development Document (CDD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CDD in Nov 2007.

FY10 HC/MC-130J program RDT&E funding provides for:

- 1) Systems engineering, integration and test of mature, fielded capabilities (e.g., electro-optical-infrared imaging, Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS) and Enhanced Service Life (ESL) Wing, and a Combat Systems Officer crew station) with medium-transport aircraft for the HC/MC-130 Recap aircraft.
- 2) C-130J Block 7.0 HC/MC-130J trial kit install. The C-130J Block 7.0 program is in PE41132F. It is the third phase of a four-block upgrade initiative which primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is the first Block Upgrade initiative that is a true International partnership, as the development costs are being shared by each participating nation. Block 7.0 requirements include:
 - a.) Communication, Navigation & Identification (CNI) upgrades
 - b.) Dual Multi-Mode Receivers (MMR) with TSO C-129A Civil Global Positioning System (GPS)
 - c.) CNI Special Processor upgrade
 - d.) Tactical Datalink (TDL)
 - e.) Mission Computer (MC) upgrades

The FY10 MC-130J program also has funds in PE 1160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605278F HC/MC-130 Recap

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	11.692	
(U) Current PBR/President's Budget	0.000	11.660	20.582
(U) Total Adjustments	0.000	-0.032	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.032	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Funds were included in PE 0604261F and were transferred to PE 0605278F in FY09.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0605278F HC/MC-130 Recap				PROJECT NUMBER AND TITLE 5249 HC/MC-130 Recap		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5249 HC/MC-130 Recap	0.000	11.660	20.582	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Development Document (CDD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CDD in Nov 2007.

FY10 HC/MC-130J program RDT&E funding provides for:

- 1) Systems engineering, integration and test of mature, fielded capabilities (e.g., electro-optical-infrared imaging, Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS) and Enhanced Service Life (ESL) Wing, and a Combat Systems Officer crew station) with medium-transport aircraft for the HC/MC-130 Recap aircraft.
- 2) C-130J Block 7.0 HC/MC-130J trial kit install. The C-130J Block 7.0 program is in PE41132F. It is the third phase of a four-block upgrade initiative which primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is the first Block Upgrade initiative that is a true International partnership, as the development costs are being shared by each participating nation. Block 7.0 requirements include:
 - a.) Communication, Navigation & Identification (CNI) upgrades
 - b.) Dual Multi-Mode Receivers (MMR) with TSO C-129A Civil Global Positioning System (GPS)
 - c.) CNI Special Processor upgrade
 - d.) Tactical Datalink (TDL)
 - e.) Mission Computer (MC) upgrades

The FY10 MC-130J program also has funds in PE 1160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Acquisition Planning, Milestone Preparation, RFP development and Source Selection Activities		0.000	0.000
(U) Systems Engineering and Integration		11.568	17.282
(U) Block 7.0 TKI			2.000
(U) Test and Evaluation Planning, Conduct and Support		0.092	1.300
(U) Total Cost	0.000	11.660	20.582

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605278F HC/MC-130 Recap	PROJECT NUMBER AND TITLE 5249 HC/MC-130 Recap
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) HC Recap RDT&E PE 0604261F (Proj 5249)	9.937	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.937
(U) HC/MC-130 Recap APAF (Including Advance Procurement)	75.221	538.006	1016.591							TBD

(U) **D. Acquisition Strategy**

AF plans to procure modified KC-130Js in FY 2009 and FY 2010 to meet the warfighter's immediate requirement and conduct a business case analysis to determine the acquisition strategy to procure the remaining aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0605278F HC/MC-130 Recap					5249 HC/MC-130 Recap			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Systems Engineering and Integration	CPFF	Lockheed Martin Aeronautics, Marietta GA				11.568	Nov-08	17.282	Nov-09		28.850	TBD
Block 7.0 TKI	CPFF	Lockheed Martin Aeronautics, Marietta GA						2.000	Nov-09		2.000	TBD
Subtotal Product Development			0.000	0.000		11.568		19.282		0.000	30.850	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 & Evaluation</u>												
Test and Evaluation Conduct	TBD	TBD				0.000	Nov-08				0.000	TBD
Test and Evaluation Support	TBD	TBD				0.092	Nov-08	1.300			1.392	TBD
Subtotal Test & Evaluation			0.000	0.000		0.092		1.300		0.000	1.392	TBD
Remarks:												
(U) <u>Management</u>												
SPO Support	TBD	TBD				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	0.000		11.660		20.582		0.000	32.242	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

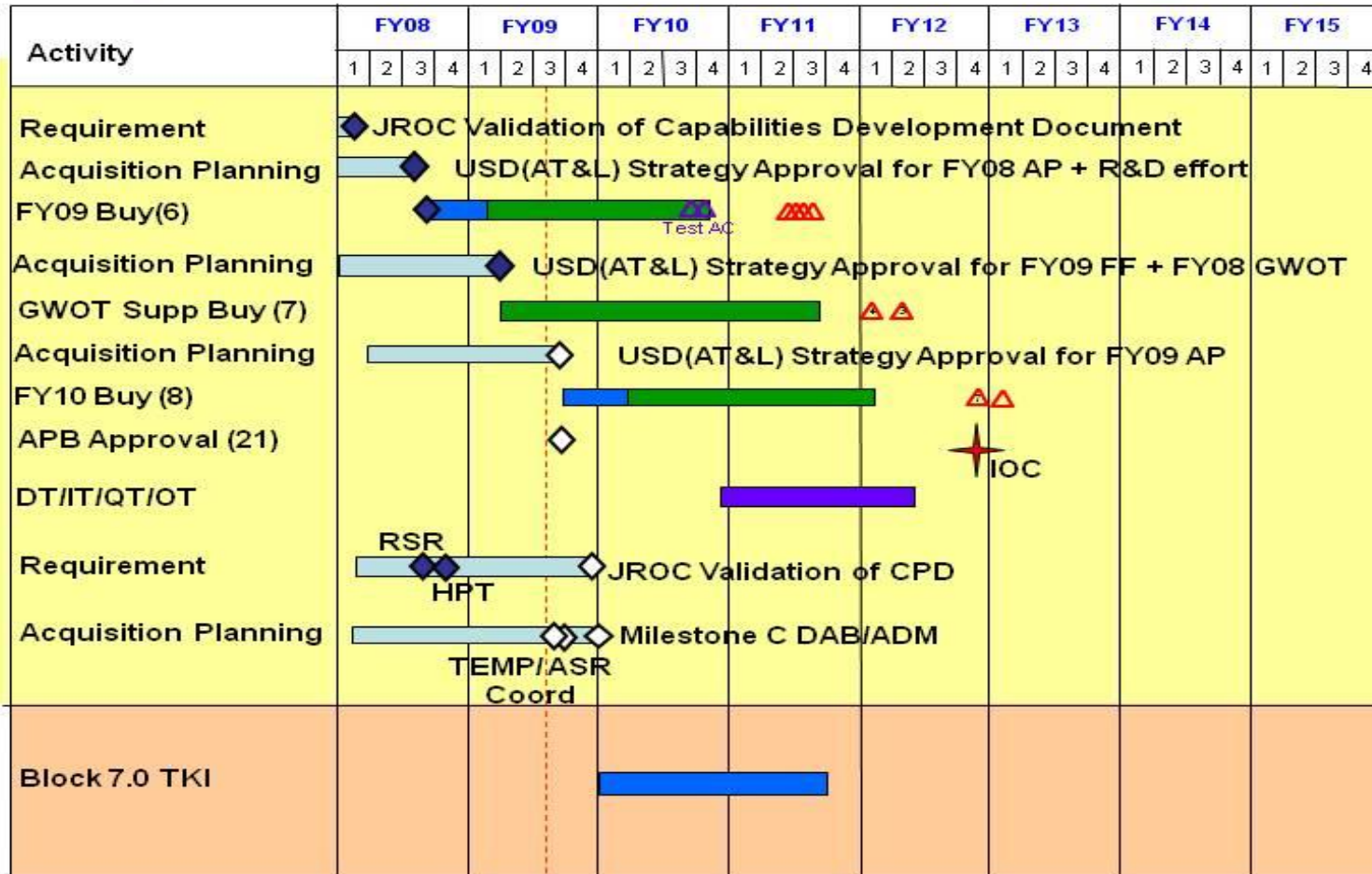
PE NUMBER AND TITLE
0605278F HC/MC-130 Recap

PROJECT NUMBER AND TITLE
5249 HC/MC-130 Recap



For Official Use Only

HC/MC-130 Recap Program Schedule



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Project 5249

Exhibit R-4 (PE 0605278F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605278F HC/MC-130 Recap

PROJECT NUMBER AND TITLE

5249 HC/MC-130 Recap

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Systems Engineering and Integration

3-4Q

1-4Q

1-4Q

(U) Block 7.0 TKI

1-4Q

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PE NUMBER: 0605452F
 PE TITLE: Joint SIAP Program Executive Office

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605452F Joint SIAP Program Executive Office
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	34.877	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5370 Joint SIAP Program Executive Office	0.000	0.000	34.877	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

This is a new PE for FY10. In FY10, Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP) funding was transferred from Air Force Program Element 0207451F, Single Integrated Air Picture (SIAP), Joint SIAP Engineering and Development, to Air Force Program Element 0605452F, Joint Program Executive Office (JPEO) SIAP, in accordance with Department of Defense designation of the Air Force as the SIAP Acquisition Executive. As a result, funding was placed in the JPEO SIAP line for ongoing development of the Joint Track Manager (JTM) in FY10. The Quadrennial Defense Review (QDR) Analysis will assess the path forward by leveraging existing SIAP technologies and the Cooperative Engagement Capability (CEC) and Tactical Component Network (TCN) programs.

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture (SIAP) was a Joint Requirements Oversight Council (JROC) validated collaborative enterprise Special Interest Program, comprising multiple engineering and acquisition programs in each of the Services, all linked by a joint engineering and development organization. The Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP) integrates the Joint product with Service combat systems creating a Joint System of Systems (SoS) capability for the warfighter. The JPEO SIAP provides the joint system engineering oversight to establish horizontal integration of systems to generate accurate, consistent and timely information for the theater-wide Common Tactical Picture (CTP). The JPEO SIAP provides oversight and management of the SIAP program for the SIAP Acquisition Executive (AE). Specific management areas include research, development, and testing of the Joint Track Manager, conduct of Joint SoS engineering, and oversight of Joint integration and development.

The core set of SIAP SoS requirements are outlined in the SIAP Capability Development Document (CDD) generated by US Joint Forces Command and validated by the JROC in Sep 2007. The SIAP CDD requirement will be achieved through the development and implementation of the SIAP SoS.

Based on guidance from the Secretary of Defense, the JPEO SIAP has been directed to continue to oversee the ongoing development of the Joint Track Manager (JTM) for the Services. The Army Integrated Air and Missile Defense (AIAMD) program and the Navy Aegis Modernization (AMOD) program are two lead programs working the incremental architecture approach for the JTM. The JTM will leverage existing technologies combined with current systems and contracts to provide an enhanced capability for the warfighter in the area of Joint Integrated Air and Missile Defense. Working collaboratively with the Services, the JPEO will oversee the ongoing development of a JTM capability to support the warfighter and to support the Quadrennial Defense Review (QDR).

Activities also include studies and analysis to support both current program planning and execution and future program planning. These activities are in Budget Activity 5 (System Development and Demonstration) because they support mature systems development and integration solutions.

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Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605452F Joint SIAP Program Executive Office

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	34.877
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

In FY10, the Joint funds in AF PE 0207451F were transferred to AF PE 0605452F, Project 5370, Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP), for the ongoing development of the Joint Track Manager (JTM) capability for the warfighter.

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0605452F Joint SIAP Program Executive Office			PROJECT NUMBER AND TITLE 5370 Joint SIAP Program Executive Office		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5370 Joint SIAP Program Executive Office	0.000	0.000	34.877	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture (SIAP) was a Joint Requirements Oversight Council (JROC) validated collaborative enterprise Special Interest Program, comprising multiple engineering and acquisition programs in each of the Services, all linked by a joint engineering and development organization. The Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP) integrates the Joint product with Service combat systems creating a Joint System of Systems (SoS) capability for the warfighter. The JPEO SIAP provides the joint system engineering oversight to establish horizontal integration of systems to generate accurate, consistent and timely information for the theater-wide Common Tactical Picture (CTP). The JPEO SIAP provides oversight and management of the SIAP program for the SIAP Acquisition Executive (AE). Specific management areas include research, development, and testing of the Joint Track Manager, conduct of Joint SoS engineering, and oversight of Joint integration and development.

The core set of SIAP SoS requirements are outlined in the SIAP Capability Development Document (CDD) generated by US Joint Forces Command and validated by the JROC in Sep 2007. The SIAP CDD requirement will be achieved through the development and implementation of the SIAP SoS.

Based on guidance from the Secretary of Defense, the JPEO SIAP has been directed to continue to oversee the ongoing development of the Joint Track Manager (JTM) for the Services. The Army Integrated Air and Missile Defense (AIAMD) program and the Navy Aegis Modernization (AMOD) program are two lead programs working the incremental architecture approach for the JTM. The JTM will leverage existing technologies combined with current systems and contracts to provide an enhanced capability for the warfighter in the area of Joint Integrated Air and Missile Defense. Working collaboratively with the Services, the JPEO will oversee the ongoing development of a JTM capability to support the warfighter and to support the Quadrennial Defense Review (QDR).

Activities also include studies and analysis to support both current program planning and execution and future program planning. These activities are in Budget Activity 5 (System Development and Demonstration) because they support mature systems development and integration solutions.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Joint Track Manager Engineering and Development	0.000	0.000	25.000
(U) Joint Track Manager Testing	0.000	0.000	9.273
(U) JPEO Managment	0.000	0.000	0.604
(U) Total Cost	0.000	0.000	34.877

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605452F Joint SIAP Program Executive Office

PROJECT NUMBER AND TITLE

5370 Joint SIAP Program Executive Office

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0207451F, RDT&E, AF	0.000	63.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
(U) PE 0603327A, RDT&E, A	0.000	1.296	4.536	0.000	0.000	0.000	0.000	0.000	0.000	

(U) **D. Acquisition Strategy**

The JTM will continue ongoing development in FY10 to implement capability into Service combat systems and provide a Joint single integrated air picture.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0605452F Joint SIAP Program Executive Office					5370 Joint SIAP Program Executive Office			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Joint Track Manager Engineering		Various		0.000		0.000		25.000	Apr-10	Continuing	TBD 0.000 0.000	TBD
Subtotal Product Development			0.000	0.000		0.000		25.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u> Joint Track Manager Testing	Various	Various		0.000		0.000		9.273	Apr-10	Continuing	TBD 0.000 0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		9.273		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> JPEO Management	Various	Various		0.000		0.000		0.604			0.604	
Subtotal Management			0.000	0.000		0.000		0.604		0.000	0.604	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		34.877		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

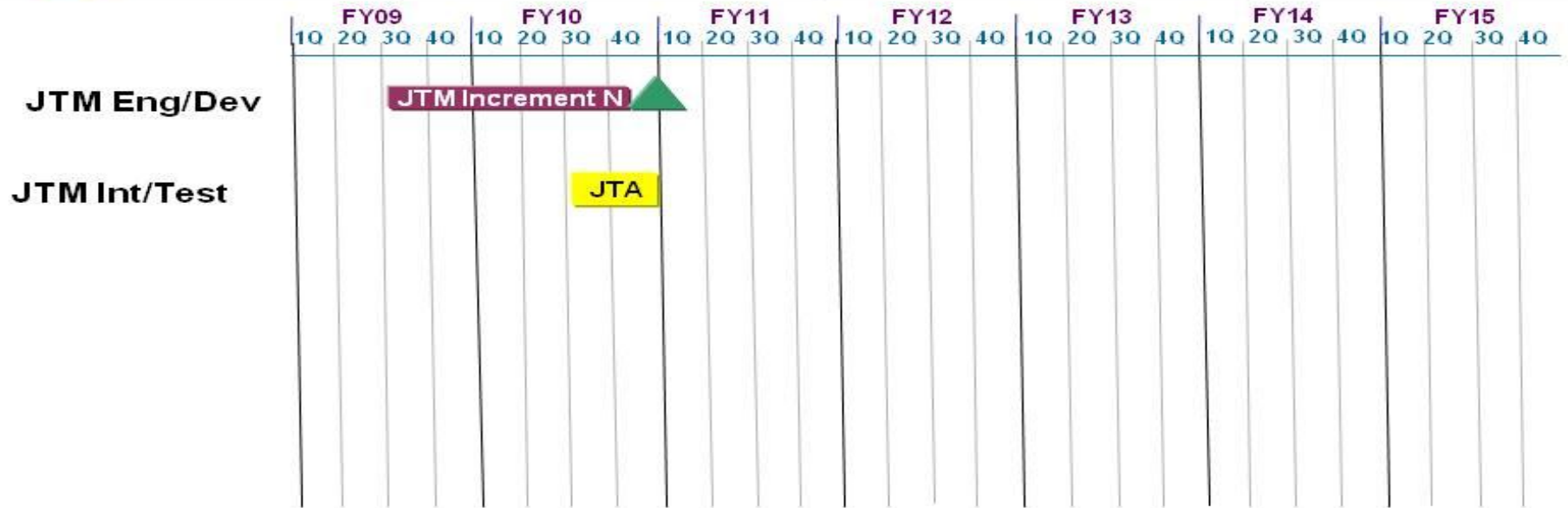
PE NUMBER AND TITLE
0605452F Joint SIAP Program
Executive Office

PROJECT NUMBER AND TITLE
5370 Joint SIAP Program Executive
Office

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JPEO JTM Schedule



	Concept Activities		Design/Development		Integration/Test
	Production/Fielding		Pre-Production		Key Events

PB10 R-Docs

Depicted by installation/production flow

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4/15/2009

Project 5370

R-1 Line Item No. 91
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Exhibit R-4 (PE 0605452F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605452F Joint SIAP Program
Executive Office

PROJECT NUMBER AND TITLE

5370 Joint SIAP Program Executive
Office

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Joint Track Manager Engineering and Development

1-4Q

(U) Joint Track Manager Test

3-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	186.371	192.460	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5050 TDL System Integration	49.851	50.973	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5262 Family of Gateways	136.520	141.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Beginning in FY10 Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDLs) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST), Advanced Tactical Data Link (ATDL), and Radar Common Data Link (R-CDL).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among ground and air platforms. Utilization of TDLs in a joint environment requires the integration of terminals [e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)] into host platforms, and designing interoperability of data link networks across all deployed joint and allied platforms. The 653rd Electronic Systems Group (653rd ELSG) performs several cross-platform activities to ensure proper integration of TDL capabilities and interoperability of TDL networks. TDL efforts include incorporating changes and additions to the Link 16 message standard (MIL-STD-6016C), incorporating Link 16 enhancements and Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This program participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, and/or space-based C4ISR networks to produce operational effects not possible within individual networks. The AF continues to enhance the interoperability and capabilities of fielded gateways such as the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality, Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE).

The Objective Gateway (OG) program is developing a family of advanced gateway capabilities to enable a transition from legacy gateways with niche requirements and narrow user-sets. OG will be modular and scalable, with Internet Protocol (IP)-based networking capabilities that service theater-wide operational and tactical users.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

The OG program will be fielded in two increments. Increment 1 (Interim Gateway) will provide early OG capability based on technology demonstration and risk reduction efforts completed to date. Increment 2 (Objective Gateway) will develop, test, integrate, and field the full OG capability. In FY10, the Objective Gateway Program, was terminated.

Common Link Integration Processing (CLIP) is an Air Force/Navy program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne maritime, and fixed-site systems.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in budget activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	194.652	186.213	
(U) Current PBR/President's Budget	186.371	192.460	
(U) Total Adjustments	-8.281	6.247	
(U) Congressional Program Reductions		-0.830	
Congressional Rescissions		-0.523	
Congressional Increases		7.600	
Reprogrammings	-2.866		
SBIR/STTR Transfer	-5.415		

(U) Significant Program Changes:

In FY09 \$7.600M congressional increases for Flexible Access Secure Transfer (FAST \$1.200M) and Program Increase (\$6.400M)

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0207434F Link 16 Support and Sustainment						5050 TDL System Integration		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5050 TDL System Integration	49.851	50.973	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY10, all TDL System Integration funding moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise. Project will remain 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 mission assignments. TDLs provide interoperable data exchange, local and global connectivity, and situational awareness to the tactical user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons and sensor platforms. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST-FY09 Congressional Add), Advanced Tactical Data Link (ATDL), and Radar Common Data Link (R-CDL).

The number of Air Force platforms hosting TDLs is expanding from C2 aircraft (E-3, E-8, etc.) to the fighter, bomber, ISR, tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Network Centric Transformation activities performed by the 653rd Electronic Systems Group (653rd ELSG) include, but are not limited to: enabling and supporting the transformation to network-centric operations, Network Enabled Weapons (previously Weapons Data Link), analysis and integration efforts encompassing hardware, software, operational Link 16 enhancements, and training and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of service-wide network management procedures and operations, system wide enhancements and test.

In addition, this project funds the development and integration of the Joint Interface Control Officer (JICO) - Support System (JSS). JSS is an AF-led joint program to develop a TDL management toolkit to enable JICOs to plan multi-TDL architectures, manage data exchange requirements, execute and monitor a multi-TDL network, and respond to correct network deficiencies.

Joint Interoperability of Tactical Command and Control Systems (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 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

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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

agreements) to ensure joint, allied, and coalition interoperability.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, and development of special projects.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

(U) TDN MANAGEMENT AND INITIAL FIELDING:

19.952

24.302

- Joint Interface Control Officer Support System (JSS): Complete production representative development and system testing (DT&E, OT&E) required for FY09 Milestone C decision.

- TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a data link capability. This support consists of organic and contractor teams that provide Tactics, Techniques & Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL operations and field installations. Develops TDL architectures for implementation at AF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports AF and Joint TDL experiments.

(U) NETWORK CENTRIC TRANSFORMATION:

10.251

12.550

- Network Centric Transformation activities including, but not limited to: enabling and supporting the transformation to network centric operations, Network Enabled Weapons (previously Weapons Data Link), Network Centric Capability Assessment, Link 16 network centric enhancements, Tactical Targeting Network Technology (TTNT) and Flexible Access Secure Transfer (FAST) was a congressional plus-up in FY09.

- 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) TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT:

14.580

8.833

- JINTACCS Tactical Data Link management, architecture development and certification testing.

- Implementation and interoperability scheduling with the A-10, F-15, F-16, B-52, B-1, B-2, and other weapon systems

- Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center/Control and Reporting Element (CRC/CRE), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems.

- Tactical Data Link roadmap requirements, configuration management, and Air Force Participating Test Unit activities (AFPTU).

(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT: Includes the 640th Electronic Systems Squadron (640th ELSS) program management support, coalition interoperability management, A&AS and MITRE support.

5.068

5.288

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Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5050 TDL System Integration
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>							
(U) Total Cost	49.851	50.973	0.000							
 (U) <u>C. Other Program Funding Summary (\$ in Millions)</u>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (3600)										
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106						Continuing	TBD
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000						Continuing	TBD
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667							5.131
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	88.444							
(U) Other APPN										
(U) Aircraft Procurement, AF (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616							40.281
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000							4.426
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000						Continuing	TBD
(U) O&M, AF (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359							0.258
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219							
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							
(U) Other Procurement, AF (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							

Exhibit R-2a, RDT&E Project Justification

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

(U) **D. Acquisition Strategy**

The 653rd Electronic Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

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) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 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											0.000	TBD
-- JICO Support System	C/CPFF	Northrop Grumman, San Diego, CA		13.174	Nov-07	14.786	Dec-08				27.960	TBD
-- Initial Fielding Support	Various	Various		5.197	Nov-07	5.592	Nov-08				10.789	TBD
- Network Centric Transformation (TTNT, NEW, Link 16 enhancements, FAST, Link 16 network centric enhancements)	Various	Various		10.251	Dec-07	12.550	Dec-08				22.801	TBD
- TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various	Various		14.580	Dec-07	8.833	Dec-08				23.413	TBD
-TDL Acquisition Management (Coalition Interoperability)	Various	Various		0.442	Nov-07		Nov-08				0.442	TBD
Subtotal Product Development			0.000	43.644		41.761		0.000		0.000	85.405	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
- Various Test Centers	Project Order/MIP R	Various		1.581	Dec-07	3.924	Dec-08				5.505	TBD
Subtotal Test & Evaluation			0.000	1.581		3.924		0.000		0.000	5.505	TBD
Remarks:												
<u>(U) Management</u>												
-Program Office and Contractor Support	C/FFP	Various		4.626	Dec-07	5.288	Dec-08				9.914	TBD
Subtotal Management			0.000	4.626		5.288		0.000		0.000	9.914	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	49.851		50.973		0.000		0.000	100.824	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

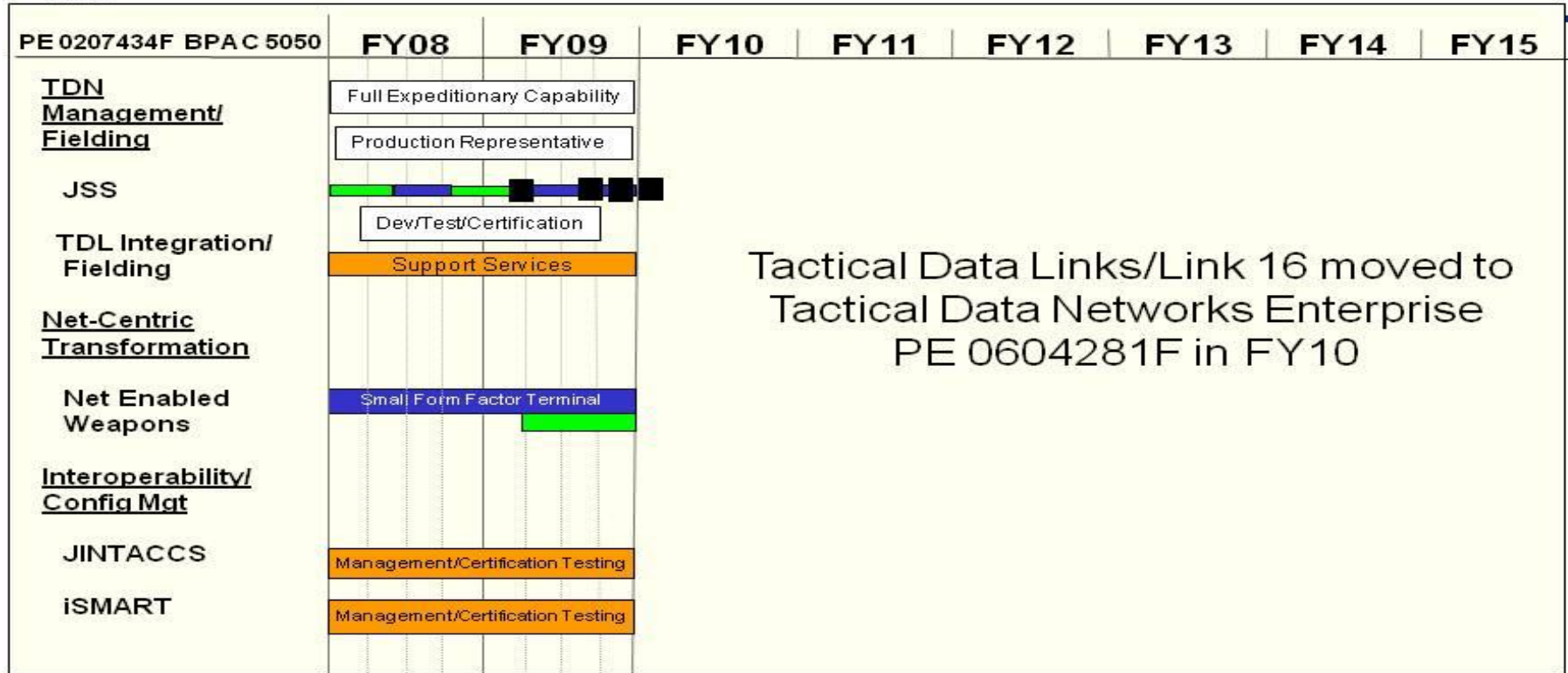
PE NUMBER AND TITLE
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE
5050 TDL System Integration



Tactical Data Links / Link 16 Schedules

16 December 2008



As of 16 Dec 08

▲ Contract Awards

■ Delivery Milestones

Program Phases
■ Development/Demonstration
■ Test
■ Integration/Fielding

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail

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

(U) Schedule Profile

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) JSS Development, Test & Certification	1-4Q	1-4Q	1Q
(U) TDL Integration & Fielding Support	1-4Q	1-4Q	
(U) Network Enabled Weapons Development	1-4Q	1-4Q	
(U) Network Enabled Weapons Test & Certification		2-4Q	
(U) JINTACCS	1-4Q	1-4Q	
(U) iSMART	1-4Q	1-4Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0207434F Link 16 Support and Sustainment						5262 Family of Gateways		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5262 Family of Gateways	136.520	141.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY10, all Family of Gateways funding except for Objective Gateway moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise. Existing Gateways will remain under Project 655262. In FY10, the Objective Gateway Program was terminated.

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

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks to produce operational effects not possible within individual networks. Gateway functions include: 1) enabling interoperability among otherwise incompatible systems by translating between data formats, protocols, and communication mediums, 2) extending the range of Line-of-Sight constrained systems through relay functions or by routing through Beyond-Line-of-Sight links, 3) consolidating data from multiple networks into high capacity links for transmission to key C2ISR nodes, 4) routing information to and from communications disadvantaged users, 5) correlating data from multiple sources to increase utility and improve accuracy, and 6) providing application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/management. A primary benefit is that gateways provide cost-effective modernization and achieve network-centric warfighting effects without modification of individual platforms.

Existing gateways include the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). These legacy gateways, which are fielded in multiple Joint and Service C2 centers and platforms, primarily provide tactical data link range extension and interoperability. The AF continues to enhance the interoperability and capabilities of fielded gateways through processing capability upgrades, operating system updates, display/graphical user interface upgrades, incorporation of additional messaging standards and protocols, and completion of gateway architecture fielding.

The Objective Gateway (OG) program will deliver a set of advanced gateway capabilities to increase voice and data communications connectivity and information interoperability across many users and platforms in the tactical edge (including homeland defense). OG will bring these users and platforms into the net-centric Global Information Grid (GIG) via a secure, high-capacity network of collaborating OG nodes. Projected OG users and platforms include fighter and bomber aircraft, airborne and ground C2 nodes, mobile and dismounted forces, first responders and command centers, and other users in the GIG. Communications systems include legacy tactical data links, advanced (IP-based) tactical data links, military and civilian voice radios, satellite communications, cellular radios, and terrestrial networks. OG nodes are anticipated to be fielded on five types of platforms, or variants: Tactical Airborne, Strategic Airborne, Ground, Maritime, and Training. OG will be fielded in two efforts. Interim Gateway (formerly Increment 1) will provide initial OG capabilities to meet warfighters' demands based on the Battlefield Airborne Communications Node (BACN) airborne gateway and the Rapid Attack Information Dissemination Execution Relay (RAIDER) ground modular gateway technology demonstration and risk reduction efforts completed to date. FY08-09 activities for Interim Gateway include development and test of production representative airborne and ground gateway hardware and software configurations, and development of required technical and support documentation. Objective Gateway (formerly Increment 2) will develop, test, and integrate the OG Core. This is the common OG software which will be used in combination with various communications terminals and other systems to produce individual OG nodes, whose configurations and capabilities are tailorable to meet different platform Size, Weight, and Power

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5262 Family of Gateways

(SWaP) and mission requirements. OG Core functions will include Tactical Data Network (TDN) message translation, correlation, and forwarding, which will be provided, in part, by the initial fielding of the Common Link Integration Processing (CLIP) capability. FY08-09 activities for Objective Gateway include OG Core technical risk reduction, prototyping, assessment of CLIP-like capability requirements, and development of an OG Core Reference System Architecture -- the framework that will provide for performance, extensibility, modifiability, scalability, and portability of the OG Core's modular system components. In FY10, the Objective Gateway Program was terminated.

Common Link Integration Processing (CLIP) is a program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne, maritime, and fixed-site systems, with initial fielding on B-1 & B-52. The AF and Navy made equitable contributions to CLIP RDT&E funding through FY07. Program leadership transferred from the Navy to the AF in FY08. The AF is funding CLIP RDT&E beginning in FY08. CLIP is a software-only, weapon system-independent middleware application that provides gateway services among diverse message sets and waveforms. CLIP effectively isolates the host platform system software from changes in data link message format and processing. Because message processing is no longer embedded in mission software, message standard updates can be incorporated without costly mission software changes. The result is enhanced interoperability and significantly reduced integration and life-cycle sustainment costs.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CLIP development and testing	22.026	29.427	
(U) Interim Gateway development and test, including BACN and RAIDER demonstrations and incremental Objective Gateway development	92.762	86.550	
(U) Development, integration, and testing of JRE/JTEP capability enhancements	4.721	4.597	
(U) Development, integration, and testing of Pocket J capability enhancements (Congressional Increase in FY09)	0.744	6.355	
(U) Development, integration, and testing of JADSI capability enhancements	4.314	4.449	
(U) Development, integration, and testing of SADL/TMPG capability enhancements	2.205	2.906	
(U) Tactical Data Link Acquisition Management: Includes the 653rd Electronic Systems Group (653rd ELSG) program management support, A&AS and MITRE support.	9.748	7.203	
(U) Total Cost	136.520	141.487	0.000

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Exhibit R-2a, RDT&E Project Justification

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

5262 Family of Gateways

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (3600)										
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106						Continuing	TBD
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000						Continuing	TBD
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667						Continuing	TBD
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	88.444							
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616						Continuing	TBD
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000						Continuing	TBD
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000						Continuing	TBD
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359						Continuing	TBD
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219						Continuing	TBD
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							

(U) D. Acquisition Strategy

The 653rd Electronic Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
CLIP	MIPR	SPAWAR, San Diego, CA		21.562	Jan-08	28.927	Jan-09				50.489	TBD
Interim Gateway development and test, including BACN and RAIDER demonstrations and incremental Objective Gateway development & Concept Refinement	VARIOUS	Various		91.562	Dec-07	85.851	Dec-08				177.413	TBD
JRE/JTEP enhancements	T&M/FFP	Centech, Arlington, VA		3.971	Dec-07	4.247	Dec-08				8.218	TBD
Pocket J enhancements	TBD	ProLogic, WV		0.454	Jan-08	6.188	Jan-09				6.642	TBD
JADSI enhancements	T&M/FFP	Ultra Electronics, Austin, TX		4.189	Jan-08	3.974	Dec-08				8.163	TBD
SADL/TMPG enhancements	T&M/FFP	Raytheon, Fullerton, CA		2.205	Dec-07	2.502	Dec-08				4.707	TBD
Subtotal Product Development			0.000	123.943		131.689		0.000		0.000	255.632	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
Various	Project Order/MIPR	Various		2.830	Nov-07	2.595	Dec-08				5.425	TBD
Subtotal Test & Evaluation			0.000	2.830		2.595		0.000		0.000	5.425	TBD
Remarks:												
<u>(U) Management</u>												
Program Office and Contractor Support	C/FFP			9.747	Nov-07	7.203	Nov-08				16.950	TBD
Subtotal Management			0.000	9.747		7.203		0.000		0.000	16.950	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	136.520		141.487		0.000		0.000	278.007	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

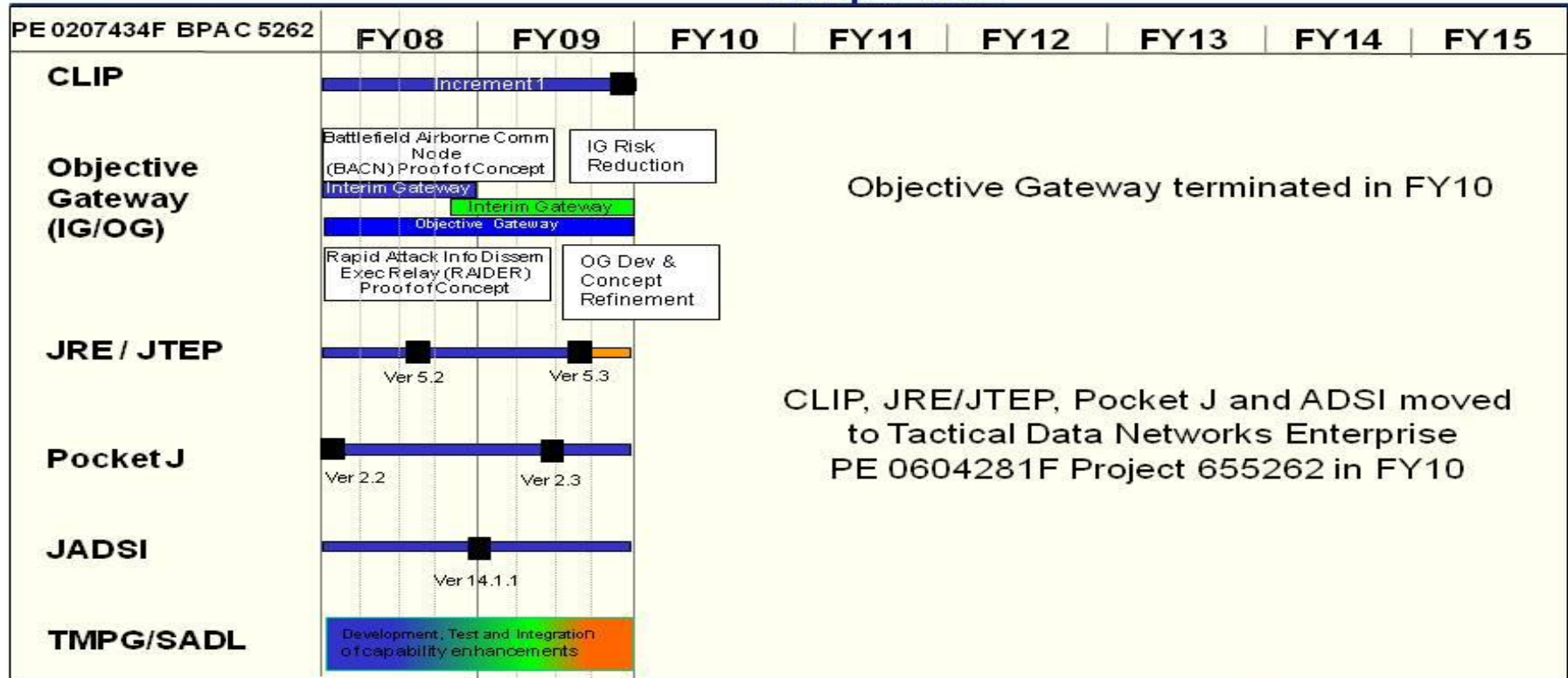
PE NUMBER AND TITLE
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE
5262 Family of Gateways



Tactical Data Links / Link 16 Family of Gateways Schedules

22 April 2009



As of 22 Apr 09

▲ Contract Awards

■ Delivery Milestones

Program Phases
■ Development/Demonstration
■ Test
■ Integration/Fielding

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT NUMBER AND TITLE 5262 Family of Gateways
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) CLIP Development	1-4Q	1-4Q	
(U) CLIP Product Delivery		4Q	
(U) Interim Gateway (IG) Development	1-4Q		
(U) Interim Gateway (IG) Test	4Q	1-4Q	
(U) Objective Gateway (OG) Development & Concept Refinement	1-4Q	1-4Q	
(U) JRE/JTEP Development & Integration	1-4Q	1-4Q	
(U) JRE/JTEP Product Delivery	3Q	3Q	
(U) Pocket J Development	1-4Q	1-4Q	
(U) Pocket J Product Delivery	1Q	2Q	
(U) JADSI Development	1-4Q	1-4Q	
(U) JADSI Product Delivery		1Q	
(U) TMPG/SADL capability enhancements	1-4Q	1-4Q	

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PE NUMBER: 0207450F
 PE TITLE: E-10 Squadrons

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.675	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5131 Airframe	0.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	478.675
5132 Sensors	37.307	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

The E-10A Program was terminated in Feb 07 with amended direction received in May 07 that authorized limited risk reduction of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and Wide Area Surveillance (WAS) Radar Hardware verification.

In FY 2009, Project 5123, Sensors, efforts transferred to PE 0305220F, Global Hawk, Project RTIP, in order to better align sensor development for the Global Hawk with its host platform.

(U) A. Mission Description and Budget Item Justification

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) seeks to develop a family of advanced airborne sensors for multiple platform applications. The Global Hawk (GH) portion of the MP-RTIP program provides the dedicated radar payload for Global Hawk Block 40 Intelligence, Surveillance, and Reconnaissance (ISR) capability, providing persistent Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) imaging, as both independent modes and concurrently operating modes. Limited GH Air Moving Target Indicator (AMTI) capability has been deferred. MP-RTIP is development only. Production for GH Block 40 sensors are funded in the GH Program Element. MP-RTIP also supports NATO Alliance Ground Surveillance (AGS) radar conceptual design and early decision analysis activities to support the United States' involvement in the NATO AGS program. Additionally, MP-RTIP supports the development and maturation of technologies needed for advanced Wide Area Surveillance (WAS) in support of Cruise Missile Defense (CMD) and kill chain enhancements. This includes complementary Battle Management Command and Control (BMC2) technologies needed to process and manage high volumes of sensor data.

This project was categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	39.032	42.215	0.000
(U) Current PBR/President's Budget	37.675	0.000	0.000
(U) Total Adjustments	-1.357	-42.215	
(U) Congressional Program Reductions		-42.215	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.337		
SBIR/STTR Transfer	-1.020		

(U) Significant Program Changes:

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

E-10A was cancelled in FY07 and future sensor development is funded in RDT&E, AF PE 0604283F, Battle Mgmt Com & Ctrl Sensor Development in FY10. In FY09, Congressional reduction removed funding from this program element and moved the funding and effort to PE 35220F, Global Hawk.

Exhibit R-2a, RDT&E Project Justification

DATE
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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		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5131 Airframe	0.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	478.675
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project was established to (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the MP-RTIP WAS "large-sized" variant of the MP-RTIP radar system, (2) design and develop the testbed modifications, (3) support Weapon System Integration activities to include development of key WAS BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities including leveraging WAS BMC2 development for other enterprise applications, and (5) conduct risk reduction activities in the areas of BMC2 Mission Execution and BMC2 Kill Chain.

The E-10 program was terminated in FY07.

FY08 \$368K funded program office operations to close out E-10A activity.

This project was 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Program office operations effort.	0.368	0.000	
(U) Total Cost	0.368	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) None

(U) D. Acquisition Strategy

In accordance with USD (AT&L) direction, the E-10A program was terminated Feb 07.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0207450F E-10 Squadrons					5131 Airframe			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Weapon System Integration (WSI) and Battle Management Command & Control (BMC2)	SS/CPAF	Northrop Grumman Corporation; Melbourne, FL	393.500	0.000		0.000				0.000	393.500	393.500
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	65.000	0.000		0.000				0.000	65.000	65.000
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA	57.504	0.000		0.000				0.000	57.504	57.504
Systems Engineering Future Studies/Spiral Development	Various SS/CPFF	Various Northrop Grumman Corporation; Melbourne, FL	7.626	0.000		0.000				0.000	7.626	7.626
			12.387	0.000		0.000				0.000	12.387	12.387
Subtotal Product Development			536.017	0.000		0.000		0.000		0.000	536.017	536.017
Remarks:												
(U) <u>Test & Evaluation</u>												
AFOTEC	AF Form 616	Various	0.155	0.000		0.000				0.000	0.155	0.155
Joint Test Force (JTF) Operator-In-The-Loop (OITL)	Various MIPR	Various Hanscom AFB, MA	1.841	0.000		0.000				0.000	1.841	1.841
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA	0.217	0.000		0.000				0.000	0.217	0.217
			0.058	0.000		0.000				0.000	0.058	0.058
Subtotal Test & Evaluation			2.271	0.000		0.000		0.000		0.000	2.271	2.271
Remarks:												
(U) <u>Management</u>												
Program Office Support	Various	Various	2.266	0.368	Oct-07	0.000				0.000	2.634	2.634
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA	33.118	0.000	Oct-07	0.000				0.000	33.118	33.118
Subtotal Management			35.384	0.368		0.000		0.000		0.000	35.752	35.752
Remarks:												
(U) Total Cost			573.672	0.368		0.000		0.000		0.000	574.040	574.040

Remarks: FY03 and FY04 efforts funded in PE 0207449F C2 Constellation, Project 5064 (Airframe).
The Air Force terminated the 767-400ER aircraft, intended to serve as the E-10A flying testbed, in Oct 07. The contractor is required to resell the aircraft and return prior AF payments to the U.S. Treasury,

Exhibit R-3, RDT&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

less storage and maintenance costs.

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe



E-10A Program

Pre-SDD – Technology Development

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
BMC2 Mission Execution & Kill Chain Risk Reduction Activities								

- Concept activities
- Production / fielding

- Design / development
- Pre-Production

- Integration / test
- Key events

PB10 R-Docs

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Network/Mission Systems/Infrastructure/BMC2 Risk Reduction and Technology Development

1-3Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207450F E-10 Squadrons				PROJECT NUMBER AND TITLE 5132 Sensors		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5132 Sensors	37.307	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The E-10A Program was terminated in Feb 07 with amended direction received in May 07 that authorized limited risk reduction of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and Wide Area Surveillance (WAS) Radar Hardware verification.

In FY 2009, Project 5123, Sensors, efforts transferred to PE 0305220F, Global Hawk, Project RTIP, in order to better align sensor development for the Global Hawk with its host platform.

(U) A. Mission Description and Budget Item Justification

This project was established to develop a family of modular, scalable, next generation sensors for multiple platforms to support network centric operations with integrated Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capability.

All Global Hawk MP-RTIP design and development for integration onto the Global Hawk Block 40 will continue under the Global Hawk PE. Future Studies/Spiral Development insertion includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts (such as Maritime and advanced capabilities, as well as electronic protection). Continue to support improvement and implementation of C2ISR capabilities enabling the joint air and missile defense architecture joint decisive operations and the Air Expeditionary Force (AEF) Task Force CONOPS. Conduct limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and MP-RTIP WAS Radar Hardware Verification.

The program office terminated the E-10A. This direction also included authorization to continue limited risk reduction activities in the area of MP-RTIP WAS Radar Hardware Verification. Further efforts in this area were funded in FY08 and FY09 in PE 0207581F, Joint STARS and in FY10 in PE 0604283F, BMC2 Sensor Development.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The project will support NATO Alliance Ground Surveillance (AGS) conceptual design and early development activities.

This project was 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Complete software development and radar sensor integration. Execute Radar System Level Performance Verification (RSLPV) and deliver to Global Hawk Block 40 Program for test and integration. Support WAS risk reduction, concept development integration, test, and support planning.	34.083	0.000	
(U) Continue test efforts (including Joint Test Force support, AFOTEC support, and Independent Verification & Validation [IV&V] Air Force Flight Test Center (AFFTC) support)	2.626	0.000	
(U) Conclude program office operations	0.598	0.000	

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons	PROJECT NUMBER AND TITLE 5132 Sensors
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Total Cost	37.307	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0305220F, Proj 67RTIP, RDT&E, AF	0.000	42.100	73.000							TBD

(U) **D. Acquisition Strategy**
 The MP-RTIP program supports the evolutionary acquisition of Global Hawk by providing sensors for the Global Hawk Block 40. The Global Hawk program will fund GH MP-RTIP production sensors for the operational Global Hawk Block 40 platforms. The MP-RTIP program also supports risk reduction of MP-RTIP variants for future to be determined platforms.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0207450F E-10 Squadrons				5132 Sensors				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop-Gru mman Corporation; El Segundo, CA	493.921	27.126	Nov-07	0.000				0.000	521.047	TBD
Future Studies/Spiral Development	Various	Various	1.350	0.000		0.000		0.000		0.000	1.350	TBD
Subtotal Product Development			495.271	27.126		0.000		0.000		0.000	522.397	TBD
Remarks:												
(U) <u>Test & Evaluation</u> Test & Evaluation	Various	Various	11.388	2.626	Dec-07	0.000				0.000	14.014	TBD
Subtotal Test & Evaluation			11.388	2.626		0.000		0.000		0.000	14.014	TBD
Remarks:												
(U) <u>Management</u> Program Office Support	Various	Various	1.670	0.598	Oct-07	0.000				0.000	2.268	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Hanscom AFB, MA	12.777	6.957	Oct-07	0.000				0.000	19.734	TBD
Subtotal Management			14.447	7.555		0.000		0.000		0.000	22.002	TBD
Remarks:												
(U) Total Cost			521.106	37.307		0.000		0.000		0.000	558.413	TBD
Remark: FY 2002 and prior efforts funded in PE 0207581F, Joint STARS FY 2003 and FY 2004 efforts funded in PE 0207449F C2 Constellation, Project 5065 (Sensors)												

Exhibit R-4, RDT&E Schedule Profile

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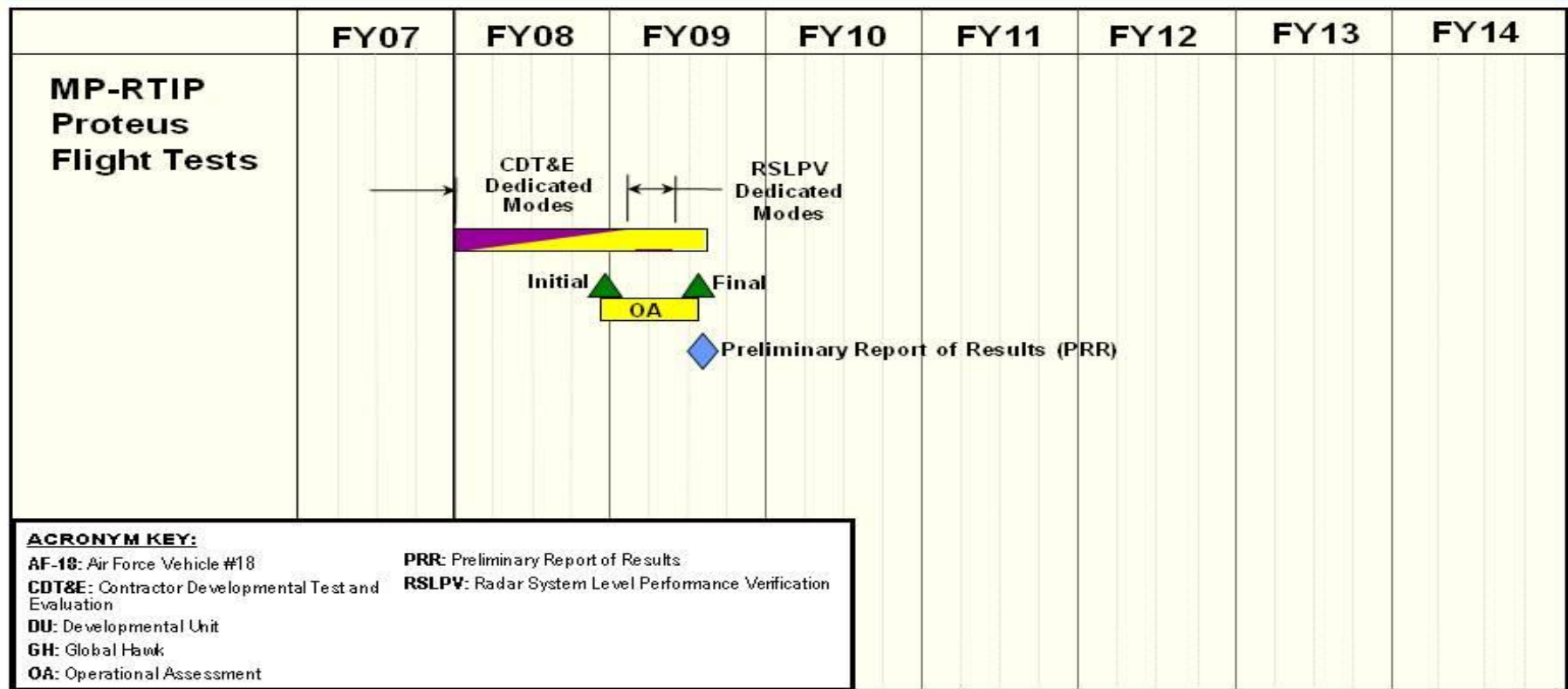
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE
5132 Sensors



MP-RTIP RDOC Schedule – Dec 08



ACRONYM KEY:

AF-18: Air Force Vehicle #18
CDT&E: Contractor Developmental Test and Evaluation
DU: Developmental Unit
GH: Global Hawk
OA: Operational Assessment
PRR: Preliminary Report of Results
RSLPV: Radar System Level Performance Verification

Design / Development
 Integration / Test
 Key events

PB10 R-Docs

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5132 Sensors

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CDT&E Dedicated Modes	1-4Q	1Q	
(U) RSLVP Dedicated Modes		1-2Q	
(U) GH DU#2 Delivery for Integration and Test (on GH Air Vehicle)		3Q	
(U) Operational Assessment (OA)	3-4Q	1-3Q	
(U) Preliminary Reports of Results (PRR)		2-3Q	

UNCLASSIFIED
TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0207450F	655131	3600	0.368		0.000		0.000											

Effort Title

Airframe

Program Description

This project was established to (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the MP-RTIP WAS "large-sized" variant of the MP-RTIP radar system, (2) design and develop the testbed modifications, (3) support Weapon System Integration activities to include development of key WAS BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities including leveraging WAS BMC2 development for other enterprise applications, and (5) conduct risk reduction activities in the areas of BMC2 Mission Execution and BMC2 Kill Chain.

The E-10 program was terminated in FY07.

Status to Date

FY08 \$368K funded program office operations to close out E-10A activity.

Rationale for Termination

The Air Force terminated the E-10A program in FY07.

UNCLASSIFIED
TERMINATION OF INVESTMENT-RELATED PROGRAMS
FY 2010 President's Budget
(Dollars in Millions)

PE	BPAC	APPN	FY 2008		FY 2009		FY 2010		FY 2011		FY 2012		FY 2013		FY 2014		FY 2015	
			COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY
0207450F	655132	3600	37.307		0.000		0.000											

Effort Title

Sensors

Program Description

This project was established to develop a family of modular, scalable, next generation sensors for multiple platforms to support network centric operations with integrated Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capability.

Status to Date

All Global Hawk MP-RTIP design and development for integration onto the Global Hawk Block 40 will continue under the Global Hawk PE. Future Studies/Spiral Development insertion includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts (such as Maritime and advanced capabilities, as well as electronic protection). Continue to support improvement and implementation of C2ISR capabilities enabling the joint air and missile defense architecture joint decisive operations and the Air Expeditionary Force (AEF) Task Force CONOPS. Conduct limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and MP-RTIP WAS Radar Hardware Verification.

The program office terminated the E-10A. This direction also included authorization to continue limited risk reduction activities in the area of MP-RTIP WAS Radar Hardware Verification. Further efforts in this area were funded in FY08 and FY09 in PE 0207581F, Joint STARS and in FY10 in PE 0604283F, BMC2 Sensor Development.

Rationale for

Termination

The E-10A program was terminated and the Global Hawk MP-RTIP development was moved to PE 35220F, Global Hawk.

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PE NUMBER: 0207451F
 PE TITLE: Single Integrated Air Picture (SIAP)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.723	66.663	13.466	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5232 Air Force Single Integrated Air Picture	4.723	2.796	13.466	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5275 Joint SIAP Engineering and Development	0.000	63.867	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY09, Project 5275, Joint SIAP System Engineering and Development efforts were transferred from Army PE 0603327A - Air and Missile Defense Systems Engineering, Project S32, Joint SIAP System Engineering, into Air Force PE 0207451F in accordance with DoD designation of the Air Force as the SIAP Acquisition Executive.

Starting in FY10, efforts to develop and complete the Joint Track Manager were transferred to PE 0605452F, Joint SIAP Executive Program Office, Project 5370.

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture (SIAP) is the product of fused data from multiple sensors - a "System of Systems" (SoS) that provides unambiguous, actionable tracks of all airborne objects in a surveillance volume. All airborne objects of interest must be detected, tracked, and reported. Every object must have one and only one track and set of identified characteristics. Weapon systems from each Service must see and act on the same track data consistently. 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 of critical methodologies/capabilities for the Services' airborne network to include AF command and control weapons systems. Portions of this work support the development of a Joint Track Manager (JTM).

The Air Force is applying expertise in various AF program offices to assist with defining the SIAP Platform Independent Model (PIM), the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, the definition of JTM, and the integration methodology for AF weapon systems and the airborne network. Project 5232 funds AF-specific, SIAP and JTM-related engineering efforts including AF staff that works directly with the Joint SIAP Program Executive Office to help define and develop the functional content of the JTM.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	4.857	66.909	78.248
(U) Current PBR/President's Budget	4.723	66.663	13.466
(U) Total Adjustments	-0.134	-0.246	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.246	
Congressional Increases			
Reprogrammings	-0.134		
SBIR/STTR Transfer		0.000	

(U) **Significant Program Changes:**

Starting in FY10, efforts to develop and complete the Joint Track Manager were transferred to PE 0605452F, Joint SIAP Executive Program Office, Project 5370.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)			PROJECT NUMBER AND TITLE 5232 Air Force Single Integrated Air Picture		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5232 Air Force Single Integrated Air Picture	4.723	2.796	13.466	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force is applying expertise in various AF program offices to assist with defining the SIAP Platform Independent Model (PIM), the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, the definition of the JTM, and the integration methodology for AF weapon systems and the airborne network. Project 5232 funds AF-specific, SIAP-related engineering efforts, including Air Force staff, that works directly with the Joint SIAP Program Executive Office to help define and develop the functional content of the JTM.

In FY10, the program will continue risk reduction activities to support joint SIAP and JTM activities and integration onto Air Force platforms.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Integration Resource Center (Dev & Risk Reduction)	0.049	0.000	3.956
(U) Integration and Implementation (BCS-F)	0.080	0.000	6.956
(U) Engineering Support	2.753	1.798	1.627
(U) Program Office Support	1.841	0.998	0.927
(U) Total Cost	4.723	2.796	13.466

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

The Air Force SIAP program office provides for common development and integration across multiple AF platforms and airborne networks via existing contract mechanisms. The AF has established several contract vehicles for risk reduction and system engineering technical support.

With the current AF funding, the contractor will support JTM definition and continue limited Risk Reduction in FY10.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0207451F Single Integrated Air Picture (SIAP)				5232 Air Force Single Integrated Air Picture				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Integration Resource Center (Dev & Risk Reduction)	CPFF	BAE Systems Inc, Arlington VA	4.500	0.049	Nov-07	0.000		3.956	Nov-09	Continuing	TBD	TBD
MDA PSM Development (AWACS 40/45)	CPIF	Boeing Co., Seattle WA	6.000	0.000		0.000		0.000		Continuing	TBD	TBD
MDA Integration and Implementation (BCS-F)	CPIF	Thales-Raytheon Systems, Fullerton CA	14.378	0.080	Nov-08	0.000		6.956	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			24.878	0.129		0.000		10.912		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
ESC Engineering Support	CP/FFFP	Titan Corp, Odyssey Consulting Group, BTAS Inc, MITRE,GCIC	4.856	2.753	Oct-07	1.798	Oct-08	1.627	Oct-09	Continuing	TBD	TBD
Subtotal Support			4.856	2.753		1.798		1.627		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office support	CP/FFFP	PE Systems, Engility, C2 Kinetics, Law Battelle	2.227	1.841	Oct-07	0.998	Oct-08	0.927	Feb-09	Continuing	TBD	TBD
Subtotal Management			2.227	1.841		0.998		0.927		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			31.961	4.723		2.796		13.466		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207451F Single Integrated Air
Picture (SIAP)

PROJECT NUMBER AND TITLE
5232 Air Force Single Integrated Air
Picture



AF SIAP Schedule

CAO: Apr 09

FY	2008	2009	2010*	2011	2012	2013	2014	2015
(TIER 2) SPO TIER 1 Support Joint Arch WG & Integration Resource Center support	Programmatic and technical support	Programmatic and technical support	Programmatic and technical support					
			AF Monitoring					
	Risk Reduction		Development Risk Reduction					
	Model Driven Architecture Tools Development		System Engineering					
		◊ Capability Drop 1 Initial						
(TIER 3) USAF AWACS 40/45 (Block 1) Battle Control System (BCS)	Risk Reduction/Integration into BCS In the Lab							

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)	PROJECT NUMBER AND TITLE 5232 Air Force Single Integrated Air Picture
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Programmatic and technical support	1-4Q	1-4Q	1-4Q
(U) Dev & Risk Reduction	1-4Q	1-3Q	1-4Q
(U) System Engineering	1-4Q	1-3Q	1-4Q
(U) Capability Drop 1	4Q		
(U) BCS Risk Reduction/Integration	1-4Q	1-2Q	2-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)				PROJECT NUMBER AND TITLE 5275 Joint SIAP Engineering and Development		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5275 Joint SIAP Engineering and Development	0.000	63.867	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY09, Project 5275, Joint SIAP System Engineering and Development efforts were transferred from Army PE 0603327A - Air and Missile Defense Systems Engineering, Project S32, Joint SIAP System Engineering, into Air Force PE 0207451F in accordance with DoD designation of the Air Force as the SIAP Acquisition Executive.

Starting in FY10, efforts to develop and complete the Joint Track Manager were transferred to PE 0605452F, Joint SIAP Executive Program Office, Project 5370.

(U) A. Mission Description and Budget Item Justification

The Single Integrated Air Picture program was a Joint Requirements Oversight Council (JROC) validated and OSD-directed collaborative enterprise comprising multiple engineering and acquisition programs in each of the Services. The program provided the joint SIAP system engineering to establish horizontal integration of Theater Air and Missile Defense systems to generate accurate, consistent and timely information for the theater-wide Common Tactical Picture.

The core SIAP requirements are outlined in the SIAP Capability Development Document (CDD) generated by US Joint Forces Command and validated by the Joint Requirements Oversight Council (JROC) in Sep 07.

The SIAP Joint Program Office was cancelled in the FY10 President's budget and efforts to develop and complete the Joint Track Manager were transferred to the Joint Executive Program Office, PE 0605452F.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development - Architecture, Specification and Behavior Model	0.000	16.738	0.000
(U) System Engineering	0.000	10.019	0.000
(U) Product Support	0.000	3.430	0.000
(U) SoS Customer Support (Technical Analysis and Implementation)	0.000	3.159	0.000
(U) Test and Evaluation - Developmental	0.000	3.249	0.000
(U) SIAP System of Systems Test and Evaluation - Operational	0.000	11.478	0.000
(U) Program Management Support	0.000	10.938	0.000
(U) JPEO Management Support	0.000	0.595	0.000
(U) Acquisition Infrastructure (RDT&E facilities and equipment)	0.000	4.261	0.000
(U) Total Cost	0.000	63.867	0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE

5275 Joint SIAP Engineering and Development

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0605452F, Proj 5370, RTD&E, AF	0.000	0.000	35.000							TBD

(U) **D. Acquisition Strategy**

The SIAP acquisition strategy was based on a "Best of Breed" approach allowing assessment of alternatives at the functional computer program component level and facilitates Service implementation of the SIAP capability.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)	PROJECT NUMBER AND TITLE 5275 Joint SIAP Engineering and Development
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
System of Systems Engineering	C/CPFF	JHU/APL, Laurel, MD	0.000	0.000		4.238	Oct-08	0.000		0.000	4.238	TBD
System of Systems Engineering	C/CPFF	SAIC, McLean, VA	0.000	0.000		2.237	Oct-08	0.000		0.000	2.237	TBD
Architecture, Specification and Behavior Model	C/CPFF	BAH, McLean, VA	0.000	0.000		3.596	Nov-08	0.000		0.000	3.596	TBD
Architecture, Specification and Behavior Model	C/CPFF	CSC, Lanham, MD	0.000	0.000		1.772	Oct-08	0.000		0.000	1.772	TBD
Architecture, Specification and Behavior Model	C/CPFF	Sparta, Laguna Hills, CA	0.000	0.000		2.946	Oct-08	0.000		0.000	2.946	TBD
Architecture, Specification and Behavior Model	C/CPFF	Raytheon, Laguna Beach, CA	0.000	0.000		1.082	Oct-08	0.000		0.000	1.082	TBD
Architecture, Specification and Behavior Model	C/CPFF	BAE, Nashua, NH	0.000	0.000		2.878	Nov-08	0.000		0.000	2.878	TBD
Architecture, Specification and Behavior Model	Various	Various	0.000	0.000		8.008	Nov-08	0.000		0.000	8.008	TBD
Subtotal Product Development			0.000	0.000		26.757		0.000		0.000	26.757	TBD
Remarks:												
<u>(U) Support</u>												
Product Support	Various	Various	0.000	0.000		3.430	Oct-08	0.000		0.000	3.430	TBD
Customer Support	Various	Various	0.000	0.000		3.159	Oct-08	0.000		0.000	3.159	TBD
Subtotal Support			0.000	0.000		6.589		0.000		0.000	6.589	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
Product and SoS T&E	C/CPFF	SPA, Alexandria VA	0.000	0.000		3.108	Oct-08	0.000		0.000	3.108	TBD
SoS T&E	MIPR	JITC, Ft Huachuca AZ	0.000	0.000		1.825	Oct-08	0.000		0.000	1.825	TBD
Product T&E	SS/FFP	RhinoCorps (8a), Albuquerque, NM	0.000	0.000		1.160	Dec-08	0.000		0.000	1.160	TBD
SoS T&E	C/CPFF	JHU/APL, Laurel, MD	0.000	0.000		1.442	Oct-08	0.000		0.000	1.442	TBD
Product and SoS T&E	C/CPFF	Northrop Grumman - IT, McLean, VA	0.000	0.000		2.928	Oct-08	0.000		0.000	2.928	TBD
Product and SoS T&E	Various	Various	0.000	0.000		4.264	Oct-08	0.000		0.000	4.264	TBD

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Exhibit R-3 (PE 0207451F)

Project 5275

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0207451F Single Integrated Air Picture (SIAP)				5275 Joint SIAP Engineering and Development			
Subtotal Test & Evaluation			0.000	0.000	14.727		0.000	0.000	14.727	TBD	
Remarks:											
(U) <u>Management</u>											
Program Management Support	C/CPFF	Westar, Huntsville, AL	0.000	0.000	1.400	Oct-08	0.000	0.000	1.400	TBD	
JPEO Management Support			0.000	0.000	0.595	Oct-08	0.000	0.000	0.595	TBD	
Management Services: Facility & Govt Staff	Various	Various	0.000	0.000	13.799	Oct-08	0.000	0.000	13.799	TBD	
Subtotal Management			0.000	0.000	15.794		0.000	0.000	15.794	TBD	
Remarks: In FY 2008, the Single Integrated Air Picture (SIAP) Joint Program Office (JPO) was funded in Army PE 0603327A.											
(U) Total Cost			0.000	0.000	63.867		0.000	0.000	63.867	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

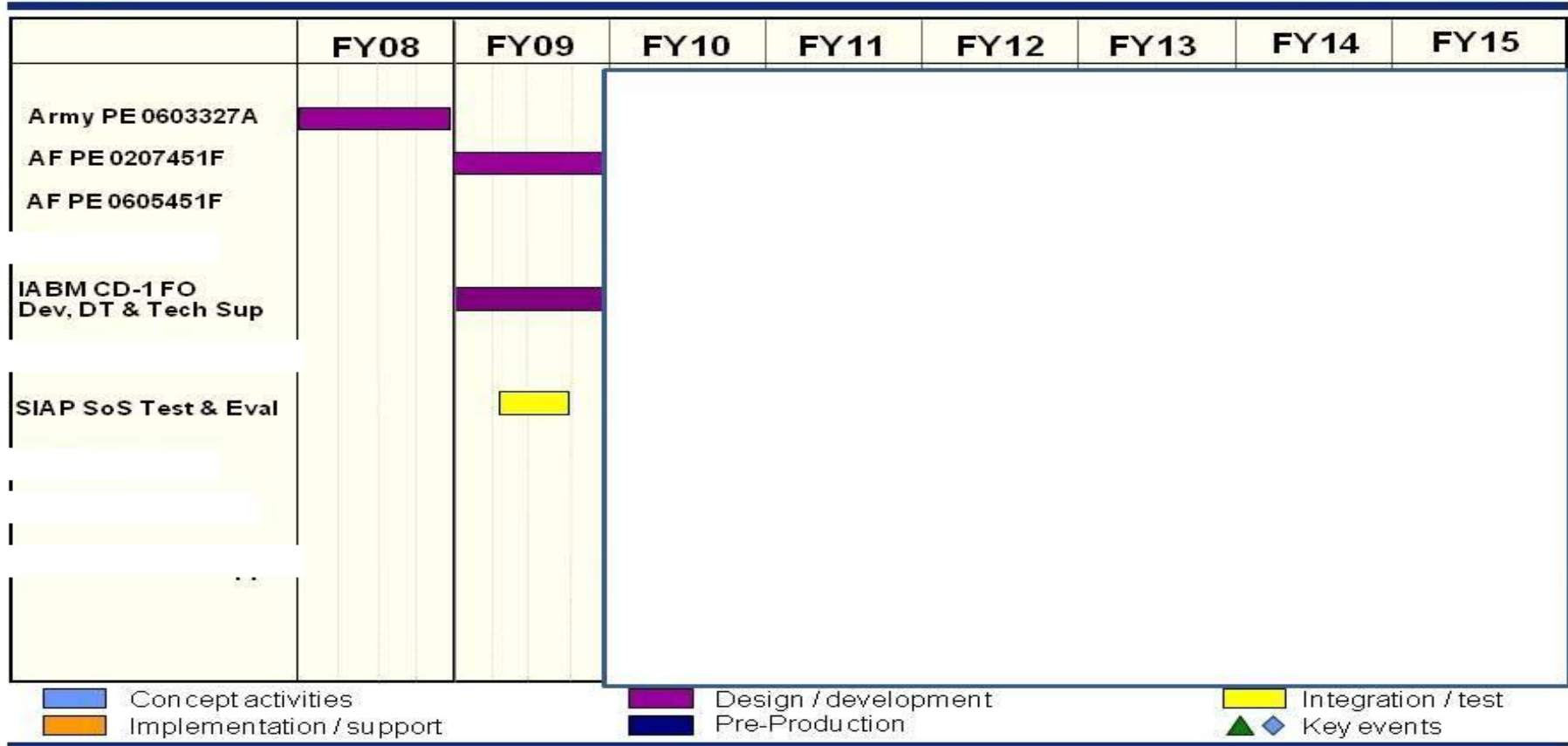
0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE

5275 Joint SIAP Engineering and Development



Program Schedule



PB10 R-Docs

Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207451F Single Integrated Air Picture (SIAP)	PROJECT NUMBER AND TITLE 5275 Joint SIAP Engineering and Development
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Army PE 0603327A Budget for SIAP JPO	1-4Q		
(U) Dev, DT & Tech Support		1-4Q	

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PE NUMBER: 0207701F
 PE TITLE: Full Combat Mission Training

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	60.171	134.786	99.807	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5012 Full Combat Mission Training	60.171	134.786	21.850	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5354 F-16 Block 40/50 MTC	0.000	0.000	77.957	0.000	0.000	0.000	0.000	0.000	0.000	152.449

(U) A. Mission Description and Budget Item Justification

Full Combat Mission Training supports Air Force Distributed Mission Operations (DMO) and Live-Virtual-Constructive (LVC) integration. 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 LVC components form the integrated DMO battlespace by linking geographically distributed high fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems. RDT&E for Full Combat Mission Training is funded in Budget Activity 5, System Development and Demonstration. BPAC 5012, FCMT, efforts are focused on development, demonstration, and transitioning of critical functions associated with the DMO/LVC network and linked simulators. BPAC 5354, F-16 Block 40/50 MTC, efforts are focused on development and demonstration of the F-16 Block 40/50 Mission Training Centers (MTC).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	87.096	135.152	89.568
(U) Current PBR/President's Budget	60.171	134.786	99.807
(U) Total Adjustments	-26.925	-0.366	
(U) Congressional Program Reductions	-15.000		
Congressional Rescissions	-0.453	-0.366	
Congressional Increases			
Reprogrammings	-9.519		
SBIR/STTR Transfer	-1.953		

(U) Significant Program Changes:

- FY08
- Decreased by Congressional programmatic reduction (-\$15M for F-15/F-16 Simulator Integration Development)
 - Decreased by Congressional General Reductions
 - Decreased by Air Force Reprogramming for higher priorities
 - Decreased by SBIR

FY09

Exhibit R-2, RDT&E Budget Item Justification

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May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

- Decreased by Congressional General Reductions

FY10

- Increased to fully fund F-16 trainer development and to integrate additional platforms and networks

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207701F Full Combat Mission Training			PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5012 Full Combat Mission Training	60.171	134.786	21.850	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Full Combat Mission Training (FCMT) supports Air Force Distributed Mission Operations (DMO) and Live-Virtual-Constructive (LVC) integration. 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/LVC environment as a whole. Provides development funding for DMO capable F-16 flight simulators to replace training capability currently provided by training simulation service contracts. Provides Mission Essential Competency studies and contract administration for new systems that support the initial Combat Air Forces (CAF) DMO/LVC capability. Provides research and development to facilitate integration of fielded and newly acquired, Air Force owned, aircraft training devices into DMO/LVC networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with LVC components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems. Develops, demonstrates and inserts multi-level security capability. 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development, demonstration and insertion of multi-level security capability	4.040	2.950	3.785
(U) Continue development, demonstration, studies and insertion of DMO/LVC related technologies and proficiency based continuation training strategies. Includes, but is not limited to, common databases, improved image generation fidelity, enhanced Brief/Debrief capabilities, Mission Essential Competencies and multi-level security.	4.944	4.950	6.943
(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/LVC environment	1.000	1.000	1.000
(U) Studies to develop objective performance enhancement and measurement tools, for use in the DMO/LVC environment, which will be used for certification of a team and/or a team of teams' proficiency/currency	1.000	1.000	1.000
(U) Identify training and rehearsal gaps in DMO/LVC architecture based on current weapons system and operational tactics, training, procedures (TTPs), especially those essential to operational Kill Chain	1.000	1.000	1.000
(U) Research and development to provide for the 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 Control Training and Rehearsal (JTCTR), Joint Theater Air-Ground Simulation System (JTAGSS), CSAR-X, HC-130, MQ-1 and MQ-9.	36.547	25.841	3.167

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Research for and development of DMO capable flight simulators to replace training capability currently provided by training simulation service contracts. Includes but is not limited to the development of F-16 flight simulators	7.311	92.338	0.000
(U) Program Office support	4.329	5.707	4.955
(U) Total Cost	60.171	134.786	21.850

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0207701, Full Combat Mission Training, Aircraft Procurement, AF	75.355	50.395	0.000							Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, O & M, AF	175.415	146.092	189.648							Continuing	TBD

(U) D. Acquisition Strategy
 Each platform joining the Distributed Mission Operations (DMO)/ Live-Virtual-Constructive (LVC) environment selects its own acquisition strategy based on using command needs, business case analysis (BCA) and the magnitude of the training system changes required to provide DMO capability. The initial systems in the DMO/LVC environment; F-15C, AWACS, F-16 Block 40/50 and F-15E; all required new training systems. In addition, the Operations and Integration capability had to be created. The Training Simulation Service (TSS) acquisition strategy was used to meet a portion of these requirements. In the TSS approach, the contractor owns and provides the simulator equipment, maintains simulator concurrency with weapon systems, and has incentives to keep the equipment up to date with simulator and network technologies. The FY07 NDAA specifically limited the Air Force's ability to acquire military flight simulators with service contracts. As a result, training capability currently provided on the F-16 MTC is being replaced under a separate program with training provided with procured flight simulators. (Acquisition of the F-16 Block 40/50 MTCs is detailed under the 655354 BPAC in this document.) The FY08 NDAA language allows continued use of the service contract approach on systems where it was already in use. Currently fielded and projected Air Force-owned Flight and Mission Training Systems without DMO/LVC capability will be modified using FCMT funds to ensure compatibility with the DMO/LVC environment. Additional DMO capable trainers will be acquired for those systems where current quantities are inadequate to meet training requirements using FCMT funds.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
677 AESG AFMC		677 AESG AFMC, Wright Patterson AFB, OH	41.641	8.042	Jan-08	104.479		9.102		Continuing	TBD	
478 AESW (F-22)		478 AESW AFMC, Wright Patterson AFB, OH	33.500	21.200		17.600		0.200		0.000	72.500	
507 MASSG (B-52)		507 MASSG, Hill AFB, UT	0.000	4.800	Jan-08	0.000		0.200		0.000	5.000	
677 AESG/SYCB (B-1, B-2 & Joint Terminal Control Training and Rehearsal System [JTC TRS]))		677 AESG/SYCB AFMC, Wright Patterson AFB, OH	0.000	18.800	Jan-08	4.000		4.393		0.000	27.193	
Subtotal Product Development			75.141	52.842		126.079		13.895		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
- Air Force Research Lab Human Effectiveness Directorate		AFRL/HEA, Mesa, AZ	8.402	3.000		3.000		3.000		Continuing	TBD	
Subtotal Support			8.402	3.000		3.000		3.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Program Office Support		677 AESG AFMC, Wright Patterson AFB, OH	15.208	4.329		5.707		4.955		Continuing	TBD	
Subtotal Management			15.208	4.329		5.707		4.955		Continuing	TBD	0.000
Remarks:												
<u>(U)</u>												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			98.751	60.171		134.786		21.850		Continuing	TBD	0.000

R-1 Line Item No. 95

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Project 5012

Exhibit R-3 (PE 0207701F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5012 Full Combat Mission Training



DMO CAF Schedule Training Service Contracts

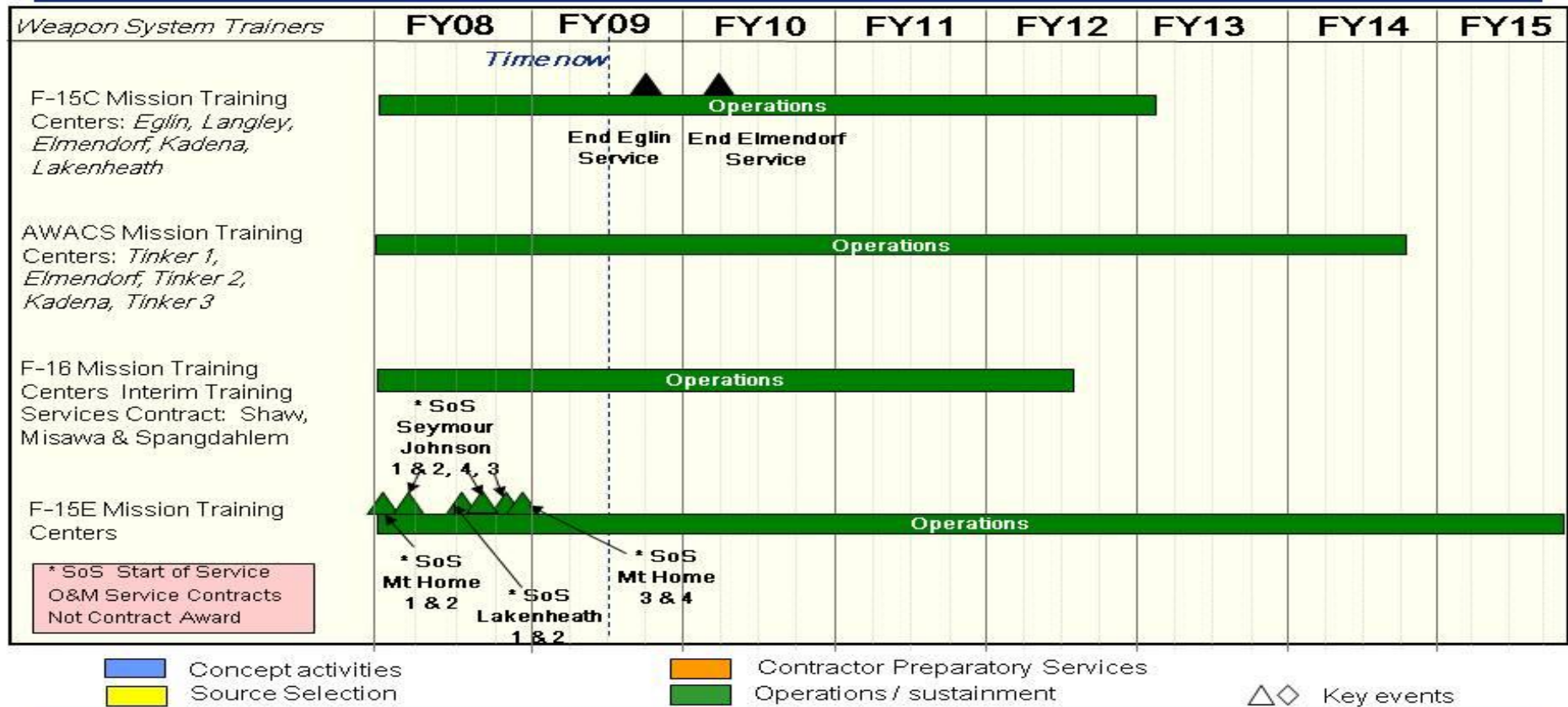


Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5012 Full Combat Mission Training



DMO CAF Schedule AF Owned Systems I

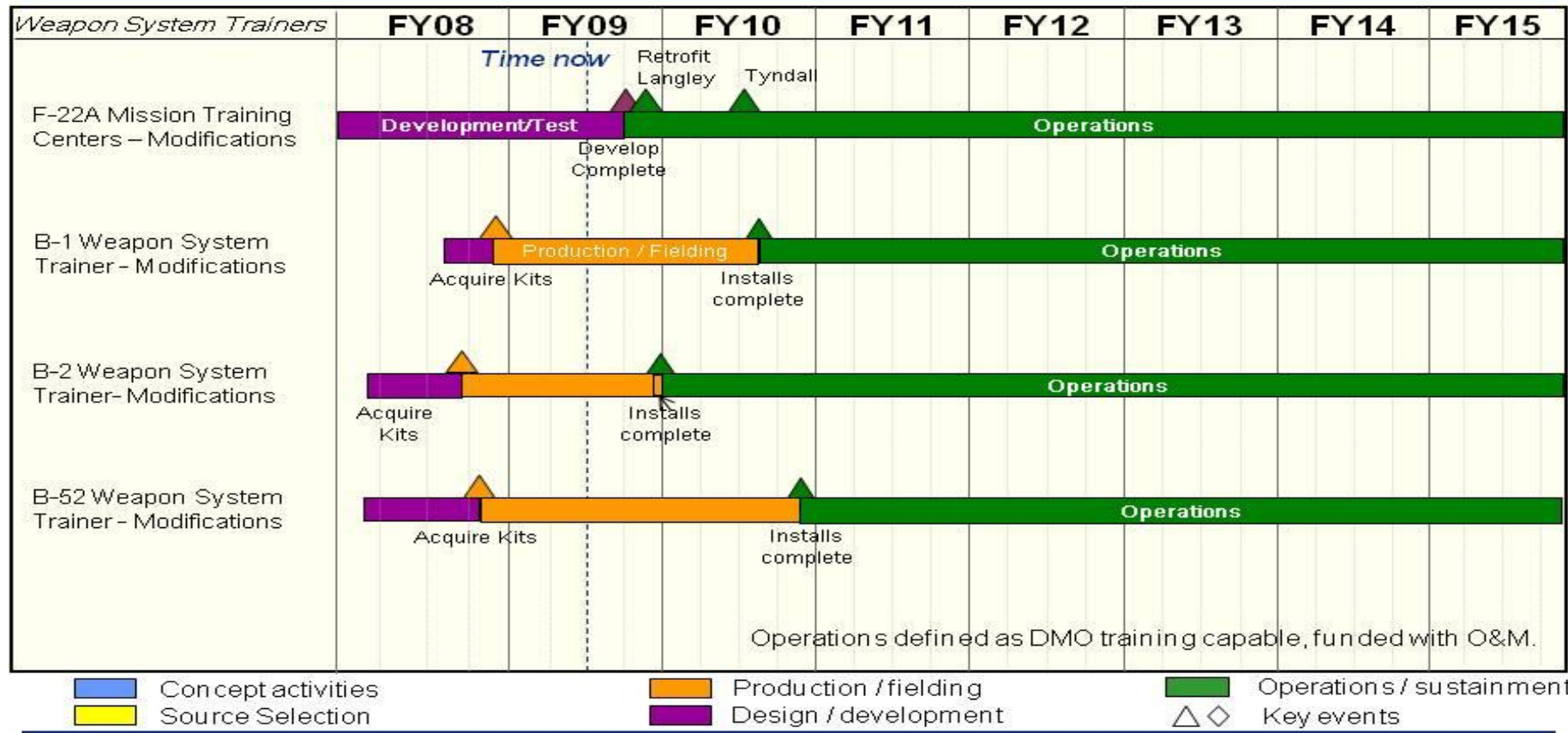


Exhibit R-4, RDT&E Schedule Profile

DATE
May 2009

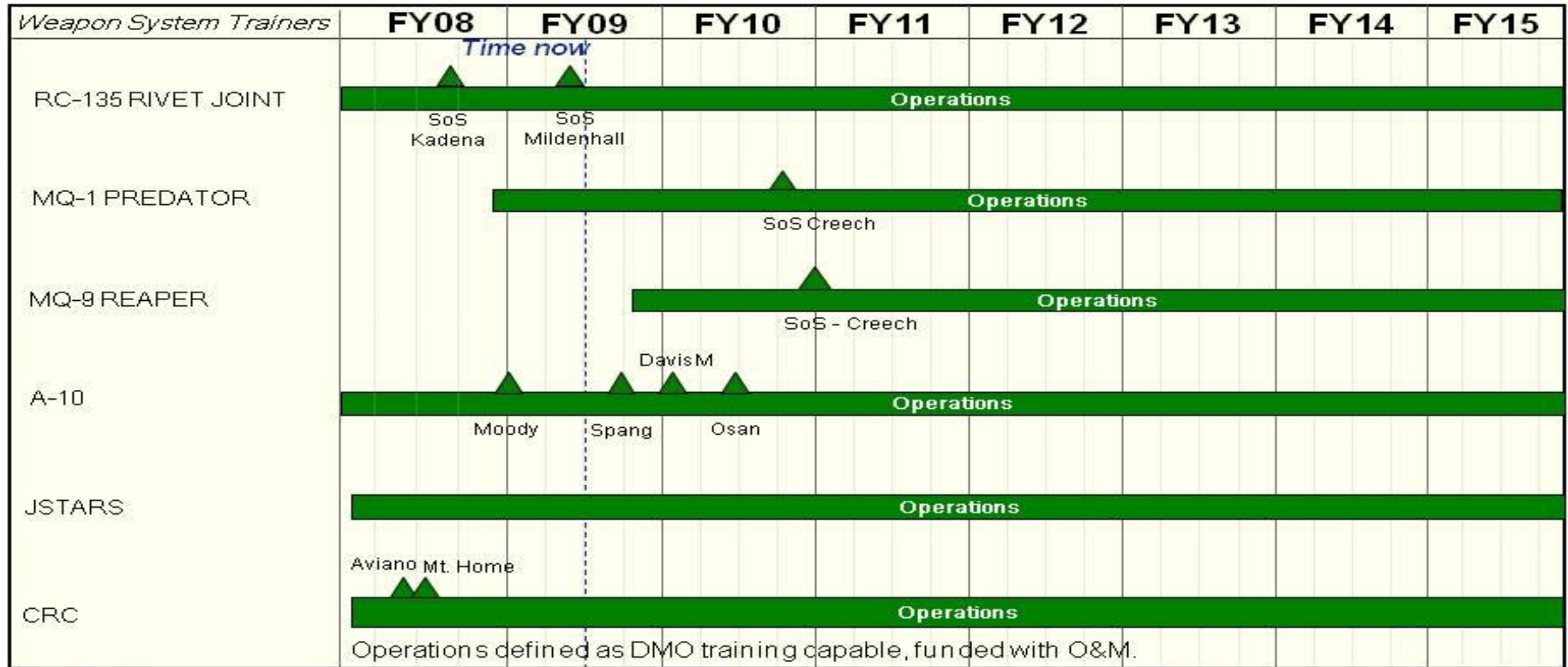
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5012 Full Combat Mission Training



DMO
CAF Schedule
AF Owned Systems II



- Concept activities
- Production / fielding
- Operations / sustainment
- Source Selection
- Design / development
- Key events

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5012 Full Combat Mission Training
--	--	---

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) F-15E 2-ship operations begin: Mt Home	1Q		
(U) F-15E 2-ship operations begin: Seymour Johnson	1Q		
(U) F-15E 2-ship operations begin: Lakenheath	3Q		
(U) F-15E 2-ship operations (2nd) begin: Mt Home	4Q		
(U) F-15E 2-ship operations (2nd) begin: Seymour Johnson	4Q		
(U) F-22 DMO Development Complete		3Q	
(U) F-22 Retrofit: Langley		4Q	
(U) F-22 Retrofit: Tyndall			3Q
(U) B-1 Development begins	3Q		
(U) B-1 Mod kits acquired	4Q		
(U) B-1 Mod kits installed			3Q
(U) B-2 Development begins	1Q		
(U) B-2 Mod kits acquired	3Q		
(U) B-2 Mod kits installed		4Q	
(U) B-52 Development begins	1Q		
(U) B-52 Mod kits acquired	4Q		
(U) B-52 Mod kits installed			4Q

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0207701F Full Combat Mission Training			PROJECT NUMBER AND TITLE 5354 F-16 Block 40/50 MTC		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5354 F-16 Block 40/50 MTC	0.000	0.000	77.957	0.000	0.000	0.000	0.000	0.000	0.000	152.449
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY08 and FY09 funding contained in BPAC 655012 . Separate BPAC, 655354, established in FY10 as F-16 Block 40/50 MTC was established as a separate program on the Non-Space programs list.

(U) A. Mission Description and Budget Item Justification

F-16 Block 40/50 Mission Training Center (MTC) supports the development, acquisition, fielding and sustainment of high fidelity, Distributed Mission Operations (DMO) capable flight simulators for F-16 Block 40 and 50 weapon systems. Each MTC includes multiple high fidelity Simulator Cockpits, Instructor Operator Stations, a Threat Server and Brief/Debrief and Mission Observation capability. Each is capable of linking to geographically distributed high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Research and development of DMO capable flight simulators to replace training capability which has been provided by training simulation service contracts. Includes, but is not limited to, the development and support of F-16 flight simulators	0.000	0.000	76.564
(U) Program Office support			1.393
(U) Total Cost	0.000	0.000	77.957

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) PE 0207701, F-16 Block 40/50 MTC; Aircraft Procurement, AF	0.000	0.000	57.756						Continuing	TBD

(U) D. Acquisition Strategy

F-16 Block 40/50 MTCs are being developed and fielded under a competitively awarded FAR Part 15 Supply contract with RDT&E and APAF funds. The MTCs will be sustained by CLS using Operations and Maintenance funds.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5354 F-16 Block 40/50 MTC
--	--	---

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> L3 Comm	FPIF/FFP	LINK SIMULATION & TRAINING Arlington, TX	0.000	0.000		0.000	Dec-08	76.564			76.564	
Subtotal Product Development			0.000	0.000		0.000		76.564		0.000	76.564	0.000
Remarks:	FY 08 & FY09 Funding contained in BPAC 655012.											
(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 & Evaluation</u>											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 Office Support		677 AESG AFMC, Wright Patterson AFB, OH						1.393			1.393	
Subtotal Management			0.000	0.000		0.000		1.393		0.000	1.393	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		77.957		0.000	77.957	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE
5354 F-16 Block 40/50 MTC



F-16 Block 40/50 MTC Schedule

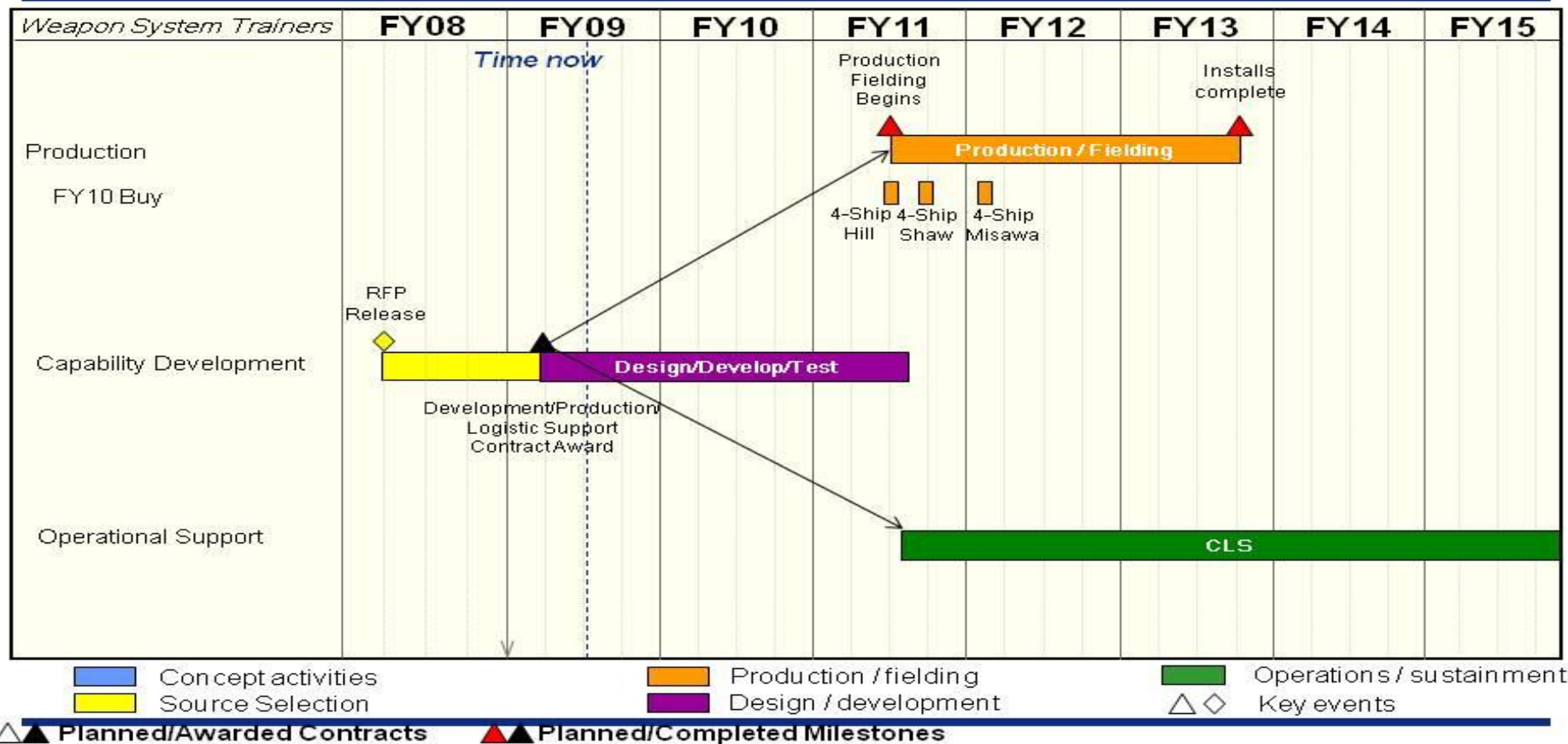


Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT NUMBER AND TITLE 5354 F-16 Block 40/50 MTC
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) F-16 Procurement contract award/development begins		1Q	

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PE NUMBER: 0305176F
 PE TITLE: Combat Survivor Evader Locator

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341
4522 CSAR EMD	4.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341

FY2009 does not show \$12.5 million reprogramming from OPAF approved by Congress in March 2009.

(U) A. Mission Description and Budget Item Justification

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survival radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. Acquisition Block A, which corresponds to ORD Block 1, meets threshold requirements. In FY06 Congress reprogrammed funds for the development of Terminal Area Communication and Terminal Area Guidance (TAC/TAG). FY08 funds programmed to complete TAC/TAG and Block 1B and development efforts.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	
(U) Current PBR/President's Budget	4.900	0.000	
(U) Total Adjustments	4.900	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	4.900		
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY08: \$4.9 million reprogrammed into program to support critical upgrades to the current system. FY2009 does not show \$12.5 million reprogramming from OPAF approved by Congress in March 2009 for development of the Portable Combat Search and Rescue Interegator Unit (PCIU).

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

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 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4522 CSAR EMD	4.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2009 does not show \$12.5 million reprogramming from OPAF approved by Congress in April 2009.

(U) A. Mission Description and Budget Item Justification

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survival radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. Acquisition Block A, which corresponds to ORD Block 1, meets threshold requirements. In FY06 Congress reprogrammed funds for the development of Terminal Area Communication and Terminal Area Guidance (TAC/TAG). FY08 funds programmed to complete TAC/TAG and Block 1B and development efforts.

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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CSEL Engineering and Manufacturing Development	4.250		
(U) Government Test and Operational Assessment	0.650		
(U) Other Government Support	0.000		
(U) Total Cost	4.900	0.000	0.000

FY08: \$4.9 million reprogrammed into program to support critical upgrades to the current system. FY2009 does not show \$12.5 million reprogramming from OPAF approved by Congress in March 2009 for development of the Portable Combat Search and Rescue Interegator Unit (PCIU).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 35176F, Other Procurement, Air Force - WSC 837170 (Budget Activity 3)	26.938	26.753	35.029							

Note: Army and Navy procurement of CSEL radios is funded separately by those Services.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

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) **D. Acquisition Strategy**

The Full Rate Production (FRP) contract is a Sole Source award to Boeing; however, all previous major contracts within this Program Element were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator	PROJECT NUMBER AND TITLE 4522 CSAR EMD
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Boeing	CPAF	Huntington Beach, CA	100.194	4.250						0.000	104.444	
SMC (COBRA)	Multiple	Multiple	4.000					0.000		0.000	4.000	
Subtotal Product Development			104.194	4.250		0.000		0.000		0.000	108.444	0.000
Remarks:												
<u>(U) Support</u>												
SPAWAR	MIPR	San Diego, CA	3.289							0.000	3.289	
PRC/ARINC/BD Systems	CPAF	Multiple	3.304							0.000	3.304	
FFRDC (MITRE/Aerospace)	CPAF	Multiple	6.488							0.000	6.488	
MANTECH	CPAF	Alliant Tech Systems	0.600							0.000	0.600	
SMC	CPAF	Hopkins, MN 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							0.000	0.801	
Subtotal Support			15.459	0.000		0.000		0.000		0.000	15.459	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
AFOTEC	MIPR	Kirtland AFB, NM	0.357							0.000	0.357	
746TS	MIPR	Kirtland AFB, NM	1.308							0.000	1.308	
18FTS			1.500	0.200							1.700	
SMC Test Support	CPAF	Los Angeles AFB, CA									0.000	
Joint Spectrum Center	CPAF	IIT Research Institute	0.514							0.000	0.514	
ESC (TBMCS SPO)	CPAF	Chicago, IL Lockheed Martin	0.500							0.000	0.500	
EPG	MIPR	Colorado Springs, CO Ft. Huachuca, AZ	2.284	0.400						0.000	2.684	
JITC	MIPR	Multiple	1.040	0.050						0.000	1.090	
DISA	MIPR									0.000	0.000	
CECOM	MIPR									0.000	0.000	

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Exhibit R-3 (PE 0305176F)

Project 4522

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0305176F Combat Survivor Evader Locator				4522 CSAR EMD		
SPAWAR	MIPR	San Diego, CA	0.077					0.000	0.077	
Army Research Labs	MIPR	White Sands, NM	0.030					0.000	0.030	
GCCS-A (Integration Support)	MIPR							0.000	0.000	
GCCS-M	MIPR	SPAWAR San Diego, CA	0.200					0.000	0.200	
PRMS	MIPR							0.000	0.000	
Subtotal Test & Evaluation			7.810	0.650	0.000	0.000		0.000	8.460	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			127.463	4.900	0.000	0.000		0.000	132.363	0.000

Exhibit R-4, RDT&E Schedule Profile

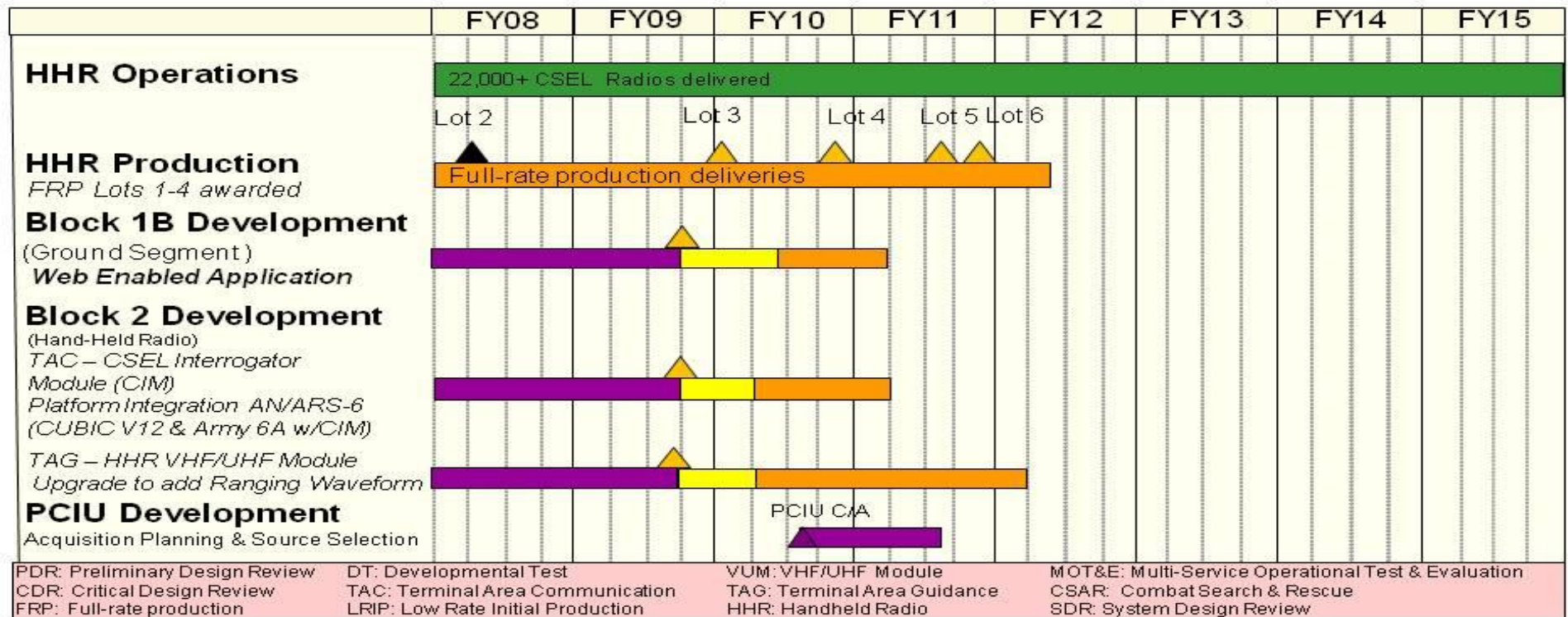
DATE

May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0305176F Combat Survivor Evader
Locator

PROJECT NUMBER AND TITLE
4522 CSAR EMD



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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

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 Profile

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 1B development	1-4Q	1-3Q	
(U) Block 1B Integration and Test	4Q	4Q	
(U) Block 1B Test			1-2Q
(U) TAC Development	1-4Q	1-3Q	
(U) TAC Integration and Test		4Q	1Q
(U) TAG Development	1-4Q	1-3Q	
(U) TAG CDR	2Q		
(U) TAG Integration and Test		4Q	

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Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.283	16.732	9.353	0.000	0.000	0.000	0.000	0.000	0.000	111.901
5259 Joint Cargo Aircraft (JCA)	20.283	16.732	9.353	0.000	0.000	0.000	0.000	0.000	0.000	111.901

(U) A. Mission Description and Budget Item Justification

The Joint Cargo Aircraft, now designated the C-27J, program and the direct support airlift mission it supports has been transferred to the Air Force. The 13 aircraft procured by the Army from FY07-09 are being transferred to the Air Force.

The C-27J program began as an Army-led, joint program to acquire a commercial derivative aircraft to support the Time Sensitive/Mission Critical resupply of Army ground forces. A joint Army/Air Force Source Selection Team chose the C-27J in a full and open competition and awarded a firm-fixed price contract to L3 Communications on 13 June 2007.

FY10 Budget Justification: Completes Product Qualification Testing (PQT), Live Fire Test & Evaluation (LFT&E), Multi-Service Operational Test & Evaluation (MOT&E), training and sustainment business case analyses (BCA), Depot Source of Repair, Core Logistics Analysis, and 50/50 Analysis. Funding also supports any associated program management costs.

C-27J is in Budget Activity 05, System Development & Demonstration, because it is a new system that has not been fielded yet.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	42.368	26.777	11.391
(U) Current PBR/President's Budget	20.283	16.732	9.353
(U) Total Adjustments	-22.085	-10.045	
(U) Congressional Program Reductions	-20.782		
Congressional Rescissions	-0.131		
Congressional Increases			
Reprogrammings	-1.758	-10.045	
SBIR/STTR Transfer	0.586		

(U) Significant Program Changes:

FY08 - Congress appropriated \$20.283M; ~50% of the President's Budget Request in FY08

FY09 - Congress appropriated \$16.732M which represents a \$10M reduction of the President's Budget Request in FY09

FY10 - Funding re-aligned to better support sustainment and training composition studies and Joint Live Fire and Operational Test programs

Exhibit R-2a, RDT&E Project Justification

DATE
May 2009

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft				PROJECT NUMBER AND TITLE 5259 Joint Cargo Aircraft (JCA)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5259 Joint Cargo Aircraft (JCA)	20.283	16.732	9.353	0.000	0.000	0.000	0.000	0.000	0.000	111.901
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Cargo Aircraft, now designated the C-27J, program and the direct support airlift mission it supports has been transferred to the Air Force. The 13 aircraft procured by the Army from FY07-09 are being transferred to the Air Force.

The C-27J program began as an Army-led, joint program to acquire a commercial derivative aircraft to support the Time Sensitive/Mission Critical resupply of Army ground forces. A joint Army/Air Force Source Selection Team chose the C-27J in a full and open competition and awarded a firm-fixed price contract to L3 Communications on 13 June 2007.

FY10 Budget Justification: Completes Product Qualification Testing (PQT), Live Fire Test & Evaluation (LFT&E), Multi-Service Operational Test & Evaluation (MOT&E), training and sustainment business case analyses (BCA), Depot Source of Repair, Core Logistics Analysis, and 50/50 Analysis. Funding also supports any associated program management costs.

C-27J is in Budget Activity 05, System Development & Demonstration, because it is a new system that has not been fielded yet.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Multi-Service Test (PQT, LFT&E and MOT&E) & Airworthiness Certification	4.285	10.045	6.840
(U) Mission Planning System Development	1.495		
(U) Sustainment, Training, and Technical Studies	7.987	4.362	1.380
(U) Program Office Mission Support	1.930	2.325	1.133
(U) Internal Air Force Reprogramming Action	4.586		
(U) Total Cost	20.283	16.732	9.353

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Air Force Aircraft Procurement			319.050						0.000	319.050
(U) Army RDT&E	6.495	3.017								
(U) Army Aircraft Procurement	155.982	263.381								

(U) D. Acquisition Strategy

- Multi-Service Test Program: Airworthiness, Product Qualification Testing (PQT), Live Fire Test and Evaluation (LFT&E) and Multi-Service Operational Test &

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401138F Joint Cargo Aircraft	PROJECT NUMBER AND TITLE 5259 Joint Cargo Aircraft (JCA)
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Evaluation (MOT&E). The program provides funds to the FAA and other government offices/agencies supporting aircraft airworthiness certification, procures hardware to support the LFT&E and provides funds to the Army Test & Evaluation Center, the Air Force Operational Test & Evaluation Center, and other test organizations to conduct PQT, LFT&E and OT&E. The program will exercise existing prime contract options to provide needed data and other support required to assess any retrofits needed based on test results.

- Sustainment and Training Studies: The program has established an independent contract to conduct the Sustainment and Training business case analyses, Depot Source of Repair, and Core Logistics Analysis.
- Training Systems Requirements Analysis (TSRA): The program has exercised existing options within the prime contract to conduct TSRAs to help determine future training system requirements.

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

PROJECT NUMBER AND TITLE

5259 Joint Cargo Aircraft (JCA)

C-27J Schedule

	FY08	FY09	FY10
<u>Mission Planning System</u>	[Bar chart showing activity in FY08]		
<u>T&E</u>	[Bar chart showing activity: Test Prep in FY08; LFT&E, PQT, and MOT&E in FY09]		
<u>Sustainment & Training Studies</u>	[Bar chart showing activity: DSOR/TSRA/BCA in FY08]		

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

PROJECT NUMBER AND TITLE

5259 Joint Cargo Aircraft (JCA)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Mission Planning System Development

2-4Q

1Q

(U) Test Program: Airworthiness, LFT&E and OT&E

2-4Q

1-4Q

1-3Q

(U) DSOR/TSRA/BCA

1-4Q

1-4Q

1-3Q

UNCLASSIFIED

PE NUMBER: 0401318F
 PE TITLE: CV-22

Exhibit R-2, RDT&E Budget Item Justification									DATE May 2009	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0401318F CV-22					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.417	18.512	19.640	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4103 CV-22	23.417	18.512	19.640	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and re-supply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures, situational awareness improvements, and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft.

Block 20 development includes, but is not limited to, Communication Co-Site Interference program, terrain-following terrain-avoidance (TF/TA) radar improvements, improved situational awareness, Line-of-sight Communication, Communication Switching Unit, Intercommunications Systems Unit, Civil Global Positioning System, Desert Environment Suitability, Long Range Communication, Restricted Visibility Landing (Brownout), Software MODE 5, voice/data recorder, Engine Emergency/Reserve Power, Improved Brakes, Improved Payload Performance and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is using spiral acquisition to develop improved operational safety, suitability, and effectiveness capabilities in block increments. Ongoing planning and associated activities will take place to prevent diminishing manufacturing resources and obsolescence issues as required.

USSOCOM and USAF jointly fund correction of deficiencies and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance and information systems used with the V-22, support for operational testing, and CV-22 implementation and testing of MV-22 Block B and Block C changes. USSOCOM and USAF jointly fund development projects to meet operational safety, suitability, and effectiveness mission needs. This includes designing, prototyping, integrating, and testing proposed solutions to emerging warfighter issues.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	16.688	18.562	41.777
(U) Current PBR/President's Budget	23.417	18.512	19.640
(U) Total Adjustments	6.729	-0.050	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	-0.105	-0.050	
Congressional Increases	0.000		
Reprogrammings	7.300		
SBIR/STTR Transfer	-0.466		

(U) **Significant Program Changes:**

FY2008 Reprogrammings:

\$5M for Situational Awareness Hazard Avoidance Federated Terminal (SHAFT) Project.

\$2.3M to support CV-22 Block 20 developmental efforts.

FY2010 Reduction:

FY2010 funding was reallocated to higher DoD priorities.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0401318F CV-22			PROJECT NUMBER AND TITLE 4103 CV-22			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4103 CV-22	23.417	18.512	19.640	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and re-supply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures, situational awareness improvements, and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft.

Block 20 development includes, but is not limited to, Communication Co-Site Interference program, terrain-following terrain-avoidance (TF/TA) radar improvements, improved situational awareness, Line-of-sight Communication, Communication Switching Unit, Intercommunications Systems Unit, Civil Global Positioning System, Desert Environment Suitability, Long Range Communication, Restricted Visibility Landing (Brownout), Software MODE 5, voice/data recorder, Engine Emergency/Reserve Power, Improved Brakes, Improved Payload Performance and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is using spiral acquisition to develop improved operational safety, suitability, and effectiveness capabilities in block increments. Ongoing planning and associated activities will take place to prevent diminishing manufacturing resources and obsolescence issues as required.

USSOCOM and USAF jointly fund correction of deficiencies and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance and information systems used with the V-22, support for operational testing, and CV-22 implementation and testing of MV-22 Block B and Block C changes. USSOCOM and USAF jointly fund development projects to meet operational safety, suitability, and effectiveness mission needs. This includes designing, prototyping, integrating, and testing proposed solutions to emerging warfighter issues.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 10 Development	0.896	0.000	0.000
(U) Block 20 Development	6.130	12.022	10.217
(U) Situational Awareness Hazard Avoidance Federated Terminal (SHAFT)	5.000		
(U) Test & Evaluation	6.103	3.185	5.833
(U) Support	5.289	3.305	3.590
(U) Total Cost	23.417	18.512	19.640

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) RDT&E, Defense-wide PE 1160421BB	22.739	39.117	12.687						Continuing	TBD
(U) Procurement, Defense-wide PE 1160421BB	357.719	162.490	114.553						Continuing	TBD
(U) Aircraft Procurement, Air Force 3010 BP10/11/16/AP, PE 0401318F	964.170	485.688	599.273						Continuing	TBD

FY2008 Procurement Defense-wide includes \$160.160M in GWOT supplemental funding.

FY2008 Aircraft Procurement, Air Force funding includes \$380.403M in GWOT supplemental funding for five additional CV-22s.

(U) D. Acquisition Strategy

The V-22 Program Office (NAVAIR PMA-275) ensures that CV-22 changes are incorporated into the ongoing V-22 production line with minimal impact. The JPO is developing new capabilities for the V-22 in blocks. Block 0 and Block 10 have completed development, and the Block 20 is currently underway. NAVAIRSYSCOM awarded a cost plus award fee contract with the prime contractor in Dec 2007 for Block 20 development and test. Subsequent Block 20 increments will use a similar acquisition strategy.

Development activities for the V-22 program are performed by the prime contractor selected on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0401318F CV-22					4103 CV-22			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Development of 2 Production Representative Test Vehicles	SS, CPAF	Bell-Boeing	185.422								185.422	
Block 10 Development	SS, CPAF	Bell-Boeing	30.516	0.896	Mar-08						31.412	
Block 10 Development	Multiple	Multiple	11.886								11.886	
Block 20 Development	SS, CPAF	Bell-Boeing	3.950	6.130	Dec-07	12.022	Dec-08	10.217	Dec-09	Continuing	TBD	
Situational Awareness Hazard Avoidance Federated Terminal (SHAFT)	Multiple	Mechanical Technology Inc.	0.000	5.000	May-08						5.000	
Subtotal Product Development			231.774	12.025		12.022		10.217		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Interim Contractor Support	SS, CPAF	Bell-Boeing	25.889	1.000	Dec-07						TBD	
Contractor Logistics Services for Test Aircraft	Multiple	DynCorp, Rolls Royce, Bell-Boeing		4.289	Dec-07	3.305	Dec-08	3.590	Dec-09		11.184	
Subtotal Support			25.889	5.289		3.305		3.590		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Testing & Integration	SS, CPAF	Bell-Boeing	12.139	6.103	Feb-08	3.185	Feb-09	5.833	Feb-10	Continuing	TBD	
Testing, Integration and Support	MIPR	Multiple	3.539								3.539	
Subtotal Test & Evaluation			15.678	6.103		3.185		5.833		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Management & Integration Support	MIPR	Multiple	2.000	0.000		0.000		0.000		Continuing	TBD	
Subtotal Management			2.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			275.341	23.417		18.512		19.640		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

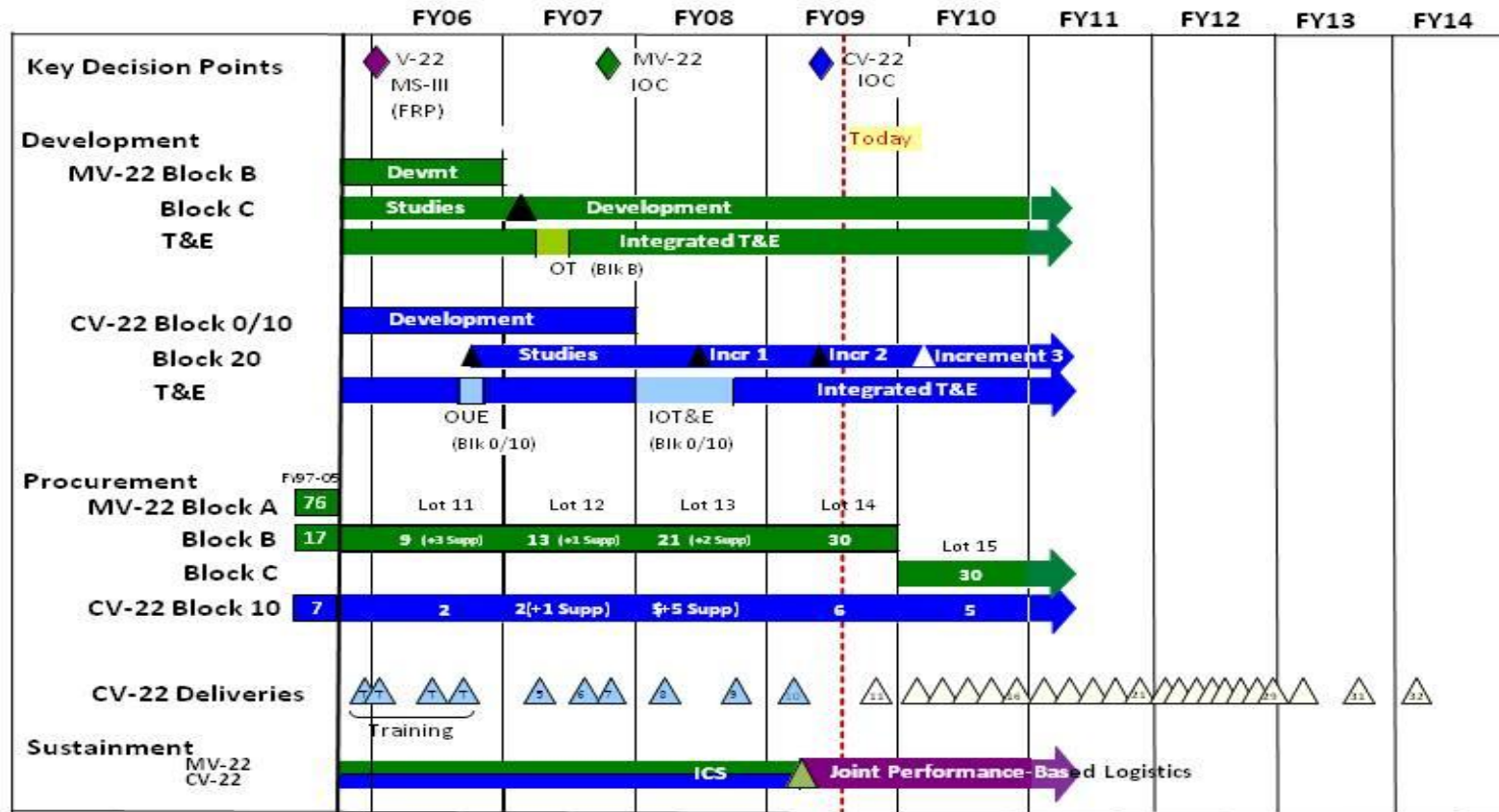
May 2009

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0401318F CV-22

PROJECT NUMBER AND TITLE
4103 CV-22

CV-22 Schedule



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Exhibit R-4a, RDT&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>(U) Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 10 Development/Correction of Deficiencies	1-4Q	1-4Q	
(U) Block 0/10 Flight Test	1-4Q	1-4Q	
(U) Operational Test & Evaluation	1-3Q		
(U) Block 20 Studies/Development/Test	1-4Q	1-4Q	1-4Q
(U) Aircraft Deliveries	1-4Q	1-4Q	1-4Q
(U) CV-22 IOC		2Q	

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PE NUMBER: 0401845F
 PE TITLE: SLC3S-A (Senior Leader C3S)

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401845F SLC3S-A (Senior Leader C3S)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	1.906	20.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5273 SLC3S-A Standard Communications Package	0.000	1.906	20.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Senior Leader Command, Control, and Communications System - Airborne (SLC3S-A) provides executive airborne communications supporting world-wide command and control capabilities to US government senior leaders (i.e., the President of the United States (POTUS); Vice President of the United States (VPOTUS); Secretary of Defense (SECDEF); Secretary of State (SECSTATE); Chairman, Joint Chiefs of Staff (CJCS); Unified Combatant Commanders (COCOMs); and their staff as well as other government senior leaders). The SLC3S-A capabilities include secure and non-secure voice, data, and video connectivity into Defense Information System Network/Global Information Grid, Defense Switched Network, Defense Red Switch Network, Voice Over Secure Internet Protocol Networks, National Security Council's Crisis Management System, and commercial networks up to the Top Secret/Sensitive Compartmented Information security classification level. These capabilities are used daily by the Senior Leaders to carry out their duties and responsibilities.

Currently, each Air Force Very Important Person Special Airlift Mission (VIPSAM) aircraft is configured with its own unique communications suite. National Senior Leaders require 100% secure voice and data capability for all activities from general planning and strategy discussions to directing command decisions. The security, reliability, and availability of the SLC3S-A services determine America's victories or setbacks on the battlefield. This project will standardize the back-end communications architecture and provide common capabilities and functionality.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in budget activity 5, System Development and Demonstration (SDD), because it funds engineering and manufacturing development tasks aimed at meeting validated requirements.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401845F SLC3S-A (Senior Leader C3S)

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	1.992	20.400
(U) Current PBR/President's Budget	0.000	1.906	20.056
(U) Total Adjustments	0.000	-0.086	
(U) Congressional Program Reductions		-0.081	
Congressional Rescissions		-0.005	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0401845F SLC3S-A (Senior Leader C3S)				PROJECT NUMBER AND TITLE 5273 SLC3S-A Standard Communications Package		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5273 SLC3S-A Standard Communications Package	0.000	1.906	20.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Senior Leader Command, Control, and Communications System - Airborne (SLC3S-A) provides executive airborne communications supporting world-wide command and control capabilities to US government senior leaders (i.e., the President of the United States (POTUS); Vice President of the United States (VPOTUS); Secretary of Defense (SECDEF); Secretary of State (SECSTATE); Chairman, Joint Chiefs of Staff (CJCS); Unified Combatant Commanders (COCOMs); and their staff as well as other government senior leaders). The SLC3S-A capabilities include secure and non-secure voice, data, and video connectivity into Defense Information System Network/Global Information Grid, Defense Switched Network, Defense Red Switch Network, Voice Over Secure Internet Protocol Networks, National Security Council's Crisis Management System, and commercial networks up to the Top Secret/Sensitive Compartmented Information security classification level. These capabilities are used daily by the Senior Leaders to carry out their duties and responsibilities.

Currently, each Air Force Very Important Person Special Airlift Mission (VIPSAM) aircraft is configured with its own unique communications suite. National Senior Leaders require 100% secure voice and data capability for all activities from general planning and strategy discussions to directing command decisions. The security, reliability, and availability of the SLC3S-A services determine America's victories or setbacks on the battlefield. This project will standardize the back-end communications architecture and provide common capabilities and functionality.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in budget activity 5, System Development and Demonstration (SDD), because it funds engineering and manufacturing development tasks aimed at meeting validated requirements.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop SLC3S-A Communication Package requirements		0.500	
(U) System Engineering, Software Development, Certifications - Proof of Concept		0.300	
(U) SCP Kit Development/Test/Certification - Aircraft Variant 1			13.400
(U) SCP Kit Dev/Test/Cert - Aircraft Variant 2			0.500
(U) Develop SLC3S-A Communication Package associated data items and training			2.500
(U) SPO Support (MITRE, A&AS) and Travel		1.106	3.656
(U) Total Cost	0.000	1.906	20.056

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401845F SLC3S-A (Senior Leader C3S)

PROJECT NUMBER AND TITLE

5273 SLC3S-A Standard Communications Package

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) PE 0401845F, Senior Leader Communications										
(U) Other APPN										
(U) AFAF - BP 11 (PE 41845F) Weapon System Code C0200	0.000	0.987	0.200							
(U) AFAF - BP 11 (PE 41845F) Weapon System Code C0320	39.625	5.683	9.108							
(U) AFAF - BP 11 (PE 41845F) Weapon System Code C03700	10.137	0.977	4.000							
(U) AFAF - BP 11 (PE 41845F) Weapon System Code C0400	0.000	5.683	9.107							

(U) **D. Acquisition Strategy**

Award single contract vehicle, TBD. Emphasize off-the-shelf technology and maximize use of non-developmental items (NDIs).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0401845F SLC3S-A (Senior Leader C3S)	5273 SLC3S-A Standard Communications Package

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
System Engineering, Software Development, Certifications	TBD	TBD						10.900	Jan-10		10.900	
Develop SCP associated with data items and training	TBD	TBD	6.865					2.500	Dec-09		9.365	
Subtotal Product Development			6.865	0.000		0.000		13.400		0.000	20.265	0.000
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 & Evaluation</u>												
Government test and eval	Air Force Project Order	IATAC (DISA)						3.000	Dec-09		3.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		3.000		0.000	3.000	0.000
Remarks:												
<u>(U) Management</u>												
SLC3S-A Program Office Contractor Support	Small Business T&M	PE Systems, Bedford, MA; Jacobs, Bedford, MA; MITRE, Burlington, MA	2.785			1.906	Dec-08	3.656	Oct-09		8.347	
Subtotal Management			2.785	0.000		1.906		3.656		0.000	8.347	0.000
Remarks:												
<u>(U) Total Cost</u>			9.650	0.000		1.906		20.056		0.000	31.612	0.000

Exhibit R-4, RDT&E Schedule Profile

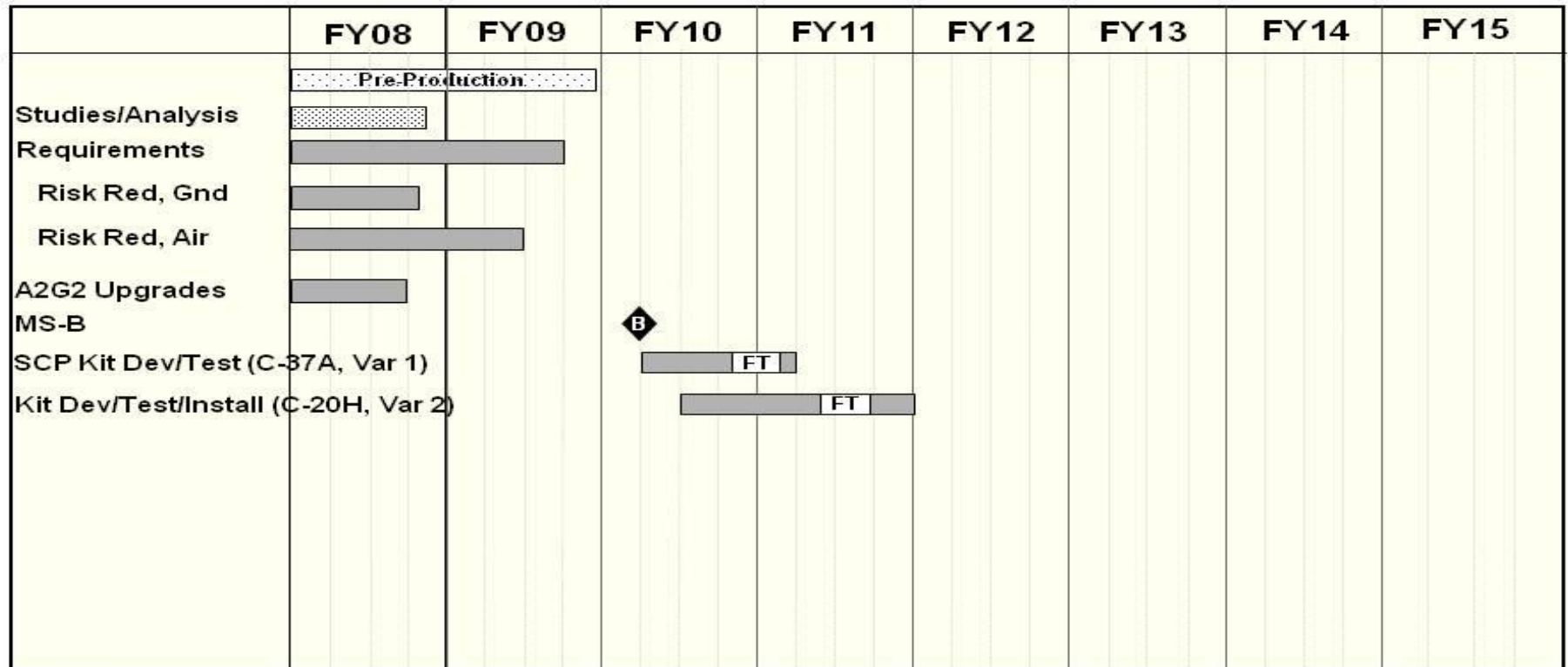
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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0401845F SLC3S-A (Senior Leader C3S)

PROJECT NUMBER AND TITLE
5273 SLC3S-A Standard Communications Package



Concept activities
Production / fielding

Design / development
Pre-Production

Integration / test
Key events

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Exhibit R-4a, RDT&E Schedule Detail	DATE May 2009
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0401845F SLC3S-A (Senior Leader C3S)	PROJECT NUMBER AND TITLE 5273 SLC3S-A Standard Communications Package
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Risk Reduction Effort, Ground - Complete	4Q		
(U) Risk Reduction Effort, Air - Complete		2Q	
(U) MS-B			1Q
(U) Begin SCP Kit Development/Test/Cert, Aircraft Variant 1			2Q

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PE NUMBER: 0604256F
 PE TITLE: Threat Simulator Development

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	35.903	34.474	27.789	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2907 Electronic Combat Intel Support	2.645	2.192	2.206	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	26.287	24.491	17.966	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
7500 Foreign Materiel Acquisition/Analysis	6.971	7.791	7.617	0.000	0.000	0.000	0.000	0.000	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, including Directed Energy (DE). 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 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 action involving the use of electromagnetic and DE to control the electromagnetic spectrum or to attack the enemy. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities improvements, hardware-in-the-loop test facilities improvements, and installed system test facility improvements. Test investment activities are also funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program provides funds to study new technologies and test methodologies to determine their feasibility for future test and evaluation (T&E) investment within the scope of this program element. The intent is to reduce risk associated with new technologies and methodologies prior to investing in larger programs. This PE also provides funding for planning, budgetary management, and technical support of the Air Force for corporate-level implementation of the EW Test Process, improvement and modernization (I&M) activities and application of the 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. Additionally, this PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program and EW intelligence efforts.

This PE is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for I&M of T&E capabilities at AF Test Centers.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator Development

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	39.639	34.568	38.791
(U) Current PBR/President's Budget	35.903	34.474	27.789
(U) Total Adjustments	-3.736	-0.094	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.094	
Congressional Increases			
Reprogrammings	-3.135		
SBIR/STTR Transfer	-0.601		

(U) **Significant Program Changes:**

FY08 Reprogrammings to Aerospace Vehicle Technologies Program (PE 0602201F) \$.200, Integrated C2 Systems (PE 0604740F) \$1.7, F-22 Program (PE 0207138F), \$1.235

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development			PROJECT NUMBER AND TITLE 2907 Electronic Combat Intel Support		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2907 Electronic Combat Intel Support	2.645	2.192	2.206	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of blue systems to test facilities; travel of personnel to the test sites to evaluate and validate test results; range and laboratory costs; test consumables; costs for instrumentation of blue systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program:			
(U) Funds fighter and bomber testing for foreign materiel operational analysis. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	1.635	1.346	1.355
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational analysis. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	0.947	0.763	0.768
(U) Funds classified operational assessments for foreign materiel operational analysis. Extensive evaluations and reporting to be accomplished.	0.063	0.083	0.083
(U) Total Cost	2.645	2.192	2.206

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</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>Estimate</u>		
(U) Other APPN None.										

(U) D. Acquisition Strategy

Not applicable.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
06 RDT&E Management Support		0604256F Threat Simulator Development						3321 Electronic Warfare Ground Test Resources		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3321 Electronic Warfare Ground Test Resources	26.287	24.491	17.966	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems, including Directed Energy (DE). To manage program risk effectively throughout the 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 through open-air ranges (OAR) are 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 National Radar Cross Section (RCS) Test Facility (NRTF) at Holloman AFB, NM, provides timely, accurate, and secure RCS and antenna measurements for tri-service and joint program offices, DoD laboratories, DARPA and industry. The NRTF tests fielded and developmental systems and technology to meet Low Observable (a.k.a. stealth) and EW customer requirements. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS) provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides simulations of advanced Infrared (IR) & Radio Frequency (RF) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), RF missile warning, IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection, limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The Installed Test Integration Program (ITIP) develops a multi-spectral synthetic battlespace with virtual and constructive modeling and simulation T&E capabilities at Edwards AFB, CA. The Air Warfare Mission Simulator (AWMS) program develops an electronic warfare capability with high fidelity reconfigurable cockpits. This program will also provide the capability to link high fidelity cockpits to the information battlespace via High Level Architecture (HLA). Test investment activities are also funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program provides funds to study new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce risk associated with new technologies and methodologies prior to investing in larger programs.

Improvement and modernization efforts within this PE are identified in one mission area category: EW. EW provides planning, improvements, and modernization needed for test capabilities to conduct and support the AF EW test process, including DE. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems.

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.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator
Development

PROJECT NUMBER AND TITLE

3321 Electronic Warfare Ground Test
Resources(U) **B. Accomplishments/Planned Program (\$ in Millions)**

- (U) CATEGORY: Electronic Warfare (EW): provides planning, improvements, and modernization needed for test capabilities to conduct and support the Air Force (AF) EW test process, including Directed Energy (DE). This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems.
- (U) Air Force Electronic Warfare Evaluation Simulator (AFEWES): This project provides a secure (TS/SAR), Hardware-in-the-Loop (HITL) test capability consisting of high-fidelity Radio Frequency (RF) and Infrared (IR) threat simulators to evaluate the effectiveness of DoD and Allied Electronic Combat (EC) systems in a controlled, ground-based laboratory environment. This project provides simulations of advanced IR and RF semi-active Surface-to-Air Missiles, Air-to-Air Missiles, RF missile warning, IR and Laser countermeasure functions to include the integration of actual threat hardware and ground clutter into advanced threat RF and IR simulations.
- (U) Digital Integrated Air Defense System (DIADS) Upgrade: This project provides a digital, mission-level threat Integrated Air Defense System (IADS) simulation. The project will upgrade the architecture and add new players to maintain currency with evolving threats, enhancing existing IADS command and control players based on the latest intelligence. The project will incorporate standard, validated DoD radar and surface-to-air missile models. Distributed interfaces will be developed between DIADS and Blue (i.e., friendly) C4ISR simulations to develop a coherent synthetic battlespace for the test and training of multi-platform sensor fusion and net-centric systems programs.
- (U) Installed Test Integration Program (ITIP): This project will integrate the Avionics Test and Integration Complex (ATIC) Electronic Warfare (EW) test and evaluation resources into a common test environment or synthetic battlespace. The objective is to integrate stand-alone stimulators developed under the Electronic Combat Integrated Test (ECIT) program, the Central Test & Evaluation Investment Program (CTEIP), and the Digital Integrated Air Defense System (DIADS). The project enhances test repeatability, and improves the efficiency for developing and rendering complex, integrated scenarios.
- (U) Electronic Warfare Test Analysis Tools & Methodology (EWTATM): This project provides for the development, deployment, and advancement of data analysis tools and methodologies to improve efficiency and effectiveness of the Electronic Warfare (EW) Test Process. The project establishes test methodologies and provides tools to standardize data reduction across multiple Test Facilities.
- (U) Air Warfare Mission Simulator (AWMS): This project provides two TS/SAR modeling & simulation facilities including two reconfigurable high fidelity manned flight simulators with full mission level simulation. It adds EW, sensor, and weapons capability to the simulators, provides for internal and external linking, and interoperable tools to run distributed simulations in multi-ship formations for test & evaluation of aircraft such as the F-35 and F-16.

FY 2008FY 2009FY 2010

25.176

23.126

16.819

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development	PROJECT NUMBER AND TITLE 3321 Electronic Warfare Ground Test Resources
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Advanced Warfare Test and Evaluation Capability (AWTEC): This project will provide the Avionics Test & Integration Complex (ATIC) with a suite of stimulators designed to replace 90's technology with state of the art equipment. Increased memory and processing speeds, along with external interface upgrades will allow significant improvement in RF signal fidelity and IR/UV scene generation. This project will provide a robust linking capability for joint warfighting and interoperability testing, and additional Blue C4ISR signals and links. This project will also integrate the test capabilities developed under on-going CTEIP programs such as the Advanced Communications Environment, and Next Generation Electronic Warfare Environment Generator.			
(U) NRTF Upgrades: Enhance efficiency of operations and accuracy of Low Observable and antenna measurements. Continue investments to incentivize RCS test ranges to consolidate their workload to the NRTF. Continue RCS measurement enhancements to advance radar, range and target positioning capabilities; provide greater measurement sensitivity and dynamic range, increase bandwidth to address emerging radar and EW threats; increase data product quality and throughput.			
(U) Technology Insertion & Risk Reduction (TIRR) program: The TIRR program provides funds to study new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce risk associated with new technologies and methodologies prior to investing in larger programs. TIRR activities will be incorporated into future programs beginning FY 2012 and will not be a separate line item.	0.000	0.218	
(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.	1.111	1.147	1.147
(U) Total Cost	26.287	24.491	17.966

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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 0605814OTE, Operational Test Activities and Analysis.										

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator
Development

PROJECT NUMBER AND TITLE

3321 Electronic Warfare Ground Test
Resources(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.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development			PROJECT NUMBER AND TITLE 7500 Foreign Materiel Acquisition/Analysis		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
7500 Foreign Materiel Acquisition/Analysis	6.971	7.791	7.617	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and analysis of foreign materiel. Items considered for these Foreign Materiel Acquisition (FMA) funds are included in the prioritized Air Force FMA Top 20 list established each year. Each Major Command (MAJCOM) prepares and approves a Foreign Materiel - Mission Requirements Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOMs' requirements lists are integrated and prioritized into a classified Air Force requirement list. Each MAJCOM then approves the FMA Top 20 List and final validation comes from the Air Force Vice Chief of Staff. System analyses are based on and driven by acquisitions. The USAF provides assessments for all threat aircraft, air-to-air missiles, air-to-ground bomb/missiles, satellites, early warning radars, Intercontinental Ballistic Missiles, 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)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program:			
(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.	3.228	3.655	3.573
(U) Funds the analysis of acquired Foreign Materiel IAW prioritized lists and specific analysis plans.	2.908	3.292	3.221
(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.	0.835	0.844	0.823
(U) Total Cost	6.971	7.791	7.617

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN None.										

(U) D. Acquisition Strategy

Not applicable.

UNCLASSIFIED

PE NUMBER: 0604759F
 PE TITLE: Major T&E Investment

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	62.635	69.221	60.824	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4597 Air Force Test Investments	62.635	69.221	60.824	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities at three Air Force test organizations: 46 Test Wing (to include 46 Test Group at Holloman AFB NM, and operating locations at Wright-Patterson AFB OH), Arnold Engineering Development Center (AEDC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations improve their test infrastructure and capabilities to keep pace with improvements in weapon system technologies. Test investment activities also fund the Test and Evaluation (T&E) Board of Directors and the Technology Insertion & Risk Reduction (TIRR) program, formerly the Test Technology Development (TTD) program. The TIRR program provides funds to study new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce risk associated with new technologies and methodologies prior to investing in larger programs.

The improvement and modernization (I&M) requirements are defined through the AF Test Investment Planning & Programming Process (TIPP). Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition, equipment installation, and checkout phases which often require significant differences in funding from one year to the next. As such, the changes in category funding from year to year 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, but are available to others requiring their unique capabilities.

The 46TW, at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) of non-nuclear air armaments; Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The 46TG at Holloman AFB, NM provides test facilities for high-speed sled track testing, that simulates selected portions of the flight environment.

AEDC, at Arnold AFB, TN, provides pre-flight and reliability 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.

AFFTC, at Edwards AFB, CA, conducts and supports DT&E and Operational Test and Evaluation (OT&E) of aircraft and aircraft systems, aerospace research

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604759F Major T&E Investment

vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems.

I&M efforts within this PE are identified in four mission area categories: Airframe/Propulsion/Avionics (APA); Armament/Munitions (A/M); Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR); and Space. These categories describe general types of effort that will be conducted in this PE. TIRR funding is included in all categories.

APA provides planning, improvements, and modernization needed for test capabilities to conduct and support DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and turbine engines.

A/M provides planning, improvements and modernization to conduct DT&E of air-to-ground and air-to-air armaments and munitions, which include gun, chaff and flare systems as well as aerial decoy and target systems. The A/M category encompasses the full range of DT&E from digital modeling and simulation, to precision measurement testing, to hardware-in-the-loop and installed systems testing, to open-air range testing. Elements of A/M DT&E include environmental, warhead effectiveness, arena blast/fragmentation, guidance navigation and control, aerodynamics, propulsion, electromagnetic interference and compatibility, mass properties, seeker and signature measurement, survivability, lethality, integration, reliability, net-centric and terminal effects testing. A/M also involves the design and development of systems needed to support A/M DT&E including the design and development sleds, targets, range support systems and various instrumentation and measurement systems.

C4ISR provides planning, improvements and modernization to conduct DT&E of systems that support C2 functions which range from air campaign planning at the theater level to wing level C2 operations, to planning individual missions, to putting weapons on target using concepts such as machine to machine targeting. C4ISR includes ground and flight performance testing of airborne C2 networks and tactical data links, air operation centers, mission planning systems, multi-level security systems, radio and communication systems, ISR systems, information assurance systems, and radar systems such as those used by JSTARS and air traffic control systems. C4ISR conducts DT&E on a full range of systems covering the sensor (detection) to the shooter (weapon), including functional and environmental testing of these systems.

Space provides planning, improvements, and modernization needed for Space test capabilities to perform developmental and operational testing for space and launch acquisition and sustainment programs. Test capabilities include launch vehicle, satellite, missile, sensor, thermal protection system, signature, hardness, and interface testing. The capabilities are resident at Vandenberg, Kirtland, Arnold, Patrick, Schriever, Peterson, Holloman Air Force Bases and others. Infrastructure includes launch sites, mobile control units, thermal vacuum chambers, sled track, arc heated wind tunnels, ballistic test ranges, signature collection, and the requisite personnel.

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.

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604759F Major T&E Investment

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	63.855	61.818	63.232
(U) Current PBR/President's Budget	62.635	69.221	60.824
(U) Total Adjustments	-1.220	7.403	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.197	
Congressional Increases		7.600	
Reprogrammings			
SBIR/STTR Transfer	-1.220		

(U) **Significant Program Changes:**

FY09 Congressional increases for FPS-16 Mobilization Upgrade \$2.8M, Holloman High Speed Test Track \$4.0M, and Range Ops Upgrades \$.8M.

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DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
06 RDT&E Management Support				0604759F Major T&E Investment				4597 Air Force Test Investments		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4597 Air Force Test Investments	62.635	69.221	60.824	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities at three Air Force test organizations: 46 Test Wing (to include 46 Test Group at Holloman AFB NM, and operating locations at Wright-Patterson AFB OH), Arnold Engineering Development Center (AEDC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations improve their test infrastructure and capabilities to keep pace with improvements in weapon system technologies. Test investment activities also fund the Test and Evaluation (T&E) Board of Directors and the Technology Insertion & Risk Reduction (TIRR) program, formerly the Test Technology Development (TTD) program. The TIRR program provides funds to study new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce risk associated with new technologies and methodologies prior to investing in larger programs.

The improvement and modernization (I&M) requirements are defined through the AF Test Investment Planning & Programming Process (TIPP). Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition, equipment installation, and checkout phases which often require significant differences in funding from one year to the next. As such, the changes in category funding from year to year 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, but are available to others requiring their unique capabilities.

The 46TW, at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) of non-nuclear air armaments; Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The 46TG at Holloman AFB, NM provides test facilities for high-speed sled track testing, that simulates selected portions of the flight environment.

AEDC, at Arnold AFB, TN, provides pre-flight and reliability 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.

AFFTC, at Edwards AFB, CA, conducts and supports DT&E and Operational Test and Evaluation (OT&E) of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems.

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I&M efforts within this PE are identified in four mission area categories: Airframe/Propulsion/Avionics (APA); Armament/Munitions (A/M); Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR); and Space. These categories describe general types of effort that will be conducted in this PE. TIRR funding is included in all categories.

APA provides planning, improvements, and modernization needed for test capabilities to conduct and support DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and turbine engines.

A/M provides planning, improvements and modernization to conduct DT&E of air-to-ground and air-to-air armaments and munitions, which include gun, chaff and flare systems as well as aerial decoy and target systems. The A/M category encompasses the full range of DT&E from digital modeling and simulation, to precision measurement testing, to hardware-in-the-loop and installed systems testing, to open-air range testing. Elements of A/M DT&E include environmental, warhead effectiveness, arena blast/fragmentation, guidance navigation and control, aerodynamics, propulsion, electromagnetic interference and compatibility, mass properties, seeker and signature measurement, survivability, lethality, integration, reliability, net-centric and terminal effects testing. A/M also involves the design and development of systems needed to support A/M DT&E including the design and development sleds, targets, range support systems and various instrumentation and measurement systems.

C4ISR provides planning, improvements and modernization to conduct DT&E of systems that support C2 functions which range from air campaign planning at the theater level to wing level C2 operations, to planning individual missions, to putting weapons on target using concepts such as machine to machine targeting. C4ISR includes ground and flight performance testing of airborne C2 networks and tactical data links, air operation centers, mission planning systems, multi-level security systems, radio and communication systems, ISR systems, information assurance systems, and radar systems such as those used by JSTARS and air traffic control systems. C4ISR conducts DT&E on a full range of systems covering the sensor (detection) to the shooter (weapon), including functional and environmental testing of these systems.

Space provides planning, improvements, and modernization needed for Space test capabilities to perform developmental and operational testing for space and launch acquisition and sustainment programs. Test capabilities include launch vehicle, satellite, missile, sensor, thermal protection system, signature, hardness, and interface testing. The capabilities are resident at Vandenberg, Kirtland, Arnold, Patrick, Schriever, Peterson, Holloman Air Force Bases and others. Infrastructure includes launch sites, mobile control units, thermal vacuum chambers, sled track, arc heated wind tunnels, ballistic test ranges, signature collection, and the requisite personnel.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CATEGORY: Airframe/Propulsion/Avionics (APA) - provides planning, improvements, and modernization needed for test capabilities to conduct and support DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and turbine engines.	38.097	42.355	39.699
(U) Advanced GPS Range Sensor (AGRS): This project develops improved aircraft internal mount Time Space Position			

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

Information (TSPI) systems, develops or acquires replacement subsystems for the aging Advanced Range Data System (ARDS) equipment and provides improvements to TSPI data processing software to support the AFFTC and AAC requirements for increasing TSPI accuracies.

(U) AFFTC Real-Time & Post-Flight System Upgrade (ARPSU): This project develops improved real-time and post flight telemetry (TM) data processing and display systems capable of handling increased data rates, and next generation networked TM capabilities. Integrates newly developed capabilities to enhance AFFTC mission control rooms.

(U) AFFTC TSPI Systems Upgrade (ATSU): This project continues to provide enhancements to AFFTC aircraft internal mount GPS-based TSPI systems to accommodate new formats, codes and frequencies planned for modernized GPS satellite constellation. Also develops capability to provide TSPI data on non-cooperative test articles and targets. Develops capability to provide correction data to internal mount airborne TSPI sensors for increasing accuracy requirements.

(U) AFFTC Range Systems Upgrade (ARSU): This project will upgrade mission critical range systems: real-time data transport, flight safety/surveillance, imaging/display system, voice/data/video communication, and command/control network management. Upgrades are required to overcome near-term obsolescence issues and implement new/extend existing capabilities to meet range requirements to support of current and future AFFTC programs.

(U) Joint Airborne Instrumentation Integration (JAI): This project provides AFMC with instrumented airborne weapon system platforms in support of aircraft and armament development and flight testing. It procures, develops, and integrates state-of-the-art airborne data acquisition, recording and transmission systems and associated support equipment to keep pace with requirements for increased data rates, higher accuracy, and improved spectrum efficiency.

(U) Telemetry Systems Integration & Support (TSIS): This project will procure and integrate improved range telemetry acquisition systems, aircraft instrumentation suites, and ground support systems (GSS) to network telemetry systems. TSIS will support Integrated Network Enhanced Telemetry (iNET) frequency reuse with improved frequency management infrastructure.

(U) von Karman Gas Dynamics Facility (VKF) Plant Modernization: This AEDC project upgrades the VKF Plant, which provides process air support for the supersonic and hypersonic wind tunnels and pressurized air support to the arc heated test cells, aeropropulsion test cells, propulsion wind tunnels and the Aeropropulsion Test Unit. The VKF plant infrastructure controls and rotating equipment will be modernized with digital control and a variable frequency starting system. The improved reliability and operational efficiencies will result in overall cost reductions for the VKF Plant.

(U) Tunnel 4T Modernization: This project upgrades the flex nozzle actuators & control system; modernizes the Captive

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

Trajectory System; processes air control valve (65A) Analysis/Relocation; provides commonality of 4T data systems with ABC data systems; increases Mach number capability to 2.5; provides electrical distribution within cover building; provides test section upgrades; and adds a portable Pressure Sensitive Paint (PSP) system.

- (U) Real-Time Display & Analysis (RDAS): This project will increase the level of reliability, availability, and maintainability of test facilities' infrastructure while reducing technological and operational risks, air-on-time and test cost. This effort will incrementally improve the facility capabilities by upgrading data systems, operational control rooms, and test unit supervisory systems in AEDC major Test Cells (J1, J2, C1, C2, SL2 and 4T).
- (U) Tunnels ABC Modernization: The VKF supersonic/hypersonic wind tunnels A/B/C will be modernized to provide technologically superior operation, measurement, and simulation capabilities. The specific enhancements include: automation of test section controls, construction of an advanced centralized facility control room for efficient and productive test execution and upgraded non-intrusive flow visualization and diagnostics.
- (U) Advanced Large Military Engine Capability: This project modernizes AEDC's large military engine test capability and includes a foundation for supporting future high speed propulsion system testing. This enhanced capability will address current test envelope restrictions and increase reliability of the only air supply system for all engine test cells at AEDC. The project scope includes upgrading the C-Plant air supply heaters, improving the six major test cells' exhaust coolers and sprays, and modernizes other critical, problematic facility and test cell systems necessary for large military engine testing.
- (U) Advanced Small Military (High Speed) Engine Capability: This project will upgrade the AEDC Aeropropulsion Test Cell T3 to provide continuous flow, true flight condition for testing of advanced high speed air-breathing engines and components. This project will correct current facility and test cell limitations and restrictions for this high temperature, high pressure operation. Major upgrades will be accomplished on the facility and test cell operational controls, the data acquisition systems, the test cell instrumentation, the supply air heater capability and reliability, and the treatment of the high temperature test cell exhaust.
- (U) Ultra High Accuracy Reference System (UHARS): This project develops a high-accuracy inertial-based TSPI system to meet the position and velocity requirements of advanced weapon systems and their navigation systems, and enables weapons system testing in GPS-denied environments.
- (U) Holloman High-Speed Test Track / Maglev: This project supports development of a magnetically levitated rocket sled test capability at Holloman AFB, where the ultimate goal is to develop a Mach 10 ground test capability providing a realistic flight type environment for testing hypersonic propulsion systems, missile seekers/sensors, warheads, etc.
- (U) Holloman High-Speed Test Track (HHSTT)/Rainfield Enhanced Testing (TIRR): This project provides increased control and measurement of rain environments at the HHSTT to more closely replicate natural rainfall and provide

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
better data for rain erosion model validation, and will also study and model the microscale wind environment and design wind mitigation structures to minimize the effect of wind on the rain environment during sled tests.			
(U) CATEGORY: Armament/Munitions (A/M) - provides planning, improvements and modernization to conduct DT&E of air-to-ground and air-to-air armaments and munitions, which include gun, chaff and flare systems as well as aerial decoy and target systems. The A/M category encompasses the full range of DT&E from digital modeling and simulation, to precision measurement testing, to hardware-in-the-loop and installed systems testing, to open-air range testing. Elements of A/M DT&E include environmental, warhead effectiveness, arena blast/fragmentation, guidance navigation and control, aerodynamics, propulsion, electromagnetic interference and compatibility, mass properties, seeker and signature measurement, survivability, lethality, integration, reliability, net-centric and terminal effects testing. A/M also involves the design and development of systems needed to support A/M DT&E including the design and development sleds, targets, range support systems and various instrumentation and measurement systems.	17.132	20.570	17.254
(U) Armament/Munitions Digital Modeling & Simulation (A/M DM&S): This project modernizes and improves modeling, simulation and analysis capabilities to support comprehensive test and evaluation of developmental air armament systems, with the goal of integrating the models developed by laboratories, center components, and contractors into a common suite of reusable tools.			
(U) Over-Water Impact Scoring System (OWISS): This project develops the capability necessary to test long-range precision strike weapons in an overwater environment. It extends range instrumentation systems and tracking coverage into the Gulf of Mexico, along remote shoreline locations, and at terminal impact locations to support test and evaluation of long-range, net-centric weapons having large hazardous weapon footprint profiles.			
(U) Advanced Munitions Test Improvement (AMTI): This project develops new hardware-in-the-loop (HITL) capabilities to permit testing of advanced technology guidance, control and signal processing techniques employed in the next generation weapon systems. AMTI will provide required test capabilities for next generation weapon systems that incorporate state-of-the-art technologies such as advanced GPS, hyperspectral imaging, laser detection and ranging, and low observable sensor technology.			
(U) Advanced Range Telemetry (ARTM): This project will acquire and upgrade critical telemetry (TM) equipment and infrastructure needed to obtain higher throughput data rates, enhance coverage area, improve the quality of real-time data, provide more efficient use of the frequency spectrum, and broaden network bandwidth at Eglin AFB's ground station TM sites.			
(U) Operational Ground Test (OGT): This project develops a required capability to test munitions in an all-up-round (AUR) configuration in their operational environment. OGT allows for non-destructive repeatable DT&E of AUR weapons to support failure mode analyses.			
(U) Advanced Command Destruct System (ACDS): This project improves and upgrades existing command destruct (i.e.			

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
flight termination) systems using state-of-the-art datalink and encryption technologies to provide a more robust, secure and sustainable command and destruct system that is used to send on-demand flight-termination signals/commands to in-flight weapon systems.			
(U) Gulf Range Test & Training Control Center (GRTTCC): This project provides modernization of computational systems used to convert complex data streams from Eglin's highly integrated T&E complex into usable information to support test customers, and includes integration of range data systems, data networks, data storage capabilities and display equipment to leverage advances in computer and communications technologies.			
(U) Joint Gulf Range Area Network Development (JGRAND): This project provides expansion of the existing fiber optic network to incorporate up to 44 test sites within the Eglin Gulf Range Complex (EGRC), implements hardware and software upgrades across the EGRC to support the Test and Evaluation Enabling Architecture initiative, and provides an advanced mobile fiber optic and microwave communications capability to accommodate instrumentation temporarily placed in hazardous and/or remote test footprint areas.			
(U) FPS-16 Radar Mobilization Upgrade: This project will transform a fixed radar platform to a transportable system to extend range instrumentation and tracking coverage into the Gulf of Mexico, along remote shoreline locations, and at terminal impact locations to support test and evaluation of long-range, net-centric weapons having large hazardous weapon footprint profiles.			
(U) Eglin AFB Range Operations Control Center Upgrade: This project will implement new technologies to improve range control capability for a planned increase in flight operations and ground missions. Upgrades will improve command/control network, flight safety and display systems.			
(U) CATEGORY: Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) - provides planning, improvements and modernization to conduct DT&E of systems that support C2 functions which range from air campaign planning at the theater level to wing level C2 operations, to planning individual missions, to putting weapons on target using concepts such as machine to machine targeting. C4ISR includes ground and flight performance testing of airborne C2 networks and tactical data links (e.g. Link 16, JTIDS, SADL, TTNT, etc.), air operation centers, mission planning systems, multi-level security systems, radio and communication systems, ISR systems, information assurance systems, and radar systems such as those used by JSTARS and air traffic control systems. C4ISR conducts DT&E on a full range of C2 systems covering the sensor (detection) to the shooter (weapon), including functional and environmental testing of these systems.	3.649	6.214	3.783
(U) C4ISR Modeling & Simulation (C4ISR M&S): This project provides the capability to combine synthetic and real-world data to analyze a C4I system's response to operational load. It will acquire, verify and validate models and simulations to support C4ISR T&E involving large-scale, multi-service, multiple force (friendly, neutral and hostile) scenarios.			

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Command & Control Test Operations Center (C2TOC): This project develops a Joint Air Operations Center level test capability to conduct functional, performance and load/stress testing on C2 weapons systems.			
(U) CATEGORY: Space - provides planning, improvements, and modernization needed for Space test capabilities to perform developmental and operational testing for space and launch acquisition and sustainment programs. Test capabilities include launch vehicle, satellite, missile, sensor, thermal protection system, signature, hardness, and interface testing. The capabilities are resident at Vandenberg, Kirtland, Arnold, Patrick, Schriever, Patterson, Holloman Air Force Bases and others. Infrastructure includes launch sites, mobile control units, thermal vacuum chambers, sled track, arc heated wind tunnels, ballistic test ranges, signature collection, and the requisite personnel.	3.640	0.000	0.000
(U) Next Generation Satellite TT&C (Next Gen Sat TT&C): Modernizes the Kirtland AFB to Schriever AFB communication link to provides 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 trading systems.			
(U) Technology Insertion & Risk Reduction (TIRR): Short Focal Length Collimator (SFLC) will enable full Field-of-View (FOV) testing of space-based surveillance & radiance-based sensors. HHSTT Rainfield Enhancement will improve methodologies for quantifying weather environments impact on missile systems.			
(U) OTHER PROJECTS			
(U) T&E Board of Directors: Coordinates Tri-Service investment efforts. Coordinates Joint T&E Reliance efforts.	0.117	0.082	0.088
(U) Total Cost	62.635	69.221	60.824

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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 0605814OTE Operational Test Activities and Analysis; 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.

UNCLASSIFIED

PE NUMBER: 0605101F
 PE TITLE: RAND Project Air Force

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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	40.469	29.891	27.501	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1110 Project Air Force	40.469	29.891	27.501	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking ahead, future research will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

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(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	40.469	29.891	27.550
(U) Current PBR/President's Budget	40.469	29.891	27.501
(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>			
N/A			

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
06 RDT&E Management Support				0605101F RAND Project Air Force				1110 Project Air Force		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1110 Project Air Force	40.469	29.891	27.501	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking ahead, future research 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

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study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U)			
(U) Strategy and Doctrine	12.573	7.100	6.800
(U) Aerospace Force Development	10.325	6.000	6.000
(U) Manpower, Personnel, and Training	6.303	6.000	6.100
(U) Resource Management	7.000	7.100	7.000
(U) Integrative Research/Direct Support	4.268	3.691	1.601
(U) Total Cost	40.469	29.891	27.501

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) D. Acquisition Strategy

A comprehensive review of RAND/Project AIR FORCE was completed in Sep 00 and led to a 5-year (FY01-FY05) Cost Plus / Fixed Fee contract, awarded on 01 Oct 00. A subsequent comprehensive review was conducted in FY05. A follow-on (FY06-FY10) Cost Plus / Fixed Fee contract was awarded in Oct 05.

UNCLASSIFIED

PE NUMBER: 0605712F
 PE TITLE: Initial Operational Test & Evaluation

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	29.952	29.457	25.833	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0191 Initial Operational Test & Eval	29.952	29.457	25.833	0.000	0.000	0.000	0.000	0.000	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 and resolve overall mission capability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, Key Decision Point 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, Key Decision Point 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&E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test & Evaluation

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	30.011	29.537	29.770
(U) Current PBR/President's Budget	29.952	29.457	25.833
(U) Total Adjustments	-0.059	-0.080	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.080	
Congressional Increases			
Reprogrammings	0.320		
SBIR/STTR Transfer	-0.379		
(U) <u>Significant Program Changes:</u>			
FY08 Reprogramming for OT&E Support			

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation	PROJECT NUMBER AND TITLE 0191 Initial Operational Test & Eval
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0191 Initial Operational Test & Eval	29.952	29.457	25.833	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification
 Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability and resolve overall mission capability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, Key Decision Point 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, Key Decision Point C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include:	18.991	18.529	17.390

- FY08
- ALR-69A Radar Warning Receiver (ALR-69A): Conduct OA.
 - B-2 Radar Modernization Program (RMP): Plan IOT&E.
 - B-52 COMbat NETwork Communications Technology (CONNECT): Plan OA.
 - C-130 Aircraft Modernization Program (AMP): Conduct OA.
 - Combat Search and Rescue Vehicle (CSAR-X): Plan for OA.
 - CV-22 Osprey (CV-22): Publish final report.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

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PE NUMBER AND TITLE

0605712F Initial Operational Test & Evaluation

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

- F-15 Mark XIIIA Mode 5 (F-15 Mode 5): Plan for IOT&E.
- F-22: Plan for FOT&E Incr 3.1.
- Joint Cargo Aircraft (JCA): Plan for DT/OT.
- KC-X Replacement Tanker (KC-X): Early Influence.
- Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Plan for IOT&E.
- Miniature Air Launched Decoy (MALD): Conduct OA.
- MQ-9 Hunter-Killer (MQ-9): Conduct IOT&E.
- RQ-4 Global Hawk: Conduct OA.
- Other systems.

FY09

- ALR-69A Radar Warning Receiver (ALR-69A): Plan for IOT&E.
- AWACS Block 40/45 (AWACS Block 40/45): Plan for IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct IOT&E.
- B-52 COMbat NETwork Communications Technology (CONNECT): Conduct OA.
- C-130 Aircraft Modernization Program (AMP): Plan for IOT&E.
- Combat Search and Rescue Vehicle (CSAR-X): Plan OA.
- F-15 Mark XIIIA Mode 5 (F-15 Mode 5): Conduct IOT&E.
- F-15E Radar Modernization Program (F-15E RMP): Plan for IOT&E.
- F-22: Plan for FOT&E Incr 3.1.
- HC/MC-130 Recapitalization (HC/MC-130 RECAP): Conduct OA.
- Joint Cargo Aircraft (JCA): Conduct DT/OT.
- KC-X Replacement Tanker (KC-X): Early Influence.
- Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Plan for IOT&E.
- Miniature Air Launched Decoy (MALD): Conduct IOT&E.
- RQ-4 Global Hawk: Conduct IOT&E.
- Other systems.

FY10

- ALR-69A Radar Warning Receiver (ALR-69A): Conduct IOT&E.
- AWACS Block 40/45 (AWACS Block 40/45): Plan for IOT&E.

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation	PROJECT NUMBER AND TITLE 0191 Initial Operational Test & Eval
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
<ul style="list-style-type: none"> - B-2 Radar Modernization Program (RMP): Conduct FOT&E. - B-52 COmbat NETwork Communications Technology (CONNECT): Conduct OT. - C-130 Aircraft Modernization Program (AMP): Plan for IOT&E. - F-15E Radar Modernization Program (F-15E RMP): Plan for IOT&E. - F-22: Plan for FOT&E Incr 3.1. - HC/MC-130 Recapitalization (HC/MC-130 RECAP): Plan for IOT&E. - Joint Cargo Aircraft (JCA): Conduct MOT&E. - Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Conduct IOT&E. - Miniature Air Launched Decoy (MALD): Complete IOT&E. - Other systems. 			
<p>(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include:</p> <p>FY08</p> <ul style="list-style-type: none"> - Advanced EHF Satellite Communications (Advanced EHF): Plan for OUE. - Global Positioning System/GPS-III (GPS-III): Plan for OA. - Space Based Infrared System (SBIRS): Conduct OUE. - Space Based Space Surveillance (SBSS): Plan for IOT&E. - Transformational Satellite Communications System (TSAT): Early influence. - Wideband Global SATCOM (WGS): Conduct MOT&E. - Other systems. <p>FY09</p> <ul style="list-style-type: none"> - Advanced EHF Satellite Communications (Advanced EHF): Conduct OUE. - Enhanced Polar System (EPS): Conduct EOA. - Global Positioning System/GPS-III (GPS-III): Conduct OA. - Integrated Space Situation Awareness (ISSA): Conduct OUE. - National Polar-orbiting Operational Environmental Satellite System (NPOESS): Early Influence. - Space Based Infrared System (SBIRS): Conduct OUE. - Space Based Space Surveillance (SBSS): Conduct IOT&E. - Space Command and Control (Space C2): Conduct OA. 	4.524	2.703	1.843

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
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. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
<ul style="list-style-type: none"> - Third Generation Infrared System (3GIRS): Early influence. - Wideband Global SATCOM (WGS): Publish final report. - Other systems. <p>FY10</p> <ul style="list-style-type: none"> - Advanced EHF Satellite Communications (Advanced EHF): Plan for MOT&E. - Enhanced Polar System (EPS): Conduct OA. - Global Positioning System/GPS-III (GPS-III): Conduct OA. - Integrated Space Situation Awareness (ISSA): Conduct OUE. - National Polar-orbiting Operational Environmental Satellite System (NPOESS): Plan OUE. - Space Based Infrared System (SBIRS): Conduct OUE. - Space Based Space Surveillance (SBSS): Publish Final Report. - Space Command and Control (Space C2): Plan IOT&E. - Third Generation Infrared System (3GIRS): Conduct OA1. - Other systems. 			
(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include:	1.491	1.941	3.195
(U) <p>FY08</p> <ul style="list-style-type: none"> - AIM-9X Block II: Plan OT-3C. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for IOT&E. - Small Diameter Bomb Increment II (SDB II): Plan EOA. - Other systems. <p>FY09</p> <ul style="list-style-type: none"> - AIM-9X Block II: Conduct OT-3C. - Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for IOT&E. - Small Diameter Bomb Increment II (SDB II): Conduct EOA. - Other systems. <p>FY10</p>			

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BUDGET ACTIVITY

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PE NUMBER AND TITLE

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

- AIM-9X Block II: Complete OT-3C.
- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct IOT&E.
- Small Diameter Bomb Increment II (SDB II): Conduct OA.
- Other systems.

(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTER, AND INTELLIGENCE (C4I).
Plan, execute, and report IOT&E activities, to include:

3.633

4.917

3.012

FY08

- Air Operations Center as a Weapon System (AOC): Early Influence.
- Airborne Signals Intelligence Payload (ASIP): Plan IOT&E.
- Airborne Signals Intelligence Payload 1C/2C (ASIP 1C/2C): Plan OA.
- B-1 Fully Integrated Data Link (B-1 FIDL): OA.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Early Influence.
- Battle Control System - Mobile Increment 3 (BCS-M Increment 3): Early Influence.
- Distributed Common Ground System (DCGS): Plan for OUE.
- DoD National Airspace System (DoD NAS): Plan for FOT&E.
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Plan for OA.
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Conduct OA.
- Integrated Broadcast Service (IBS): Plan for OUE.
- Joint Interface Control Officer (JICO) Support System (JSS): Plan for Combined Test Force Assessment.
- Network-Enabled Command and Control Capability (NECC): Conduct OT.
- Single Integrated Air Picture (SIAP): Early Influence.
- Other systems.

FY09

- Air Operations Center as a Weapon System (AOC): Early Influence.
- Airborne Signals Intelligence Payload (ASIP): Conduct IOT&E.
- Airborne Signals Intelligence Payload 1C/2C (ASIP 1C/2C): Plan OA.
- B-1 Fully Integrated Data Link (B-1 FIDL): Conduct OA.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM):

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PE NUMBER AND TITLE

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2008FY 2009FY 2010

Plan for OA.

- Battle Control System - Fixed (BCS-F): Early Influence.
- Battle Control System - Mobile Increment 3 (BCS-M Increment 3): Combined Test Force Assessment.
- Distributed Common Ground System (DCGS): Conduct OUE.
- DoD National Airspace System (DoD NAS): Conduct FOT&E.
- Expeditionary Combat Support System (ECSS): Plan OA.
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Conduct OA.
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Plan for IOT&E.
- Integrated Broadcast Service (IBS): Plan for OUE.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct Combined Test Force Assessment.
- Network-Enabled Command and Control Capability (NECC): Conduct OT.
- Single Integrated Air Picture (SIAP): Conduct OA.
- Other systems

FY10

- Air Operations Center as a Weapon System (AOC): Plan OA.
- Airborne Signals Intelligence Payload (ASIP): Complete IOT&E.
- Airborne Signals Intelligence Payload 1C/2C (ASIP 1C/2C): Conduct OA.
- B-1 Fully Integrated Data Link (B-1 FIDL): Conduct IOT&E.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Conduct OA.
- Battle Control System - Fixed (BCS-F): Early Influence.
- Battle Control System - Mobile Increment 3 (BCS-M Increment 3): Conduct IOT&E.
- Distributed Common Ground System (DCGS): Plan for IOT&E.
- Expeditionary Combat Support System (ECSS): Plan for IOT&E.
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Conduct OA.
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Conduct IOT&E.
- Integrated Broadcast Service (IBS): Conduct OUE.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct MOT&E.
- Network-Enabled Command and Control Capability (NECC): Conduct OT.
- Single Integrated Air Picture (SIAP): Plan for OA.

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Exhibit R-2a (PE 0605712F)

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation	PROJECT NUMBER AND TITLE 0191 Initial Operational Test & Eval
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
- Other systems			
(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include:	1.313	1.367	0.393

FY08

- Combat Survivor Evader Locator (CSEL): Conduct Combined Test Force Assessment.
- Joint Mission Planning System (JMPS): Conduct IOT&Es.
- Other systems.

FY09

- Combat Survivor Evader Locator (CSEL): Conduct Combined Test Force Assessment.
- Combat Survivor Evader Locator Block 2 (CSEL Blk 2): Plan for MOT&E.
- Joint Counter Radio-Controlled Improvised Explosive Device EW (JCREW): Conduct OA.
- Joint Mission Planning System (JMPS): Conduct IOT&Es.
- Other systems.

FY10

- Combat Survivor Evader Locator Block 2 (CSEL Blk 2): Conduct MOT&E.
- Joint Counter Radio-Controlled Improvised Explosive Device EW (JCREW): Conduct OA.
- Joint Mission Planning System (JMPS): Conduct IOT&Es.
- Other systems.

(U) Total Cost	29.952	29.457	25.833
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(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>

(U) N/A

(U) D. Acquisition Strategy

N/A

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PE NUMBER: 0605807F
 PE TITLE: Test and Evaluation Support

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	753.220	785.576	736.488	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
06TG 46 Test Group	29.457	31.018	28.857	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
06TS Test and Evaluation Support	723.763	754.558	707.631	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, civilian payroll, and contractor services. It also provides resources for maintaining and modifying as required Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	720.952	787.737	794.443
(U) Current PBR/President's Budget	753.220	785.576	736.488
(U) Total Adjustments	32.268	-2.161	
(U) Congressional Program Reductions			
Congressional Rescissions		-2.161	
Congressional Increases	17.618		
Reprogrammings	14.650		
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY08 Congressional Increase: Supplemental funding (\$.300M Civ Pay and \$17.318M fuel).
 FY08 OMNIBUS Reprogramming: RC-1 Chiller repair at AEDC (\$14.650M).

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605807F Test and Evaluation Support			PROJECT NUMBER AND TITLE 06TG 46 Test Group		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
06TG 46 Test Group	29.457	31.018	28.857	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Project infrastructure support is provided for the unique capabilities of the 46th Test Group (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF/781st Test Squadron), the 586th Flight Test Squadron and Detachment 1 (Det 1). CIGTF provides independent test and evaluation of inertial, Global Positioning System, and integrated systems used for aircraft navigation and missile guidance systems, including vulnerability to electronic interference. HHSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bistatic amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. Det 1 provides the liaison function for coordinating and scheduling all US Air Force test and training operations at White Sands Missile Range (WSMR). OL-AA provides test support for the Air Force Research Lab (AFRL) Directed Energy Division. The 586th Flight Test Squadron executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs. The 46th TG support services contracts are awarded on the basis of full and open competition.

Budget Activity Justification:

This Program Element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Provide infrastructure to support testing of DoD, other Government Agencies, FMS and commercial weapon systems. Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning System (GPS) upgrades, Defense Advanced GPS Receiver, Federal Aviation Authority (FAA) tests, GPS jamming and electronic countermeasures, Joint Precision Approach and Landing System (JPALS), GPS integrated and embedded inertial navigation programs, aircraft navigation systems including F-22, JSF, F-16, F-15, P-3, B-1, B-52, C-130, HH-60 and MH-53, munitions navigation systems including the Conventional Air-Launched Cruise Missile (CALCM), Small Diameter Bomb (SDB), as well as numerous advanced navigation and navigation warfare research projects; Bomb Live Unit (BLU) -121 and BLU-128 developmental testing, Theater High Altitude Area Defense (THAAD) Live Fire T&E (LFT&E), JSF ejection seat and transparency removal systems, High Speed Penetrator, Patriot Advanced Capabilities-3 (PAC-3), Joint Service Aircrew Mask, Army Tactical Missile System (ATACMS), Active Denial System (ADS), Airborne Laser (ABL), Advanced Tactical Laser (ATL), various high-powered microwave (HPM), and high-energy laser (HEL) systems, RCS testing, as well as multiple classified programs. Continue GPS-Joint Program Office (JPO) Responsible Test	3.930	4.272	4.327

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TG 46 Test Group
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Organization (RTO) responsibilities.			
(U) Utilities	0.265	0.273	0.270
(U) Contractor Services (in-house contract support activities)	12.379	12.809	10.000
(U) T&E Civilian Pay	12.303	12.914	14.034
(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 related support. Funds proficiency flying and aircraft infrastructure to support test flying requirements.	0.580	0.750	0.226
(U) Total Cost	29.457	31.018	28.857

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Related RDT&E:	PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment - T&E Support									

(U) **D. Acquisition Strategy**
Not applicable

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605807F Test and Evaluation Support			PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
06TS Test and Evaluation Support	723.763	754.558	707.631	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School. Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). Included are operations at the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California as well as operations at Tunnel 9 located at White Oak, Maryland. (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. Included are operations at Air Force Electronic Warfare Evaluation Simulator (AFEWES) located at AF Plant 4 in Ft. Worth, TX. The AFFTC mission includes the USAF Test Pilot School. (3) Air Armament Center (AAC) 46th Test Wing (TW) located at Eglin AFB, FL, is a joint test and training complex of 724 square miles of land area, and approximately 123,000 square miles of water area. AAC 46TW provides the institutional test infrastructure required to conduct developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, and air-to-surface and air-to-air guided munitions); Command, Control, Communications, Computers and Intelligence/Surveillance/Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; multi-service climatic simulation capability; and special operations aircraft systems. AAC 46TW provides a scientific test process that supports the development, production, sustainment, and enhancement of munitions systems that support tri-service digital weapons development. AAC 46TW technology is compatible with weapon systems requiring test such as the next generation Advanced Medium Air-to-Air Missile (AMRAAM), Laser Joint Direct Attack Munition (JDAM), next generation Small Diameter Bomb (SDB), Extended Range Joint Air-to-Surface Standoff Missile (JASSM-ER), Joint Tactical Information Distribution System (JTIDS), ALR-69A Radar Warning Receiver, Full Scale Aerial Target, Distributed Common Ground System (DCGS), Miniature Air Launched Decoy (MALD) and Jammer (MALD-J), Combat Talon, etc. T&E support

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009
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

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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(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 (Alpha RLV, ICBM, JSF, Engine CIP, Spacetrack, Ballistic Missile Defense, Minuteman, Foreign Tech, HIFIRE, AMC-X, B1B-F101, Falcon, UH-60 IBC, AHW, F-18, F405 Engine, F/A-18E/F, DTRF Maint/Transition, Threat Airborne Simulator, Threat Signature Simulation, Kinetic Energy Interceptor, SM-3, FMS-XF710 Engine, Global Hawk and FaCET.) Contract was awarded for the RC-1 Phase I Dessicant Dryer Unit.	36.447	17.061	17.461
(U) Utilities.	10.330	10.640	10.508
(U) Contractor Services (in-house contract support activities & includes RC-1 chiller repair funded in FY08 Omnibus.	126.214	127.152	103.120
(U) T&E Civilian Pay.	15.914	16.866	16.857
(U) AIR FORCE FLIGHT TEST CENTER (AFFTC)			
(U) Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22A, F-117, F-35, C-17, CV-22, ATIC, ECCM, ABL, Predator, Global Hawk, Test Tanker II, C-20, Next Generation Tanker, etc., communications, information systems, and classified programs. Operates the USAF Test Pilot School.	7.048	30.590	48.588
(U) Utilities	7.417	7.575	7.481
(U) Contractor services (in-house contract support activities)	90.235	94.219	71.911
(U) T&E Civilian Pay	167.427	178.326	180.976
(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 related support. Funds proficiency flying and aircraft infrastructure to support test flying requirements.	86.743	80.071	70.767
(U) AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)			
(U) Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, JASSM-ER, SEEK EAGLE, F-35, AIM9X, AMRAAM, Hellfire, DIRCM, PATRIOT, etc.); C2 (DCAPES, GBS, IBS, GCSS-AF, TBMCS, R/SAOC, Link 16); special operations (CV-22, C-130 variants); and tactical aircraft OFP (A-10 Suite 2+/3,	21.523	26.954	34.287

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Project 06TS

Exhibit R-2a (PE 0605807F)

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	FY 2008	FY 2009	FY 2010
F-15E, F-15C/D).			
(U) Utilities.	5.009	5.211	5.146
(U) Contractor Services (in-house contract support activities).	76.106	75.786	58.699
(U) T&E Civilian Pay	48.161	49.470	54.652
(U) Aircraft flying hours costs include: pilot proficiency flying for sustained readiness; deferred and projected programmed depot maintenance (PDM); engine overhauls; petroleum, oils, and lubricants (POL); depot level reparables (DLR); fuel and related support. Funds proficiency flying and aircraft infrastructure to support test flying requirements.	25.189	34.637	27.178
(U) Total Cost	723.763	754.558	707.631

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Related RDT&E:										
PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment - T&E Support										

(U) **D. Acquisition Strategy**
 Not applicable.

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PE NUMBER: 0605860F
 PE TITLE: Rocket Systems Launch Program (RSLP)

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.804	14.855	14.637	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	23.804	14.855	14.637	0.000	0.000	0.000	0.000	0.000	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 (e.g. reliability of flight testing, maintenance of launch vehicle processing infrastructure) are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). RSLP includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. BMRST provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	19.023	14.895	15.079
(U) Current PBR/President's Budget	23.804	14.855	14.637
(U) Total Adjustments	4.781	-0.040	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.040	
Congressional Increases			
Reprogrammings	4.781		
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY2008: Added \$2.881M for launch support development and nuclear accountable inventory effort, and \$1.9M for aging surveillance.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)			PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program (RSLP)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program (RSLP)	23.804	14.855	14.637	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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 (e.g. reliability of flight testing, maintenance of launch vehicle processing infrastructure) are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). RSLP includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. BMRST provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</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	13.227	9.864	9.970
(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	6.787	4.991	4.667
(U) Expand BMRST system capability to include data encryption and secured command destruct links, downrange reentry support, and continue full Eastern Range certification	3.790		
(U) Total Cost	23.804	14.855	14.637

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) None										

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605860F Rocket Systems Launch Program (RSLP)

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program (RSLP)

(U) D. Acquisition Strategy

N/A

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PE NUMBER: 0605864F
 PE TITLE: Space Test Program

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605864F Space Test Program
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	50.019	47.654	47.215	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	50.019	47.654	47.215	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the sole gateway for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. There were 62 experiments approved by the SERB in 2008.

(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 launch vehicles with margin, and ensures the maximum amount of DoD space research is accomplished with the resources available.

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	47.129	48.072	49.070
(U) Current PBR/President's Budget	50.019	47.654	47.215
(U) Total Adjustments	2.890	-0.418	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.418	
Congressional Increases			
Reprogrammings	3.900		
SBIR/STTR Transfer	-1.010		

(U) **Significant Program Changes:**

FY08: BTR \$5.0M for Communications/Navigation Outage Forecasting System (C/NOFS) solar panels; BTR out \$1.1M.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
06 RDT&E Management Support				0605864F Space Test Program				2617 Free-Flyer Spacecraft Missions		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2617 Free-Flyer Spacecraft Missions	50.019	47.654	47.215	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the sole gateway for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. There were 62 experiments approved by the SERB in 2008.

(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 launch vehicles with margin, 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.

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605864F Space Test Program	PROJECT NUMBER AND TITLE 2617 Free-Flyer Spacecraft Missions
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<u>(U) B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	1.049	1.270	1.420
(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	34.938	24.066	19.804
(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	5.893	15.285	15.236
(U) Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	6.939	5.533	9.564
(U) Conduct studies to explore future launch opportunities, risk reduction activities, and mission planning	1.200	1.500	1.191
(U) Total Cost	50.019	47.654	47.215

<u>(U) C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Related Procurement: N/A										
(U) <u>D. Acquisition Strategy</u> N/A										

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PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&E

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	61.234	46.108	52.409	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
06MC Facility Restoration and Modernization - T&E	61.234	46.108	52.409	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	59.750	46.234	55.305
(U) Current PBR/President's Budget	61.234	46.108	52.409
(U) Total Adjustments	1.484	-0.126	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.126	
Congressional Increases	1.484		
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY08 Congressional Increase: GWOT Supplemental \$1.484M for High Speed Test Track repair at Holloman AFB.

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E				PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
06MC Facility Restoration and Modernization - T&E	61.234	46.108	52.409	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

FY2008 totals include \$1.484M in supplemental GWOT funding.

(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.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program:			
(U) 46TG: The 46 Test Group has various documented test facility restoration/modernization requirements. These requirements include but are not limited to the following categories: road repair, HVAC repairs and replacements, roof repairs and replacements, test track repairs, minor construction and infrastructure repairs to include underground power lines.	2.699	0.814	0.789
(U) 46 TW: The 46th Test Wing has documented over 200 test facility restoration/modernization requirements. These include, but are not limited to, the following categories: range roads, fiber-optic communications grid, roofing, windows, doors, fire protection, erosion control, lightening protection, environmental clean-up, corrosion control, and HVAC. The accomplishments also include minor construction/reconstruction of Eglin Test and Training Range test sites and facilities; evaluation and implementation of storm mitigation efforts to protect critical test sites; fiber optic cable installation and interconnectivity to enhance communications, data transfer, and instrumentation across the range and test facilities.	2.474	2.307	2.349
(U) AEDC: Projects to revitalize the Engine Test Facilities, Propulsion Wind Tunnels, Von Karman Test Facilities, and Space and Missile chambers located at Arnold AFB, TN, the National Full-Scale Aerodynamic Complex (NFAC)	50.903	38.842	45.125

Exhibit R-2a, RDT&E Project Justification	DATE May 2009
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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E	PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E
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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
located at NASA Ames Reserach Center, CA, and Tunnel 9 located at White Oak, Maryland. Projects to restore and modernize the supporting plant facilities and to perform project specific planning and design. Also includes large-scale projects that directly support engine development, the Joint Strike Fighter program, hypersonic programs, the Missile Defense Agency, and spacecraft test and evaluation.			
(U) AFFTC: AFFTC: Test facility restoration/modernization projects for EW, Range, and other T&E facilities include, but are not limited to, roofing, heating & air conditioning, windows, doors, and floors, work area rezoning, transformers and power systems, fire suppression systems, seismic upgrades, and RAM replacement.	4.165	4.145	4.146
(U) Ohio ANG: Internal Base Facility Energy Independence - Wind Turbine	0.993		
(U) Total Cost	61.234	46.108	52.409

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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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PE NUMBER: 0605978F
 PE TITLE: Facility Sustainment - T&E Support

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605978F Facility Sustainment - T&E Support
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.849	29.618	29.683	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
06MR Facility Sustainment - T&E Support	33.849	29.618	29.683	0.000	0.000	0.000	0.000	0.000	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 that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

Budget Activity Justification:
 This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	33.849	28.898	30.486
(U) Current PBR/President's Budget	33.849	29.618	29.683
(U) Total Adjustments	0.000	0.720	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.080	
Congressional Increases		0.800	
Reprogrammings			
SBIR/STTR Transfer			
(U) Significant Program Changes:			
FY09 Congressional Increase: \$800K for Low Profile Arresting Gear at Robins AFB FL			

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0605978F Facility Sustainment - T&E Support			PROJECT NUMBER AND TITLE 06MR Facility Sustainment - T&E Support		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
06MR Facility Sustainment - T&E Support	33.849	29.618	29.683	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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 that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program:			
(U) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.	0.373	0.381	0.332
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.	0.526	0.318	0.276
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN and the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, CA.	28.602	26.994	27.993
(U) Sustainment of test unique infrastructure in Air Force Flight Test Center (AFFTC) EW, Range, and other T&E facilities located at Edwards AFB, CA.	1.168	1.125	1.082
(U) Ohio ANG: Base Facility Energy Independence	3.180		
(U) Low Profile Arresting Gear testing being performed at Robins AFB, GA		0.800	
(U) Total Cost	33.849	29.618	29.683

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06 RDT&E Management Support

PE NUMBER AND TITLE

0605978F Facility Sustainment - T&E Support

PROJECT NUMBER AND TITLE

06MR Facility Sustainment - T&E Support

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0702806F Acquisition and Command Support
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.630	37.014	18.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ACSI Acquisition and Command Support	25.630	37.014	18.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000

This effort has been transferred from BA07 to BA06 in FY09 to properly reflect work performed within this program element.

(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, re-engineering and enabling technologies, integrating robust systems engineering into early acquisition processes, and developing and managing a larger, more relevant technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. Leveraging the Defense Acquisition Performance Assessment, restores stability in Air Force acquisition systems by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. The 554th Electronic Systems Wing, formerly known as Information System Activity Group (ISAG), designs, tests, and evaluates combat support system architectures, operating environments, and computer platforms.

Efforts include:

- Increasing technical and analytical support through training development; independent cost estimating and assessment to help analyze cost/risk growth and create defensible risk analyses for cost, schedule, and technical risks; information technology infrastructure development; and economic, statistical, and engineering analyses of acquisition programs
- Initiating performance measures for capability-based planning constructs, aligning relevant science and technology areas with operational requirements to include systems integration modeling and architecture analysis
- Increasing activities to recruit, develop, and manage the technical workforce, enhancing business and engineering processes to develop leaders to manage the acquisition and engineering transformation and interface with the academic community
- Transforming acquisition review processes to re-establish clean lines of responsibility, authority, and accountability at appropriate levels
- Exploring methods to operate a materiel solution development process that is responsive to COCOM capability needs, aligned with the OSD Joint Task Assignment Process
- Creating an acquisition business systems environment consisting of a foundation of centrally managed and integrated tools augmented by standardized authoritative data to support the Air Force Smart Operations for the 21st Century (AFSO21). Implements Develop and Sustain Warfighting Systems (D&SWS) process improvement across the Air Force further enabling Acquisition Excellence.

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0702806F Acquisition and Command Support

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	22.141	34.428	36.633
(U) Current PBR/President's Budget	25.630	37.014	18.947
(U) Total Adjustments	3.489	2.586	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	3.489	2.800	
SBIR/STTR Transfer		-0.214	
(U) <u>Significant Program Changes:</u>			
FY08 - increase of \$3.489M for Test and Training efforts and IT Infrastructure Development			
FY09 - increase for AF program adjustments			
FY10 - reduced and adjusted for higher Air Force priorities			

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0702806F Acquisition and Command Support			PROJECT NUMBER AND TITLE ACSI Acquisition and Command Support		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
ACSI Acquisition and Command Support	25.630	37.014	18.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Supporting Congressional and SECDEF mandates, program funding provides the framework for Air Force business and acquisition transformation in developing capabilities-based architectures, re-engineering and enabling technologies, integrating robust systems engineering into early acquisition processes, and developing and managing a larger, more relevant technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. Leveraging the Defense Acquisition Performance Assessment, restores stability in Air Force acquisition systems by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. The 554th Electronic Systems Wing, formerly known as Information System Activity Group (ISAG), designs, tests, and evaluates combat support system architectures, operating environments, and computer platforms.

Efforts include:

- Increasing technical and analytical support through training development; independent cost estimating and assessment to help analyze cost/risk growth and create defensible risk analyses for cost, schedule, and technical risks; information technology infrastructure development; and economic, statistical, and engineering analyses of acquisition programs
- Initiating performance measures for capability-based planning constructs, aligning relevant science and technology areas with operational requirements to include systems integration modeling and architecture analysis
- Increasing activities to recruit, develop, and manage the technical workforce, enhancing business and engineering processes to develop leaders to manage the acquisition and engineering transformation and interface with the academic community
- Transforming acquisition review processes to re-establish clean lines of responsibility, authority, and accountability at appropriate levels
- Exploring methods to operate a materiel solution development process that is responsive to COCOM capability needs, aligned with the OSD Joint Task Assignment Process
- Creating an acquisition business systems environment consisting of a foundation of centrally managed and integrated tools augmented by standardized authoritative data to support the Air Force Smart Operations for the 21st Century (AFSO21). Implements Develop and Sustain Warfighting Systems (D&SWS) process improvement across the Air Force further enabling Acquisition Excellence.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Acquisition/engineering process research/cost estimating	4.800	6.300	4.785
(U) Systems integration modeling/architecture analysis	4.037	5.000	3.357
(U) IT infrastructure development	7.221	11.086	4.672
(U) Technical workforce management	9.572	14.628	6.133
(U) Total Cost	25.630	37.014	18.947

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0702806F Acquisition and Command Support

PROJECT NUMBER AND TITLE

ACSI Acquisition and Command Support

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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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PE NUMBER: 0804731F
 PE TITLE: GENERAL SKILL TRAINING

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BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING
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	Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	2.904	0.000	1.450	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4980	Research and Development of Computer Forensic Anaylst Tools	2.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5297	Technical Training Information Systems	0.000	0.000	1.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(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

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	2.904	0.000	1.475
(U) Current PBR/President's Budget	2.904	0.000	1.450
(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>			

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING			PROJECT NUMBER AND TITLE 4980 Research and Development of Computer Forensic Anaylst Tools		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4980 Research and Development of Computer Forensic Anaylst Tools	2.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. Provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. Focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. Effort 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.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplished/Planned Programs			
(U) Next Generation Electronic Media Analysis System	0.731		
(U) Damaged Storage Device Data Recovery Tools	0.600		
(U) Knowledge Management System	0.540		
(U) Vulnerability Assessment Environment (V.A.E.)	0.452		
(U) Fused Analysis System/Data Analysis Tools	0.581		
(U) Total Cost	2.904	0.000	0.000

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement	0.572	0.290	0.298	0.609					Continuing	TBD

(U) D. Acquisition Strategy

All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING			PROJECT NUMBER AND TITLE 5297 Technical Training Information Systems		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5297 Technical Training Information Systems	0.000	0.000	1.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop plans/policies/procedures for cybercrime issues			0.350
(U) Electronic forensics and cyber investigations (Digital evidence processing, special investigation services, etc)			1.100
(U) Total Cost	0.000	0.000	1.450

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

Not applicable

UNCLASSIFIED

PE NUMBER: 1001004F
 PE TITLE: International Activities

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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.903	3.899	3.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4645 International Cooperative Research & Development	3.903	3.899	3.748	0.000	0.000	0.000	0.000	0.000	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, develop materiel solutions to harmonize coalition requirements and build interoperability with our coalition partners. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are international technology assessment teams; space cooperation; specialized working groups; Research Technology Project development; Air Senior National Representative activities; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; overseas R&D liaison offices; bilateral and multilateral staff talks; USAF displays at International Trade Shows to promote cooperation and interoperability activities; 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.

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

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.903	3.899	3.812
(U) Current PBR/President's Budget	3.903	3.899	3.748
(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>			
N/A			

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BUDGET ACTIVITY 06 RDT&E Management Support					PE NUMBER AND TITLE 1001004F International Activities			PROJECT NUMBER AND TITLE 4645 International Cooperative Research & Development		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4645 International Cooperative Research & Development	3.903	3.899	3.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 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, develop materiel solutions to harmonize coalition requirements and build interoperability with our coalition partners. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are international technology assessment teams; space cooperation; specialized working groups; Research Technology Project development; Air Senior National Representative activities; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; overseas R&D liaison offices; bilateral and multilateral staff talks; USAF displays at International Trade Shows to promote cooperation and interoperability activities; 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 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ESEP/APEP - Funds the USAF execution and management oversight of ESEP and APEP agreements. Funds eight to ten field level military and civilian personnel from AFMC Facilities, Product Centers, Test Centers, Logistic Centers, and the Academy for tours at selected European and Asian government laboratories or other institutions.	0.300	0.300	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 in NATO Forums to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF support and participation in OSD bi-lateral Acquisition forums. Funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds USAF efforts to expand existing relationships, technology development activities and interoperability issues with: Australian, Canada, Denmark, France, Germany, India, Israel, Italy, Japan, NATO, Netherlands, Norway, South Korea, Singapore, Spain,	2.328	2.488	2.383

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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u> Sweden, and UK. Funds USAF participation in initiating ICR&D relationships and activities with: Brazil, Poland, Chile, Czech Republic, India, South Africa and Turkey.			
(U) Armaments Cooperation - Funds the USAF's ability to develop and negotiate the increasing number of proposals for ICRD&A bi-lateral and multi-lateral Agreements with key allies. Work will continue on agreements developed, but not signed, during FY09 in the areas of: materials and composites, human effectiveness, robotics, nanotechnology, coalition information sharing, biometrics, virtual munitions design, hypersonics, alternative energy, IED defeat, WMD defeat, distributed mission operations, lasers, unmanned air systems, reconnaissance and surveillance, command and control, capabilities, interoperability and systems level programs.	0.875	0.686	0.750
(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.	0.300	0.300	0.250
(U) International Space Cooperation - Funds research and development activities to provide a foundation upon which to develop operational strategies, concepts of operations, tactics techniques and procedures, and technologies and prototype systems with our allies, which in turn provides foundation for long-term, full spectrum operational cooperation. Space cooperation with our allies enables the USAF access to critical geography for distributed ground systems, and remote test ranges for test and evaluation of space capabilities in electronically challenged environments, as well as joint development and acquisition of space systems.	0.100	0.081	0.065
(U) Cyberspace Cooperation - Funds establishing cooperative relationships with allies in cyberspace missions to ensure interoperability, sharing of information on threats, and developing new capabilities to defeat threats to our critical information systems. Supports integration of air, space, and cyberspace capabilities to create global effects. Cyberspace requires significant research and development efforts and responsiveness to avoid technological surprise.	0.000	0.044	0.000
(U) Total Cost	3.903	3.899	3.748

		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</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>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

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US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, assessed, developed 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.