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**Department of Defense
Fiscal Year (FY) 2011 President's Budget**

February 2010



Air Force

Justification Book Volume 2

Research, Development, Test & Evaluation, Air Force - 3600

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Air Force • President's Budget FY 2011 • RDT&E Program

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Department of the Air Force
 FY 2011 President's Budget
 Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
 Summary
 (Dollars in Thousands)

20 Jan 2010

Summary Recap of Budget Activities	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request
Basic Research	446,388	482,776		482,776	500,473		500,473
Applied Research	1,190,223	1,221,221		1,221,221	1,181,420		1,181,420
Advanced Technology Development	717,735	758,667		758,667	509,305		509,305
Advanced Component Development & Prototypes	2,242,097	1,841,754		1,841,754	1,503,007	16,000	1,519,007
System Development & Demonstration	3,995,427	3,844,675		3,844,675	3,549,475	30,000	3,579,475
RDT&E Management Support	1,484,616	1,062,440	3,291	1,065,731	1,084,374		1,084,374
Operational Systems Development	16,615,291	18,770,188		18,954,548	18,919,248	220,241	19,139,489
Total Research, Development, Test & Eval, AF	26,691,777	27,981,721	187,651	28,169,372	27,247,302	266,241	27,513,543
Summary Recap of FYDP Programs							
Strategic Forces	85,534	731,044		731,044	500,974		500,974
General Purpose Forces	2,315,375	2,467,564		2,467,564	2,542,733	4,443	2,547,176
Intelligence and Communications	2,372,609	2,804,119		2,804,119	2,972,917	6,100	2,979,017
Mobility Forces	563,770	524,219		524,219	544,547	10,325	554,872
Research and Development	9,312,534	8,936,341	3,291	8,939,632	7,938,100	46,000	7,984,100
Central Supply and Maintenance	277,356	312,881		312,881	260,237		260,237
Training Medical and Other	7,443	7,360		7,360	2,336		2,336
Administration and Associated Activities	65,903	106,410		106,410	74,913		74,913
Support of Other Nations	3,789	3,748		3,748	3,764		3,764
Classified Programs	11,687,464	12,088,035	184,360	12,272,395	12,406,781	199,373	12,606,154
Total Research, Development, Test & Eval, AF	26,691,777	27,981,721	187,651	28,169,372	27,247,302	266,241	27,513,543

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 20, 2010 at 14:07:17

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Department of the Air Force
 FY 2011 President's Budget
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 (Dollars in Thousands)

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

Date: 20 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Se
1	0601102F	Defense Research Sciences	01	299,830	328,471		328,471	350,978		350,978	U
2	0601103F	University Research Initiatives	01	133,526	141,524		141,524	136,297		136,297	U
3	0601108F	High Energy Laser Research Initiatives	01	13,032	12,781		12,781	13,198		13,198	U
		Basic Research		446,388	482,776		482,776	500,473		500,473	
4	0602102F	Materials	02	185,583	179,202		179,202	137,273		137,273	U
5	0602201F	Aerospace Vehicle Technologies	02	119,544	138,563		138,563	144,699		144,699	U
6	0602202F	Human Effectiveness Applied Research	02	93,954	93,527		93,527	87,452		87,452	U
7	0602203F	Aerospace Propulsion	02	244,890	221,503		221,503	207,049		207,049	U
8	0602204F	Aerospace Sensors	02	130,902	136,012		136,012	157,497		157,497	U
9	0602601F	Space Technology	02	136,072	119,125		119,125	111,857		111,857	U
10	0602602F	Conventional Munitions	02	56,596	58,044		58,044	61,330		61,330	U
11	0602605F	Directed Energy Technology	02	60,233	105,231		105,231	103,596		103,596	U
12	0602702F	Command Control and Communications	02	114,510							U
13	0602788F	Dominant Information Sciences and Methods	02		116,785		116,785	117,283		117,283	U
14	0602890F	High Energy Laser Research	02	47,939	53,229		53,229	53,384		53,384	U
		Applied Research		1,190,223	1,221,221		1,221,221	1,181,420		1,181,420	
15	0603112F	Advanced Materials for Weapon Systems	03	62,070	67,856		67,856	33,414		33,414	U

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16	0603199F	Sustainment Science and Technology (S&T)	03		2,943		2,943	2,935		2,935	U
17	0603203F	Advanced Aerospace Sensors	03	69,902	52,786		52,786	44,677		44,677	U
18	0603211F	Aerospace Technology Dev/ Demo	03	41,748	88,226		88,226	53,588		53,588	U
19	0603216F	Aerospace Propulsion and Power Technology	03	175,292	192,241		192,241	136,135		136,135	U
20	0603231F	Crew Systems and Personnel Protection Technology	03	35,742							U
21	0603270F	Electronic Combat Technology	03	29,364	32,056		32,056	16,992		16,992	U
22	0603401F	Advanced Spacecraft Technology	03	97,834	98,708		98,708	83,705		83,705	U
23	0603444F	Maui Space Surveillance System (MSSS)	03	36,093	36,661		36,661	5,899		5,899	U
24	0603456F	Human Effectiveness Advanced Technology Development	03		27,390		27,390	24,814		24,814	U
25	0603601F	Conventional Weapons Technology	03	16,771	14,296		14,296	15,755		15,755	U
26	0603605F	Advanced Weapons Technology	03	61,420	44,794		44,794	17,461		17,461	U
27	0603680F	Manufacturing Technology Program	03	54,614	50,502		50,502	39,701		39,701	U
28	0603788F	Battlespace Knowledge Development and Demonstration	03		46,414		46,414	32,382		32,382	U
29	0603789F	C3I Advanced Development	03	32,986							U

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30	0603924F	High Energy Laser Advanced Technology Program	03	3,899	3,794		3,794	1,847		1,847	U
		Advanced Technology Development		717,735	758,667		758,667	509,305		509,305	
31	0603260F	Intelligence Advanced Development	04	6,570	5,809		5,809	5,019		5,019	U
32	0603287F	Physical Security Equipment	04	1,659	3,615		3,615	3,576		3,576	U
33	0603423F	Global Positioning System III - Operational Control Segment	04	289,702							U
34	0603430F	Advanced EHF MILSATCOM (SPACE)	04	460,351	461,380		461,380	351,817		351,817	U
35	0603432F	Polar MILSATCOM (SPACE)	04	221,065	252,071		252,071	164,232		164,232	U
36	0603438F	Space Control Technology	04	86,110	100,951		100,951	45,012	16,000	61,012	U
37	0603742F	Combat Identification Technology	04	28,708	28,799		28,799	26,172		26,172	U
38	0603790F	NATO Research and Development	04	4,241	4,351		4,351	4,372		4,372	U
39	0603791F	International Space Cooperative R&D	04	603	632		632	635		635	U
40	0603830F	Space Protection Program (SPP)	04					8,349		8,349	U
41	0603845F	Transformational SATCOM (TSAT)	04	428,618							U
42	0603850F	Integrated Broadcast Service	04	21,020	20,646		20,646	20,580		20,580	U
43	0603851F	Intercontinental Ballistic Missile	04	58,937	68,097		68,097	66,745		66,745	U

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44	0603854F	Wideband Global SATCOM RDT&E (Space)	04	29,520	70,650		70,650	36,123		36,123	U
45	0603859F	Pollution Prevention	04	13,565	10,396		10,396	2,534		2,534	U
46	0603860F	Joint Precision Approach and Landing Systems	04	7,153	22,953		22,953	13,952		13,952	U
47	0604015F	Next Generation Bomber	04					198,957		198,957	U
48	0604283F	Battle Mgmt Com & Ctrl Sensor Development	04		22,612		22,612				U
49	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	28,310	20,891		20,891	22,389		22,389	U
50	0604330F	Joint Dual Role Air Dominance Missile	04		6,882		6,882	9,799		9,799	U
51	0604337F	Requirements Analysis and Maturation	04		35,533		35,533	34,339		34,339	U
52	0604436F	Next-Generation MILSATCOM Technology Development	04		50,000		50,000				U
53	0604635F	Ground Attack Weapons Fuze Development	04		18,778		18,778	32,513		32,513	U
54	0604796F	Alternative Fuels	04	30,283	73,020		73,020	24,064		24,064	U
55	0604830F	Automated Air-to-Air Refueling	04	9,610	43,158		43,158	85		85	U
56	0604857F	Operationally Responsive Space	04	228,540	124,308		124,308	93,978		93,978	U
57	0604858F	Tech Transition Program	04		9,611		9,611	12,260		12,260	U

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58	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	287,532	386,611		386,611	325,505		325,505	U
		Advanced Component Development & Prot		2,242,097	1,841,754		1,841,754	1,503,007	16,000	1,519,007	
59	0603840F	Global Broadcast Service (GBS)	05	17,475	31,072		31,072	18,171		18,171	U
60	0604222F	Nuclear Weapons Support	05	19,845	41,860		41,860	60,545		60,545	U
61	0604226F	B-1B	05	158,081							U
62	0604233F	Specialized Undergraduate Flight Training	05	11,801	10,862		10,862	8,066		8,066	U
63	0604240F	B-2 Advanced Technology Bomber	05	384,190							U
64	0604270F	Electronic Warfare Development	05	66,321	80,275		80,275	89,966		89,966	U
65	0604280F	Joint Tactical Radio	05					631		631	U
66	0604281F	Tactical Data Networks Enterprise	05		87,444		87,444	102,941	30,000	132,941	U
67	0604287F	Physical Security Equipment	05	51	50		50	50		50	U
68	0604329F	Small Diameter Bomb (SDB)	05	122,568	155,415		155,415	153,505		153,505	U
69	0604421F	Counterspace Systems	05	64,318	63,838		63,838	40,276		40,276	U
70	0604425F	Space Situation Awareness Systems	05	211,266	238,377		238,377	426,525		426,525	U
71	0604429F	Airborne Electronic Attack	05	42,173	11,107		11,107	25,937		25,937	U

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72	0604441F	Space Based Infrared System (SBIRS) High EMD	05	542,404	521,156		521,156	530,047		530,047	U
73	0604443F	Third Generation Infrared Surveillance (3GIRS)	05	953	73,369		73,369				U
74	0604602F	Armament/Ordnance Development	05	12,088	18,671		18,671	6,693		6,693	U
75	0604604F	Submunitions	05	1,719	1,784		1,784	1,622		1,622	U
76	0604617F	Agile Combat Support	05	4,518	11,261		11,261	37,987		37,987	U
77	0604706F	Life Support Systems	05	14,907	14,331		14,331	10,650		10,650	U
78	0604735F	Combat Training Ranges	05	12,241	22,718		22,718	36,905		36,905	U
79	0604740F	Integrated Command & Control Applications (IC2A)	05	9,700	6,910		6,910	10		10	U
80	0604750F	Intelligence Equipment	05	2,282	1,495		1,495	1,364		1,364	U
81	0604800F	Joint Strike Fighter (JSF)	05	1,743,569	2,072,897		2,072,897	883,773		883,773	U
82	0604851F	Intercontinental Ballistic Missile	05		60,010		60,010	71,843		71,843	U
83	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	43,628	46,545		46,545	30,245		30,245	U
84	0605011F	RDT&E for Aging Aircraft	05	5,808							U
85	0605221F	Next Generation Aerial Refueling Aircraft	05	22,629	15,000		15,000	863,875		863,875	U
86	0605229F	CSAR HH-60 Recapitalization	05					12,584		12,584	U
87	0605277F	CSAR-X RDT&E	05	15,000	14,975		14,975				U

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88	0605278F	HC/MC-130 Recap RDT&E	05	11,336	20,582		20,582	15,536		15,536	U
89	0605452F	Joint SIAP Executive Program Office	05		14,877		14,877				U
90	0207434F	Link-16 Support and Sustainment	05	278,961	65,619		65,619				U
91	0207451F	Single Integrated Air Picture (SIAP)	05	49,564	13,399		13,399	1,832		1,832	U
92	0207701F	Full Combat Mission Training	05	77,362	79,807		79,807	57,393		57,393	U
93	0305176F	Combat Survivor Evader Locator	05	12,500							U
94	0401138F	Joint Cargo Aircraft (JCA)	05	16,271	9,353		9,353	26,407		26,407	U
95	0401318F	CV-22	05	17,992	19,640		19,640	18,270		18,270	U
96	0401845F	Airborne Senior Leader C3 (SLC3S)	05	1,906	19,976		19,976	15,826		15,826	U
	System Development & Demonstration			3,995,427	3,844,675		3,844,675	3,549,475	30,000	3,579,475	
97	0604256F	Threat Simulator Development	06	33,951	23,331		23,331	21,245		21,245	U
98	0604759F	Major T&E Investment	06	67,898	67,797		67,797	61,587		61,587	U
99	0605101F	RAND Project Air Force	06	37,674	29,101		29,101	26,752		26,752	U
100	0605502F	Small Business Innovation Research	06	375,035							U
101	0605712F	Initial Operational Test & Evaluation	06	29,085	25,833		25,833	20,665		20,665	U
102	0605807F	Test and Evaluation Support	06	756,327	746,465	3,291	749,756	759,868		759,868	U

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103	0605860F	Rocket Systems Launch Program (SPACE)	06	16,853	14,637		14,637	23,551		23,551	U
104	0605864F	Space Test Program (STP)	06	44,707	46,721		46,721	47,623		47,623	U
105	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	47,339	54,809		54,809	46,327		46,327	U
106	0605978F	Facilities Sustainment - Test and Evaluation Support	06	29,618	29,683		29,683	27,579		27,579	U
107	0606323F	Multi-Service Systems Engineering Initiative	06					18,901		18,901	U
108	0702806F	Acquisition and Management Support	06	41,053	18,865		18,865	24,968		24,968	U
109	0804731F	General Skill Training	06	1,215	1,450		1,450	1,544		1,544	U
110	0909999F	Financing for Cancelled Account Adjustments	06	72							U
111	1001004F	International Activities	06	3,789	3,748		3,748	3,764		3,764	U
		RDT&E Management Support		1,484,616	1,062,440	3,291	1,065,731	1,084,374		1,084,374	
112	0603423F	Global Positioning System III - Operational Control Segment	07		292,000		292,000				U
113	0604263F	Common Vertical Lift Support Platform	07	3,858	4,000		4,000				U
114	0605018F	Air Force Integrated Military Human Resources System (AF-IMHRS)	07					43,300		43,300	U
115	0605024F	Anti-Tamper Technology Executive Agency	07	20,407	47,276		47,276	42,255		42,255	U
117	0101113F	B-52 Squadrons	07	39,835	102,330		102,330	146,096		146,096	U

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118	0101122F	Air-Launched Cruise Missile (ALCM)	07	384	3,652		3,652	3,631		3,631	U
119	0101126F	B-1B Squadrons	07		143,360		143,360	33,234		33,234	U
120	0101127F	B-2 Squadrons	07		407,189		407,189	260,466		260,466	U
121	0101313F	Strat War Planning System - USSTRATCOM	07	17,013	33,746		33,746	28,441		28,441	U
122	0101314F	Night Fist - USSTRATCOM	07	5,136	5,328		5,328	5,359		5,359	U
124	0102325F	Atmospheric Early Warning System	07		9,832		9,832				U
125	0102326F	Region/Sector Operation Control Center Modernization Program	07	23,151	25,589		25,589	23,732		23,732	U
126	0102823F	Strategic Aerospace Intelligence System Activities	07	15	18		18	15		15	U
127	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	29,928	11,968		11,968	10,580		10,580	U
128	0205219F	MQ-9 UAV	07	57,205	93,145		93,145	125,427		125,427	U
129	0207040F	Multi-Platform Electronic Warfare Equipment	07		14,747		14,747	15,574		15,574	U
130	0207131F	A-10 Squadrons	07	3,989	12,197		12,197	5,661		5,661	U
131	0207133F	F-16 Squadrons	07	123,733	142,620		142,620	129,103		129,103	U
132	0207134F	F-15E Squadrons	07	203,816	319,967		319,967	222,677		222,677	U
133	0207136F	Manned Destructive Suppression	07	5,413	9,748		9,748	12,937		12,937	U

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134	0207138F	F-22A Squadrons	07	579,710	569,345		569,345	576,330		576,330	U
135	0207142F	F-35 Squadrons	07					217,561		217,561	U
136	0207161F	Tactical AIM Missiles	07	5,585	5,915		5,915	6,040		6,040	U
137	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	43,633	49,971		49,971	62,922		62,922	U
138	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	07	3,095	2,529		2,529	2,407		2,407	U
139	0207224F	Combat Rescue and Recovery	07					944		944	U
140	0207227F	Combat Rescue - Pararescue	07		2,950		2,950	2,921		2,921	U
141	0207247F	AF TENCAP	07	11,547	11,643		11,643	11,648		11,648	U
142	0207249F	Precision Attack Systems Procurement	07		2,950		2,950	3,017		3,017	U
143	0207253F	Compass Call	07	4,526	13,019		13,019	20,652		20,652	U
144	0207268F	Aircraft Engine Component Improvement Program	07	146,359	139,689		139,689	147,396		147,396	U
145	0207277F	ISR Innovations	07		11,261		11,261				U
146	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	32,131	29,494		29,494	20,000		20,000	U
147	0207410F	Air & Space Operations Center (AOC)	07	95,908	101,587		101,587	93,102		93,102	U
148	0207412F	Control and Reporting Center (CRC)	07	18,688	52,177		52,177	58,313		58,313	U
149	0207417F	Airborne Warning and Control System (AWACS)	07	122,425	175,514		175,514	239,755		239,755	U

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150	0207418F	Tactical Airborne Control Systems	07	1,486							U
151	0207423F	Advanced Communications Systems	07	28,210	73,009		73,009	67,532		67,532	U
153	0207431F	Combat Air Intelligence System Activities	07		1,475		1,475	3,310		3,310	U
154	0207438F	Theater Battle Management (TBM) C4I	07	18,845	19,033		19,033	15,170		15,170	U
155	0207445F	Fighter Tactical Data Link	07	55,069	66,872		66,872	85,492		85,492	U
156	0207446F	Bomber Tactical Data Link	07	21,603							U
157	0207448F	C2ISR Tactical Data Link	07	1,671	1,659		1,659	1,584		1,584	U
158	0207449F	Command and Control (C2) Constellation	07	30,832	30,293		30,293	24,229		24,229	U
159	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	97,625	185,616		185,616	168,917		168,917	U
160	0207590F	Seek Eagle	07	21,355	22,071		22,071	19,263		19,263	U
161	0207601F	USAF Modeling and Simulation	07	28,062	27,161		27,161	21,638		21,638	U
162	0207605F	Wargaming and Simulation Centers	07	3,752	7,018		7,018	6,020		6,020	U
163	0207697F	Distributed Training and Exercises	07	6,918	6,740		6,740	2,863		2,863	U
164	0208006F	Mission Planning Systems	07	94,589	81,577		81,577	79,112	4,443	83,555	U
165	0208021F	Information Warfare Support	07	11,780	13,779		13,779	2,294		2,294	U
166	0208059F	Cyber Command Activities	07					1,117		1,117	U

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173	0301400F	Space Superiority Intelligence	07					10,006		10,006	U
174	0302015F	E-4B National Airborne Operations Center (NAOC)	07	158	26,107		26,107	12,532		12,532	U
175	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	81,095	72,360		72,360	78,784		78,784	U
176	0303140F	Information Systems Security Program	07	162,815	165,401		165,401	140,017		140,017	U
177	0303141F	Global Combat Support System	07	8,613	3,319		3,319	3,393		3,393	U
178	0303150F	Global Command and Control System	07	3,124	6,279		6,279	3,055		3,055	U
179	0303158F	Joint Command and Control Program (JC2)	07	3,140				2,157		2,157	U
180	0303601F	MILSATCOM Terminals	07	277,501	253,818		253,818	186,582		186,582	U
182	0304260F	Airborne SIGINT Enterprise	07	170,714	166,989		166,989	149,268		149,268	U
185	0305099F	Global Air Traffic Management (GATM)	07	10,584	5,654		5,654	5,708		5,708	U
186	0305103F	Cyber Security Initiative	07	2,020	2,065		2,065	2,030		2,030	U
187	0305105F	DoD Cyber Crime Center	07					279		279	U
188	0305110F	Satellite Control Network (SPACE)	07	54,547	20,825		20,825	21,667		21,667	U
189	0305111F	Weather Service	07	45,918	33,291		33,291	32,373		32,373	U
190	0305114F	Air Traffic Control, Approach, and Landing System (ATCALS)	07	8,796	11,313		11,313	33,268		33,268	U

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191	0305116F	Aerial Targets	07	10,970	54,807		54,807	63,573		63,573	U
194	0305128F	Security and Investigative Activities	07	1,962	742		742	469		469	U
196	0305146F	Defense Joint Counterintelligence Activities	07	39	39		39	40		40	U
198	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	121,798	137,163		137,163	165,936		165,936	U
199	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	86,648	51,197		51,197	34,471		34,471	U
201	0305173F	Space and Missile Test and Evaluation Center	07	1,920	3,593		3,593	4,572		4,572	U
202	0305174F	Space Warfare Center	07	2,890	2,961		2,961	2,929		2,929	U
203	0305182F	Spacelift Range System (SPACE)	07	13,322	9,915		9,915	9,933		9,933	U
204	0305193F	Intelligence Support to Information Operations (IO)	07	3,627	2,240		2,240	1,254		1,254	U
205	0305205F	Endurance Unmanned Aerial Vehicles	07		48,736		48,736				U
206	0305206F	Airborne Reconnaissance Systems	07	111,170	145,413		145,413	168,963		168,963	U
207	0305207F	Manned Reconnaissance Systems	07	17,811	14,846		14,846	15,337		15,337	U
208	0305208F	Distributed Common Ground/Surface Systems	07	75,251	82,404		82,404	93,398		93,398	U
209	0305219F	MQ-1 Predator A CAV	07	38,605	35,160		35,160	28,913		28,913	U

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210	0305220F	RQ-4 UAV	07	279,164	317,268		317,268	251,318		251,318	U
211	0305221F	Network-Centric Collaborative Targeting	07	8,783	8,160		8,160	7,267	6,100	13,367	U
212	0305265F	GPS III Space Segment	07	379,046	423,466		423,466	828,171		828,171	U
213	0305614F	JSpOC Mission System	07		136,271		136,271	132,706		132,706	U
214	0305887F	Intelligence Support to Information Warfare	07	5,251	5,220		5,220	5,512		5,512	U
215	0305913F	NUDET Detection System (SPACE)	07	41,102	83,846		83,846	72,199		72,199	U
216	0305924F	National Security Space Office	07	7,512				10,630		10,630	U
217	0305940F	Space Situation Awareness Operations	07	15,579	53,805		53,805	43,838		43,838	U
218	0307141F	Information Operations Technology Integration & Tool Development	07	18,042	29,788		29,788	21,912		21,912	U
219	0308699F	Shared Early Warning (SEW)	07	3,060	3,047		3,047	2,952		2,952	U
220	0401115F	C-130 Airlift Squadron	07	156,010	109,250		109,250	113,107		113,107	U
221	0401119F	C-5 Airlift Squadrons (IF)	07	110,191	85,266		85,266	58,990		58,990	U
222	0401130F	C-17 Aircraft (IF)	07	182,754	161,855		161,855	177,212		177,212	U
223	0401132F	C-130J Program	07	25,190	30,019		30,019	26,770		26,770	U
224	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	22,490	26,784		26,784	17,227		17,227	U
225	0401218F	KC-135s	07	11,917	10,220		10,220	20,453		20,453	U
226	0401219F	KC-10s	07	3,800	35,586		35,586	56,669		56,669	U

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227	0401314F	Operational Support Airlift	07		4,916		4,916	4,988		4,988	U
228	0401315F	C-STOL Aircraft	07					1,283		1,283	U
229	0401839F	Air Mobility Tactical Data Link	07	7,700							U
230	0408011F	Special Tactics / Combat Control	07	7,549	11,354		11,354	7,345	10,325	17,670	U
231	0702207F	Depot Maintenance (Non-IF)	07	1,489	1,508		1,508	1,514		1,514	U
232	0702976F	Facilities Restoration & Modernization - Logistics	07	44,778	8,000		8,000				U
233	0708012F	Logistics Support Activities	07	23,042							U
234	0708610F	Logistics Information Technology (LOGIT)	07	144,861	246,250		246,250	227,614		227,614	U
235	0708611F	Support Systems Development	07	22,133	38,258		38,258	6,141		6,141	U
236	0804743F	Other Flight Training	07	2,000	805		805	667		667	U
237	0804757F	Joint National Training Center	07	3,115	3,220		3,220	9		9	U
238	0804772F	Training Developments	07		1,769		1,769				U
239	0808716F	Other Personnel Activities	07	1,113	116		116	116		116	U
240	0901202F	Joint Personnel Recovery Agency	07	5,590	11,376		11,376	6,107		6,107	U
241	0901212F	Service-Wide Support (Not Otherwise Accounted For)	07	3,648							U

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242	0901218F	Civilian Compensation Program	07	14,647	8,174		8,174	7,811		7,811	U
243	0901220F	Personnel Administration	07	18,947	30,969		30,969	11,179		11,179	U
244	0901538F	Financial Management Information Systems Development	07	22,999	55,891		55,891	49,816		49,816	U
9999	9999999999	Classified Programs		11,687,464	12,088,035	184,360	12,272,395	12,406,781	199,373	12,606,154	U
		Operational Systems Development		16,615,291	18,770,188		18,954,548	18,919,248	220,241	19,139,489	
Total Research, Development, Test & Eval, AF				26,691,777	27,981,721	187,651	28,169,372	27,247,302	266,241	27,513,543	

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18	03	0603211F	Aerospace Technology Dev/Demo.....	Volume 1 - 509
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BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

0602601F Space Technology

REMARKS

In FY 2011, increases in funding are due the movement of technologies from PE 0603401F, Advanced Spacecraft Technology, to this PE in order to better align the technology readiness levels of these efforts.

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

0603401F Advanced Spacecraft Technology
 0603216F Aerospace Propulsion and Power Technology
 0603112F Advanced Materials for Weapon Systems

In FY 2011, Changes in funding are due to some technology development efforts being moved to PE 0602601F, Space Technology, in order to better align the technology readiness levels of these efforts.
 In FY 2011, The funding in this project 63681B decreases due to planned taper of turbine engine technologies.
 In FY 2011, funds from Project 2100 have been moved to Program Element 0602102F BPAC 4348 to increase emphasis on applied research.

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

0603438F Space Control Technology
 0604015F Long Range Strike and Industrial Base
 0603830F Space Protection Program

In FY 2011 OCO requested, \$16.000M, replaces and upgrades equipment left with Army and Air Force counterspace units in Operation Iraqi Freedom (OIF). This technology was developed by the Rapid Reaction Squadron in response to numerous warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs) for OIF.
 In FY 2011 PE 0604015F is a new start effort.
 In FY 2011, new Program Element 0306830F. All Space Protection Program funding and content were transferred from PE 0630438F, Space Control Technology, and PE 0305940F, Space Situational Awareness, in FY 2011.

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

0604706F Life Support Systems
 0604281F TACTICAL DATA NETWORKS ENTERPRISE
 0605221F KC-X, Next Generation Aerial Refueling Aircraft

In FY 2011, Project 65412A, Life Support Systems, includes new starts for flash blindness goggles and aircrew flight equipment.
 In FY 2011 funding totals include \$30M requested for Overseas Contingency Operations.
 In FY 2011 PB restructures the KC-X budget to account for the fact-of-life delays for the recompetition and planned summer 2010 contract award.

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

0606323F Multi-Service Systems Engineering

In FY 2011, this is a new PE. In FY 2010, PE 0605452F Joint Single Integrated Air Picture (SIAP) Program Executive Office efforts come to a close. This new PE (0606323F) includes follow-on efforts under the Joint Integrated Air and Missile Defense (JIAMD) initiative. FY 2011 efforts in this PE include Multi-Service Systems Engineering (MSSE), Joint Track Manager Capability (JTMC) demonstrations, and Joint Operational requirements definition.

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

0208021F Information Warfare Support

In FY 2011, Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt efforts transferred to PE 0310400F, Space Superiority Intelligence for proper execution in AFSPC.

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (By BUDGET ACTIVITY)

		REMARKS
0208006F	Mission Planning Systems	In FY 2011, Project 673858, Mission Planning Systems, efforts were transferred to PE 0208006F, Mission Planning Systems, Project 675302, Mobility Air Forces Planning Systems (previously titled Precision Aerial Delivery System) and Project 675380, Combat Air Forces Planning Systems, in order to more accurately group and reflect the products being developed within the program. FY 2011 funding totals include \$4.443 for Overseas Contingency Operations (OCO) FY 2011 - Project 675365 is new in FY11 to provide enhanced funds tracking and accountability for Engine CIP support of F-35 propulsion systems. Engine CIP for all other AF aircraft propulsion programs is accomplished within Project 671012.
0207268F	Aircraft Engine Component Improvement Program (CIP)	
0207136F	Manned Destructive Suppression	In FY 2011, this effort contains a new start for P3I R7 Study Effort for Next Phase.
0207134F	F-15E SQUADRONS	In FY 2011, the F-15 program has a new start: F-15C/D Advanced Display Core Processor (ADCP+)with Vertical Situation Display to replace obsolete 25 MHz Central Computers.
0305221F	Network Centric Collaborative Targeting	In FY 2011 funding totals include \$6.1M for the Overseas Contingency Operations (OCO) Supplemental Request to develop a Network Centric Collaborative Targeting (NCCT) Core Technology Ground Moving Target Indicator (GMTI) / Signals Intelligence (SIGINT) Correlator. A GMTI / SIGINT correlator for the NCCT fusion engine supports OCO real-time and forensic operations, accelerates High-Side (classified) message architecture to network OCO relevant sensor systems, and directly supports tactics, techniques and procedures (TTP) development for rapid operator use.
0301400F	Mission Planning Systems	In FY 2011, Project Number 670374, Electronic Combat Spt, C3 Protection/Multi-Mission Technology and Spt, funding and content were transferred from PE 0208021F, Information Warfare Support.
0207142F	Joint Strike Fighter Squadrons	In FY 2011, PE0207142F is a new PE for Joint Strike Fighter (JSF). PE0604800F is the primary RDT&E funding for JSF.
0208021F	Information Warfare Support	In FY 2011, Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt efforts transferred to PE 0301400F, Space Superiority Intelligence for proper execution in AFSPC.
0408011F	SPECIAL TACTICS/COMBAT CONTROL	In FY 2011 funding totals include \$10.325M requested for Overseas Contingency Operations.
0207268F	Aircraft Engine Component Improvement Program (CIP)	In FY 2011, Project 675365 is new providing enhanced funds tracking and accountability for F-35 propulsion systems.
0301400F	SPACE SUPERIORITY INTELLIGENCE	In FY 2011, Project Number 67A051, Space Superiority - Advanced Intelligence Systems content and funding were transferred from PE 0208021F, Information Warfare Support, in order to focus specific attention on the Space Superiority Intelligence requirements.

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

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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
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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

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**Department of Defense
Fiscal Year (FY) 2011 President's Budget**

February 2010



Air Force

Justification Book Volume 2

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Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 04: Advanced Component Development & Prototypes (ACD&P)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
58	04	0305178F	National Polar-Orbiting Op Env Satellite	287.532	386.611	325.505	0.000	325.505
31	04	0603260F	Intelligence Advanced Development	6.570	5.809	5.019	0.000	5.019
32	04	0603287F	Physical Security Equipment	1.659	3.615	3.576	0.000	3.576
33	04	0603423F	Global Positioning System III - Operational Control Segment	289.702	292.000	0.000	0.000	0.000
34	04	0603430F	Advanced (EHF MILSATCOM (Space)	460.351	461.380	351.817	0.000	351.817
35	04	0603432F	Polar MILSATCOM (Space)	221.065	252.071	164.232	0.000	164.232
36	04	0603438F	Space Control Technology	86.110	100.951	45.012	16.000	61.012
37	04	0603742F	Combat Identification Technology	28.708	28.799	26.172	0.000	26.172
38	04	0603790F	NATO Cooperative R&D	4.241	4.351	4.372	0.000	4.372
39	04	0603791F	International Space Cooperative R&D	0.603	0.632	0.635	0.000	0.635
40	04	0603830F	Space Protection Program	0.000	0.000	8.349	0.000	8.349
41	04	0603845F	Transformational SATCOM (TSAT)	428.618	0.000	0.000	0.000	0.000
42	04	0603850F	Integrated Broadcast Service (DEM/VAL)	21.020	20.646	20.580	0.000	20.580
43	04	0603851F	ICBM - DEM/VAL	58.937	68.097	66.745	0.000	66.745
44	04	0603854F	Wideband MILSATCOM (Space)	29.520	70.650	36.123	0.000	36.123
45	04	0603859F	Pollution Prevention	13.565	10.396	2.534	0.000	2.534
46	04	0603860F	Joint Precision Approach and Landing System	7.153	22.953	13.952	0.000	13.952
47	04	0604015F	Long Range Strike	0.000	0.000	198.957	0.000	198.957

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Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 04: Advanced Component Development & Prototypes (ACD&P)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
48	04	0604283F	BMC2 Sensor Development	0.000	22.612	0.000	0.000	0.000
49	04	0604327F	Hardened Target Munitions	28.310	20.891	22.389	0.000	22.389
50	04	0604330F	Joint Dual-Role Air Dominance Missile (JDRADM)	0.000	6.882	9.799	0.000	9.799
51	04	0604337F	Requirements Analysis and Maturation	0.000	35.533	34.339	0.000	34.339
52	04	0604436F	Next-Generation MILSATCOM Technology	0.000	50.000	0.000	0.000	0.000
53	04	0604635F	Ground Attack Weapons Fuze Development	0.000	18.778	32.513	0.000	32.513
54	04	0604796F	Alternative Fuels	30.283	73.020	24.064	0.000	24.064
55	04	0604830F	Automated Air-to-Air Refueling	9.610	43.158	0.085	0.000	0.085
56	04	0604857F	Operationally Responsive Space	228.540	124.308	93.978	0.000	93.978
57	04	0604858F	Technology Transition Program.	0.000	9.611	12.260	0.000	12.260
Total: Advanced Component Development & Prototypes (ACD&P)				2,242.097	2,133.754	1,503.007	16.000	1,519.007

BA# 05: Development & Demonstration (SDD)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
90	05	0207434F	Link 16 Support and Sustainment	278.961	65.619	0.000	0.000	0.000

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Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 05: Development & Demonstration (SDD)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
91	05	0207451F	Single Integrated Air Picture (SIAP)	49.564	13.399	1.832	0.000	1.832
92	05	0207701F	Full Combat Mission Training	77.362	79.807	57.393	0.000	57.393
93	05	0305176F	Combat Survivor Evader Locator	12.500	0.000	0.000	0.000	0.000
94	05	0401138F	Joint Cargo Aircraft	16.271	9.353	26.407	0.000	26.407
95	05	0401318F	CV-22	17.992	19.640	18.270	0.000	18.270
96	05	0401845F	SLC3S-A (Senior Leader C3S)	1.906	19.976	15.826	0.000	15.826
59	05	0603840F	Global Broadcast Service (GBS)	17.475	31.072	18.171	0.000	18.171
60	05	0604222F	Nuclear Weapons Support	19.845	41.860	60.545	0.000	60.545
61	05	0604226F	B-1B	158.081	0.000	0.000	0.000	0.000
62	05	0604233F	Specialized Undergraduate Pilot Training	11.801	10.862	8.066	0.000	8.066
63	05	0604240F	B-2 Advanced Technology Bomber	384.190	0.000	0.000	0.000	0.000
64	05	0604270F	EW Development	66.321	80.275	89.966	0.000	89.966
65	05	0604280F	JOINT TACTICAL RADIO SYSTEMS (JTRS)	0.000	0.000	0.631	0.000	0.631
66	05	0604281F	TACTICAL DATA NETWORKS ENTERPRISE	0.000	87.444	102.941	30.000	132.941
67	05	0604287F	Physical Security Equipment	0.051	0.050	0.050	0.000	0.050
68	05	0604329F	Small Diameter Bomb	122.568	155.415	153.505	0.000	153.505
69	05	0604421F	Counterspace Systems	64.318	63.838	40.276	0.000	40.276
70	05	0604425F	Space Situation Awareness Systems	211.266	238.377	426.525	0.000	426.525

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Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 05: Development & Demonstration (SDD)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
71	05	0604429F	AIRBORNE ELECTRONIC ATTACK	42.173	11.107	25.937	0.000	25.937
72	05	0604441F	Space Based Infrared Systems (SBIRS) High EMD	542.404	521.156	530.047	0.000	530.047
73	05	0604443F	Third Generation Infrared Surveillance (3GIRS)	0.953	73.369	0.000	0.000	0.000
74	05	0604602F	Armament/Ordnance Development	12.088	18.671	6.693	0.000	6.693
75	05	0604604F	Submunitions	1.719	1.784	1.622	0.000	1.622
76	05	0604617F	Agile Combat Support	4.518	11.261	37.987	0.000	37.987
77	05	0604706F	Life Support Systems	14.907	14.331	10.650	0.000	10.650
78	05	0604735F	Combat Training Ranges	12.241	22.718	36.905	0.000	36.905
79	05	0604740F	Integrated Command & Control Applications	9.700	6.910	0.010	0.000	0.010
80	05	0604750F	Intelligence Equipment	2.282	1.495	1.364	0.000	1.364
81	05	0604800F	Joint Strike Fighter EMD	1,743.569	2,072.897	883.773	0.000	883.773
82	05	0604851F	ICBM - EMD	0.000	60.010	71.843	0.000	71.843
83	05	0604853F	Evolved Expendable Launch Vehicle - EMD	43.628	46.545	30.245	0.000	30.245
84	05	0605011F	RDT&E For Aging Aircraft	5.808	0.000	0.000	0.000	0.000
85	05	0605221F	KC-X, Next Generation Aerial Refueling Aircraft	22.629	15.000	863.875	0.000	863.875
86	05	0605229F	CSAR HH-60 Recapitalization	0.000	0.000	12.584	0.000	12.584
87	05	0605277F	CSAR-X	15.000	14.975	0.000	0.000	0.000
88	05	0605278F	HC/MC-130 Recap	11.336	20.582	15.536	0.000	15.536

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Air Force • President's Budget FY 2011 • RDT&E Program

Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 05: Development & Demonstration (SDD)

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
89	05	0605452F	Joint SIAP Program Executive Office	0.000	14.877	0.000	0.000	0.000
Total: Development & Demonstration (SDD)				3,995.427	3,844.675	3,549.475	30.000	3,579.475

BA# 06: RDT&E Management Support

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
97	06	0604256F	Threat Simulator Development	33.951	23.331	21.245	0.000	21.245
98	06	0604759F	Major T&E Investment	67.898	67.797	61.587	0.000	61.587
99	06	0605101F	RAND Project Air Force	37.674	29.101	26.752	0.000	26.752
101	06	0605712F	Initial Operational Test & Evaluation	29.085	25.833	20.665	0.000	20.665
102	06	0605807F	Test and Evaluation Support	756.327	749.756	759.868	0.000	759.868
103	06	0605860F	Rocket Systems Launch Program (RSLP)	16.853	14.637	23.551	0.000	23.551
104	06	0605864F	Space Test Program	44.707	46.721	47.623	0.000	47.623
105	06	0605976F	Facility Restoration and Modernization - T&E	47.339	54.809	46.327	0.000	46.327
106	06	0605978F	Facility Sustainment - T&E Support	29.618	29.683	27.579	0.000	27.579
107	06	0606323F	Multi-Service Systems Engineering	0.000	0.000	18.901	0.000	18.901

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Exhibit R-1

(Listing by Budget Activity, then Program Element Number)

BA# 06: RDT&E Management Support

Cost (\$ in Millions)

Line#	BA#	PE#	PE Title	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
108	06	0702806F	Acquisition and Command Support	41.053	18.865	24.968	0.000	24.968
109	06	0804731F	GENERAL SKILL TRAINING	1.215	1.450	1.544	0.000	1.544
110	06	0909990F	Cancelled/Upward Obligation Adjustments	0.072	0.000	0.000	0.000	0.000
111	06	1001004F	International Activities	3.789	3.748	3.764	0.000	3.764
Total: RDT&E Management Support				1,109.581	1,065.731	1,084.374	0.000	1,084.374

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	6.570	5.809	5.019	0.000	5.019	5.091	5.173	5.250	5.327	Continuing	Continuing
643479: <i>Advanced Sensor Exploitation</i>	1.830	1.829	1.833	0.000	1.833	1.841	1.842	1.870	1.897	Continuing	Continuing
643480: <i>Automated Imagery Exploitation</i>	2.446	0.911	0.904	0.000	0.904	0.922	0.945	0.959	0.973	Continuing	Continuing
643481: <i>Knowledge Based Tech For Intelligence</i>	1.577	1.557	1.564	0.000	1.564	1.601	1.659	1.683	1.709	Continuing	Continuing
643482: <i>Science & Tech Intelligence Methodology</i>	0.717	1.512	0.718	0.000	0.718	0.727	0.727	0.738	0.748	Continuing	Continuing

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 Air Force (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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
3600: <i>Research, Development, Test & Evaluation, Air Force</i>	PE 0603260F: <i>Intelligence Advanced Development</i>
BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	6.570	5.009	0.000	0.000	0.000
Current President's Budget	6.570	5.809	5.019	0.000	5.019
Total Adjustments	0.000	0.800	5.019	0.000	5.019
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.800	5.019	0.000	5.019

Congressional Add Details (\$ in Millions, and Includes General Reductions)

	<u>FY 2009</u>	<u>FY 2010</u>
Project: 643480: Automated Imagery Exploitation		
Congressional Add: <i>Completed Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE)</i>	1.600	0.000
Congressional Add Subtotals for Project: 643480	1.600	0.000
Project: 643482: Science & Tech Intelligence Methodology		
Congressional Add: <i>Initiate Multi-Lingual Text Mining Platform for Intel Analysts (MTMPIA)</i>	0.000	0.800
Congressional Add Subtotals for Project: 643482	0.000	0.800
Congressional Add Totals for all Projects	1.600	0.800

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>				PROJECT 643479: <i>Advanced Sensor Exploitation</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
643479: <i>Advanced Sensor Exploitation</i>	1.830	1.829	1.833	0.000	1.833	1.841	1.842	1.870	1.897	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue Ubiquitous Collaboration <i>FY 2009 Accomplishments:</i> In FY2009: Continue Ubiquitous Collaboration	0.872	1.829	1.133	0.000	1.133

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643479: <i>Advanced Sensor Exploitation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY2011: Initiate Smart Target Folders					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	1.830	1.829	1.833	0.000	1.833

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (684): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 project are awarded after full and open competition.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643479: <i>Advanced Sensor Exploitation</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ubiquitous Collaboration	C/TBD	Chiliad, ISS Washington DC and Dolphin/ITT: Rome, NY	1.429	1.829	Nov 2009	1.133	Nov 2010	0.000		1.133	Continuing	Continuing	Continuing
Semi-Autonomous Intelligence Fusion	C/TBD	Dynetics Dayton, OH	0.958	0.000		0.000		0.000		0.000	0.000	0.958	0.958
Initiate Smart Target Folders	C/TBD	TBD TBD	0.000	0.000		0.700	Nov 2010	0.000		0.700	Continuing	Continuing	Continuing
Subtotal			2.387	1.829		1.833		0.000		1.833			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.387	1.829	1.833	0.000	1.833			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

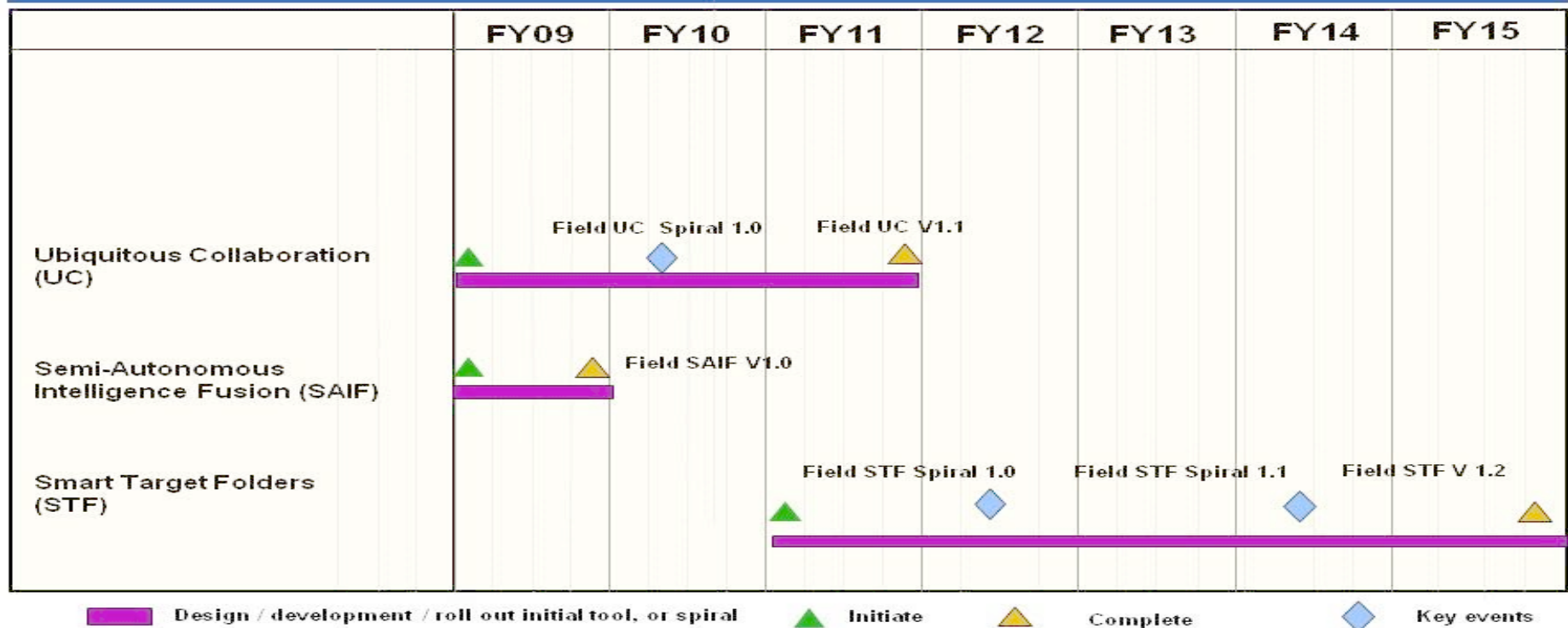
PE 0603260F: *Intelligence Advanced Development*

PROJECT

643479: *Advanced Sensor Exploitation*



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



PB11 R-Docs

Depicted by installation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643479: <i>Advanced Sensor Exploitation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue Ubiquitous Collaboration	1	2009	4	2011
Completed Semi-Autonomous Intelligence Fusion (a.k.a. Dynamic Models)	1	2009	4	2009
Initiate Smart Target Folders	1	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
643480: <i>Automated Imagery Exploitation</i>	2.446	0.911	0.904	0.000	0.904	0.922	0.945	0.959	0.973	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Completed Multi-View Toolkit for Imagery Assessment and Exploitation <i>FY 2009 Accomplishments:</i> In FY2009: Completed Multi-View Toolkit for Imagery Assessment and Exploitation <i>FY 2010 Plans:</i> In FY2010: N/A <i>FY 2011 Base Plans:</i> In FY2011: N/A	0.546	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Initiate Emitter Location Systems Modeling (ELSM) <i>FY 2009 Accomplishments:</i> In FY2009: N/A <i>FY 2010 Plans:</i> In FY2010: N/A <i>FY 2011 Base Plans:</i> In FY2011: Initiate Emitter Location Systems Modeling (ELSM) <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		0.000	0.000	0.200	0.000	0.200
MAJOR THRUST: Initiate Rapid Electronic Attack Assessment For Protection, Exploitation, and Reprogramming (REAPER) <i>FY 2009 Accomplishments:</i> In FY2009: N/A <i>FY 2010 Plans:</i> In FY2010: N/A <i>FY 2011 Base Plans:</i> In FY2011: Initiate Rapid Electronic Attack Assessment For Protection, Exploitation, and Reprogramming (REAPER) <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		0.000	0.000	0.200	0.000	0.200
Accomplishments/Planned Programs Subtotals		0.846	0.911	0.904	0.000	0.904

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Add: Completed Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE) <i>FY 2009 Accomplishments:</i> In FY2009: Completed Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE) <i>FY 2010 Plans:</i> In FY2010: N/A	1.600	0.000
Congressional Adds Subtotals	1.600	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (954): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Multi-View Toolkit for Imagery Assessment and Exploitation	C/CPFF	PAR Government Systems Corp. New Hartford, NY	1.833	0.000		0.000		0.000		0.000	0.000	1.833	1.833
Persistent Surveillance	C/CPFF	ITT Rochester, NY	0.622	0.330	Nov 2009	0.230	Nov 2010	0.000		0.230	Continuing	Continuing	Continuing
Digital Library Input Processing (DLIPS)	C/TBD	TBD TBD	0.000	0.581	Feb 2010	0.274	Feb 2011	0.000		0.274	Continuing	Continuing	Continuing
Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE) - Cong Add	C/CPFF	ITT White Plains, NY	1.600	0.000		0.000		0.000		0.000	0.000	1.600	1.600
Emitter Location Systems Modeling (ELSM)	C/TBD	TBD TBD	0.000	0.000		0.200		0.000		0.200	Continuing	Continuing	Continuing
REAPER	C/TBD	TBD TBD	0.000	0.000		0.200		0.000		0.200	Continuing	Continuing	Continuing
Subtotal			4.055	0.911		0.904		0.000		0.904			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.055	0.911	0.904	0.000	0.904			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

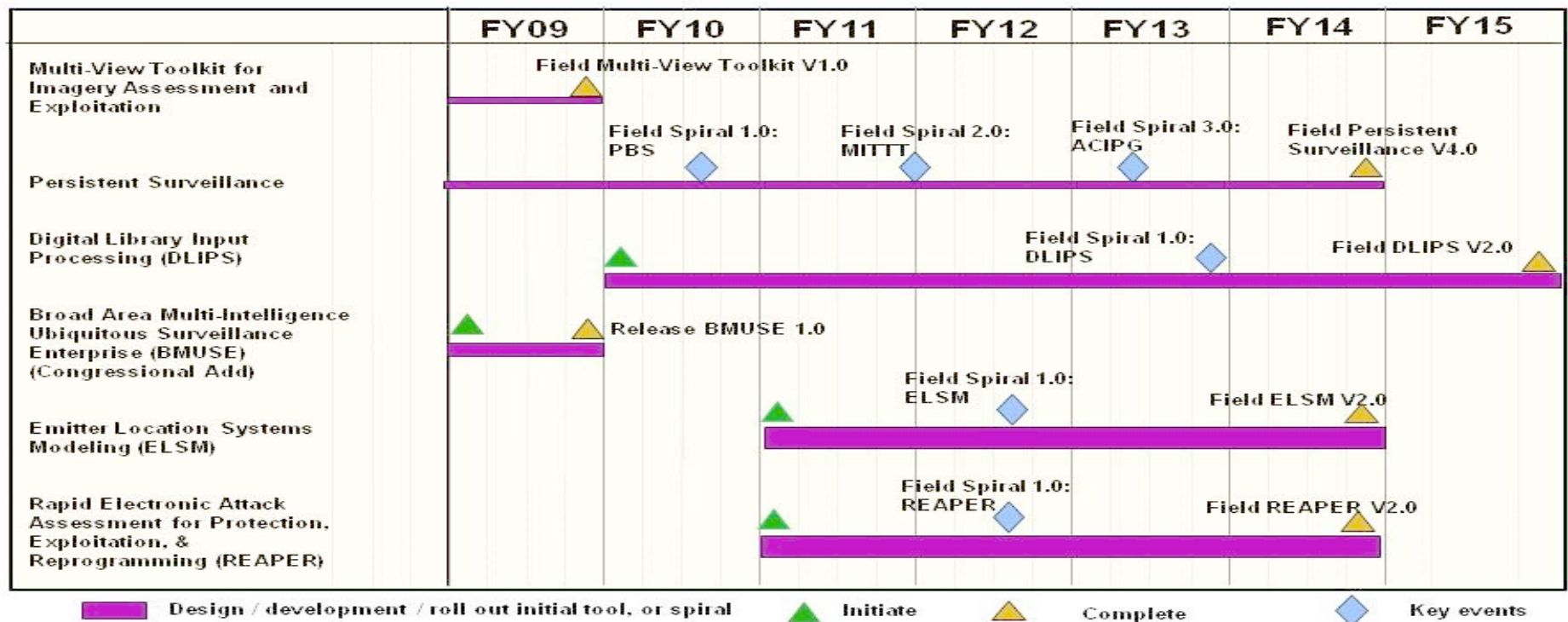
PE 0603260F: *Intelligence Advanced Development*

PROJECT

643480: *Automated Imagery Exploitation*



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



PB11 R-Docs

Depicted by installation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643480: <i>Automated Imagery Exploitation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Completed Multi-View Toolkit for Imagery Assessment and Exploitation	1	2009	4	2009
Continue Persistent Surveillance	1	2009	4	2011
Continue Digital Library Input Processing (DLIPS)	1	2010	4	2011
Initiated / Completed Broad Area Multi-Intelligence Ubiquitous Surveillance Enterprise (BMUSE) (FY09 Congressional Add)	1	2009	4	2009
Initiate ELSM	1	2011	4	2011
Initiate REAPER	1	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>				PROJECT 643481: <i>Knowledge Based Tech For Intelligence</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
643481: <i>Knowledge Based Tech For Intelligence</i>	1.577	1.557	1.564	0.000	1.564	1.601	1.659	1.683	1.709	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue Dynamic ISR for Non-Traditional Adversarial Methods <i>FY 2009 Accomplishments:</i> In FY2009: Continue Dynamic ISR for Non-Traditional Adversarial Methods <i>FY 2010 Plans:</i> In FY2010: Continue Dynamic ISR for Non-Traditional Adversarial Methods <i>FY 2011 Base Plans:</i> In FY2011: Continue Dynamic ISR for Non-Traditional Adversarial Methods	0.621	0.547	1.564	0.000	1.564

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643481: <i>Knowledge Based Tech For Intelligence</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Complete Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI) <i>FY 2009 Accomplishments:</i> In FY2009: Complete Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI) <i>FY 2010 Plans:</i> In FY2010: Complete Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI) <i>FY 2011 Base Plans:</i> In FY2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		0.956	1.010	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		1.577	1.557	1.564	0.000	1.564

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643481: <i>Knowledge Based Tech For Intelligence</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (1194): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643481: <i>Knowledge Based Tech For Intelligence</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dynamic ISR for Non-Traditional Adversarial Methods	C/TBD	Northrop-Grumman Corp Bellevue, NE	1.134	0.547	Nov 2009	1.564	Nov 2010	0.000		1.564	Continuing	Continuing	Continuing
Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI)	C/TBD	ISS Colorado Springs, CO	0.956	1.010	Jan 2010	0.000		0.000		0.000	0.000	1.966	2.066
Subtotal			2.090	1.557		1.564		0.000		1.564			

Remarks
Both are IDIQ

Project Cost Totals	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	2.090	1.557		1.564	0.000	1.564		

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

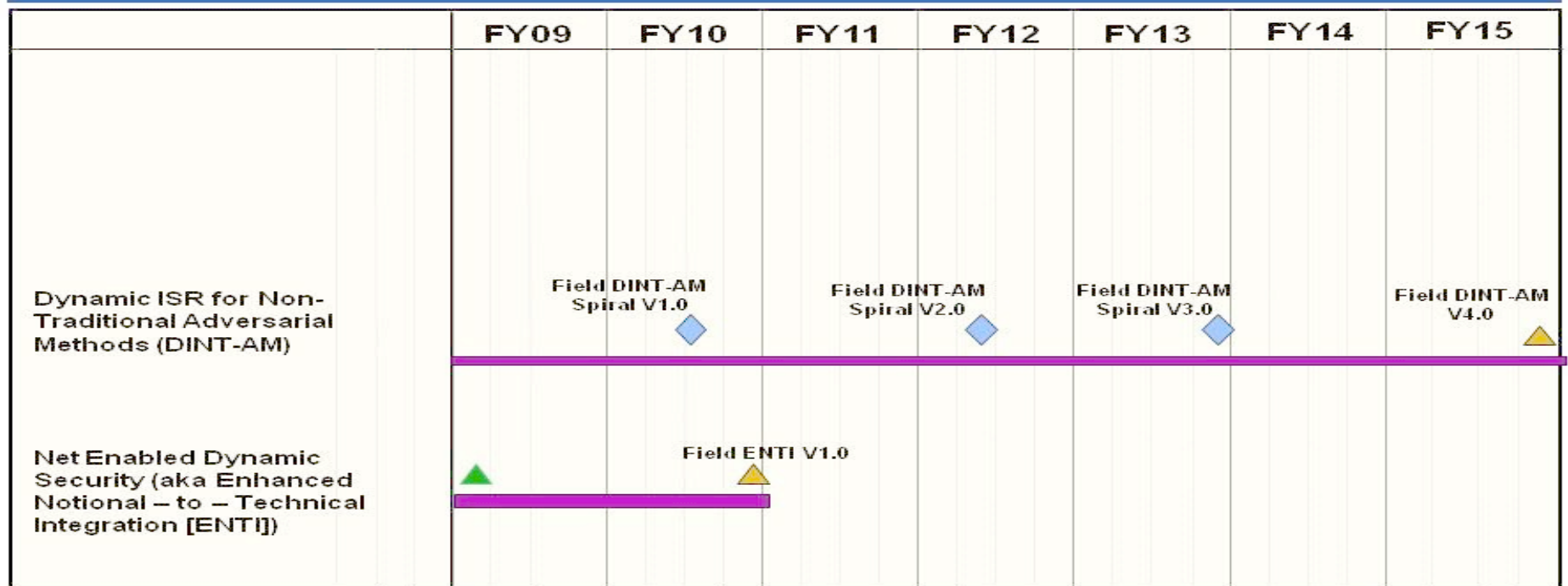
PE 0603260F: *Intelligence Advanced Development*

PROJECT

643481: *Knowledge Based Tech For Intelligence*



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



Design / development / roll out initial tool, or spiral
 Initiate
 Complete
 Key events

PB11 R-Docs

Depicted by in stallation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643481: <i>Knowledge Based Tech For Intelligence</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue Dynamic ISR for Non-Traditional Adversarial Methods	1	2009	4	2011
Complete Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration [ENTI])	1	2009	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>				PROJECT 643482: <i>Science & Tech Intelligence Methodology</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
643482: <i>Science & Tech Intelligence Methodology</i>	0.717	1.512	0.718	0.000	0.718	0.727	0.727	0.738	0.748	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Completed Adversary Tactics, Training, and Readiness Knowledge Base <i>FY 2009 Accomplishments:</i> In FY2009: Completed Adversary Tactics, Training, and Readiness Knowledge Base <i>FY 2010 Plans:</i> In FY2010: N/A <i>FY 2011 Base Plans:</i> In FY2011: N/A	0.717	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643482: <i>Science & Tech Intelligence Methodology</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Adds Subtotals	0.000	0.800

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (1391): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643482: <i>Science & Tech Intelligence Methodology</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Adversary Tactics, Training, and Readiness Knowledge Base	C/CPFF	Northrop-Grumman Fairborn, OH	1.430	0.000		0.000		0.000		0.000	0.000	1.430	1.430
Real Time Intelligence Situational Awareness (Analyst of Tomorrow - AoT)	TBD/TBD	TBD TBD	0.000	0.712	Dec 2009	0.718	Nov 2010	0.000		0.718	Continuing	Continuing	Continuing
MTMPIA (FY10 Congressional Add)	TBD/TBD	Janya Amherst, NY	0.000	0.800	Dec 2010	0.000		0.000		0.000	0.000	0.800	0.000
Subtotal			1.430	1.512		0.718		0.000		0.718			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.430	1.512	0.718	0.000	0.718			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

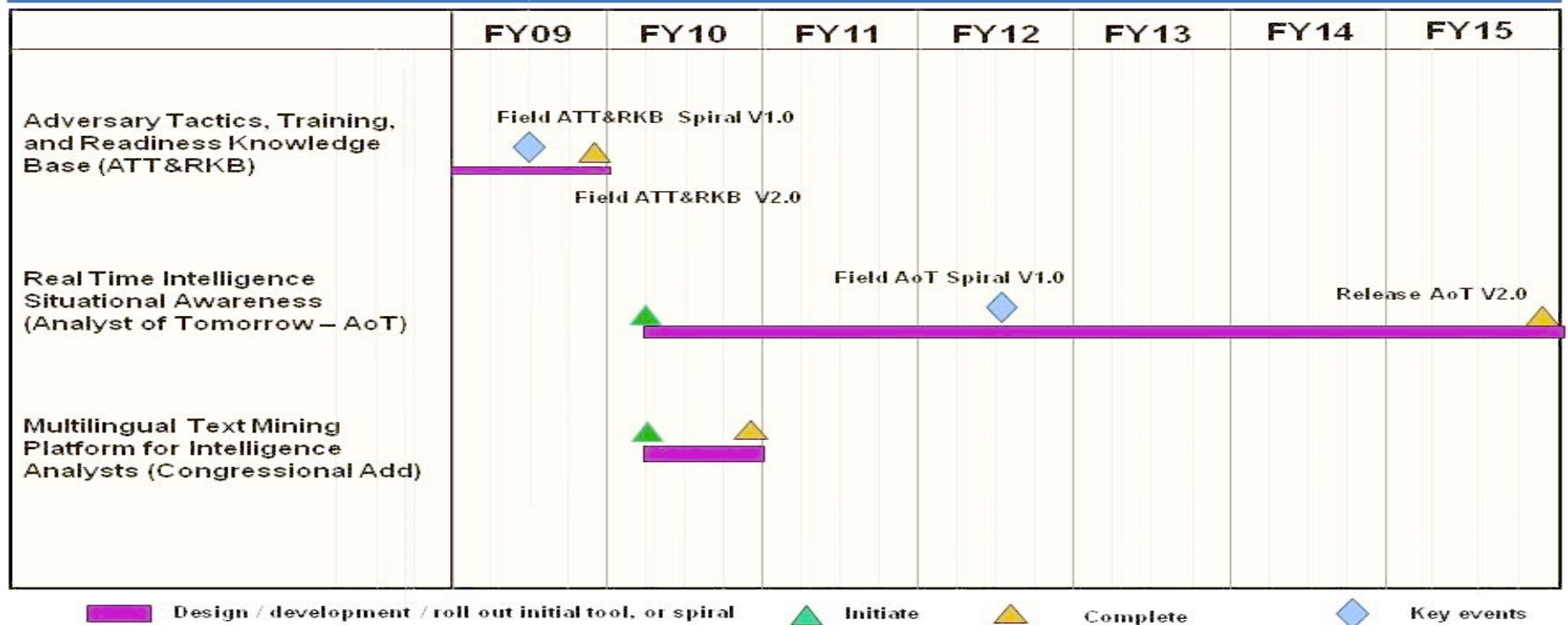
PE 0603260F: *Intelligence Advanced Development*

PROJECT

643482: *Science & Tech Intelligence Methodology*



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



PB11 R-Docs

Depicted by installation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603260F: <i>Intelligence Advanced Development</i>	PROJECT 643482: <i>Science & Tech Intelligence Methodology</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Completed Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)	1	2009	4	2009
Continue Real Time Intelligence Situational Awareness (Analyst of Tomorrow - AoT)	2	2010	4	2011
Initiate MTMPIA (Congressional Add)	2	2010	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.659	3.615	3.576	0.000	3.576	3.755	3.765	3.945	4.026	Continuing	Continuing
645121: <i>Physical Security Equipment</i>	1.659	3.615	3.576	0.000	3.576	3.755	3.765	3.945	4.026	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1.672	3.623	0.000	0.000	0.000
Current President's Budget	1.659	3.615	3.576	0.000	3.576
Total Adjustments	-0.013	-0.008	3.576	0.000	3.576
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.013	0.000			
• Other Adjustments	0.000	-0.008	3.576	0.000	3.576

Change Summary Explanation

FY11: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>	PROJECT 645121: <i>Physical Security Equipment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645121: <i>Physical Security Equipment</i>	1.659	3.615	3.576	0.000	3.576	3.755	3.765	3.945	4.026	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT - Refined, research, and test technology for automated entry control systems. <i>FY 2009 Accomplishments:</i> In FY 2009: Awarded LKMD SDD contract. Conduct Production Qualification LKMD testing.	1.659	3.615	3.576	0.000	3.576

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>	PROJECT 645121: <i>Physical Security Equipment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<ul style="list-style-type: none"> - Continued to test, develop, and integrate equipment to improve security and access to facilities. - Began to develop the XML Wide Area Sensor. <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>					
Accomplishments/Planned Programs Subtotals	1.659	3.615	3.576	0.000	3.576

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (1605): <i>Not Applicable</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>	PROJECT 645121: <i>Physical Security Equipment</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HQ ESC (Air Force)	PO	CACI Chantilly, VA	1.659	3.615	Apr 2010	2.200		0.000		2.200	1.200	8.674	Continuing
PM-PSE (US Army)	MIPR	CACI Chantilly, VA	0.000	0.000		0.648		0.000		0.648	1.200	1.848	Continuing
CNO-N34 (US Navy)	WR	LockHeed Martin Reston, VA	0.000	0.000		0.488		0.000		0.488	1.200	1.688	Continuing
DTRA	Allot	Booz Allen Hamilton McClean, VA	0.000	0.000		0.240		0.000		0.240	1.200	1.440	Continuing
Test1	Reqn	L3 Com Arlington, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Test2	TM	L3 Com Arlington, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Test3	FFRDC	Booz Allen Hamilton McClean, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Test4	BPA	LockHeed Martin Reston, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			1.659	3.615		3.576		0.000		3.576	4.800	13.650	

Remarks

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R-1 Line Item #32

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>				PROJECT 645121: <i>Physical Security Equipment</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Testing1	C/FP	CACI Chantilly, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Testing2	SS/CPIF	Booz Allen Hamilton McClean, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Testing3	TBD/FPI	L3 Com Arlington, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Testing 4	PO	L3 Com Arlington, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Testing5	C/CPFF	Booz Allen Hamilton McClean, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Testing6	SS/FFP	Booz Allen Hamilton McClean, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>	PROJECT 645121: <i>Physical Security Equipment</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test 36	C/FP	CAI Chantilly, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	1.659	3.615		3.576		0.000		3.576	4.800	13.650	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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R-1 Line Item #32

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

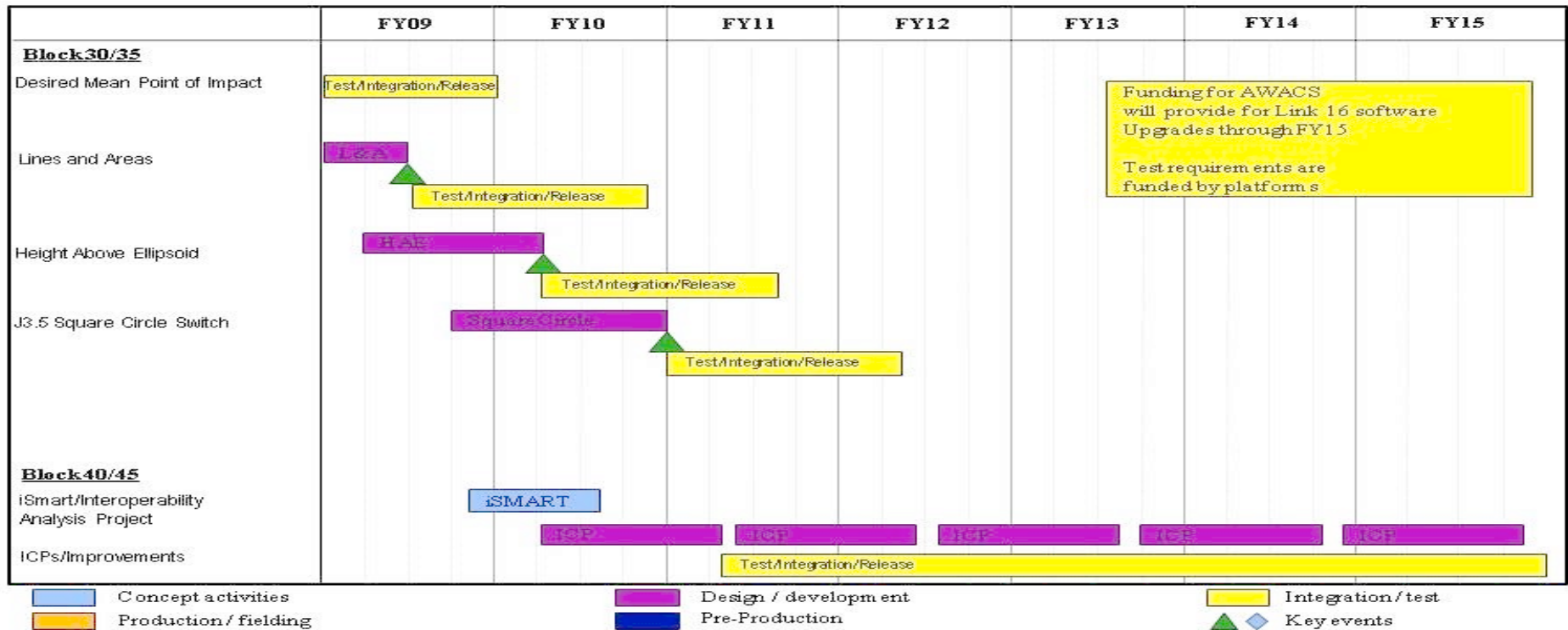
R-1 ITEM NOMENCLATURE

PE 0603287F: *Physical Security Equipment*

PROJECT

645121: *Physical Security Equipment*

C2ISR Tactical Data Link (as of 31 Jul 09)



Funding for AWACS will provide for Link 16 software Upgrades through FY15. Test requirements are funded by platforms

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

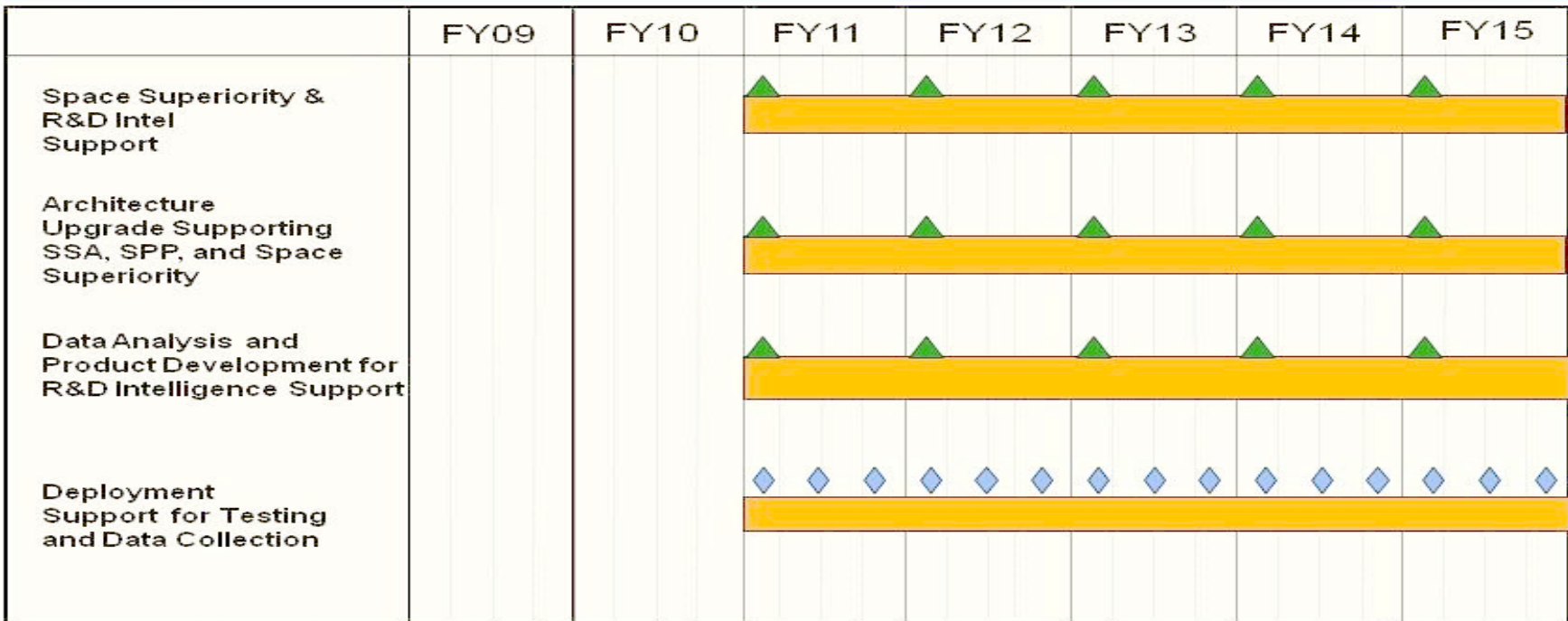
PE 0603287F: *Physical Security Equipment*

PROJECT

645121: *Physical Security Equipment*



Space Superiority Intelligence Program Schedule



Intelligence Support

Key Events
 Contract Award

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

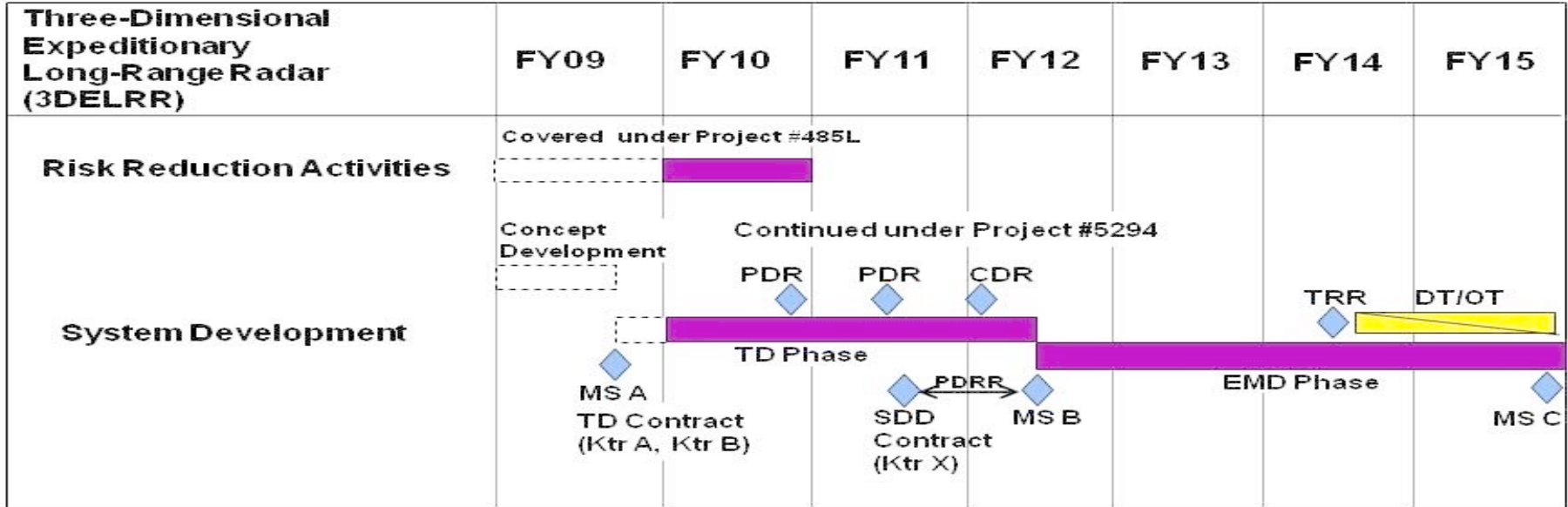
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603287F: *Physical Security Equipment*

PROJECT

645121: *Physical Security Equipment*



In FY09, Three-Dimensional Expeditionary Long-Range Radar (3DELRR) was included as part of Project 485L, Theater Air Control System Improvement (TACSI).

- Major Event/Milestone
- Design/Development
- Development Test/Operational Test (DT/OT)

- EMD: Engineering and Manufacturing Development
- Ktr: Contractor
- MS: Milestone
- PDRR: Preliminary Design and Risk Reduction
- SDD: System Design & Development
- TD: Technology Development
- TRR: Test Readiness Review

As of Aug 2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603287F: <i>Physical Security Equipment</i>	PROJECT 645121: <i>Physical Security Equipment</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Conduct market survey for the TVSS	1	2009	3	2009
TVSS Prototype Design, Fabrication, & Integration	1	2009	4	2010
PAS Market Survey and Investigation	2	2009	2	2011
Continue TASS P3I efforts including the annunciator	3	2010	4	2010
Conduct a Leap Ahead assessment of current PSE technology	1	2009	4	2010
Follow-on Early User Appraisal for MDARS	3	2010	2	2011
Develop C3 integration of waterside Security Systems	1	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	289.702	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
64A021: <i>GPS III OCX</i>	289.702	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note

This exhibit reflects an Air Force request for a technical adjustment transferring FY2010 funds in BA 7 (0603423F), R-1 Line No. 112 Global Position System III to BA 4 (0603423F), R-1 Line No. 33 Global Position System III.

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 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 Effects-Based Approach to Operations (EBAO).

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 (CIP) 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 FY11, OCX funding is combined under the GPS III PE, 0305265F, and resides 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).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	306.502	292.000	0.000	0.000	0.000
Current President's Budget	289.702	292.000	0.000	0.000	0.000
Total Adjustments	-16.800	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-16.800	0.000	0.000	0.000	0.000

Change Summary Explanation

-\$10.000 in FY09 for higher DoD priorities. -\$6.8M for SBIR. FY10 funds transferred from PE 0305265F.

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R-1 Line Item #33

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>	PROJECT 64A021: <i>GPS III OCX</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A021: <i>GPS III OCX</i>	289.702	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 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 Effects-Based Approach to Operations (EBAO).

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 (CIP) 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 FY11, OCX funding is combined under the GPS III PE, 0305265F, and resides 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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development of the next generation GPS control segment.	289.702	292.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>	PROJECT 64A021: <i>GPS III OCX</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Funds support science and technology, technology development, systems development and GPS enterprise integration efforts for Phase A Concept Development for OCX.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Completion of OCX Block 1-2 Phase A development, source selection and contract award, System Engineering & Integration (SE&I), technical and program support.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: NA</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	289.702	292.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (2078): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0305265F: <i>GPS III Space Segment (RDT&E)</i>	379.046	423.466	446.412	0.000	446.412	328.296	321.590	194.945	200.185	0.000	0.000
• PE 0305265F (1): <i>OCX (RDT&E)</i>	0.000	0.000	381.867	0.000	381.867	117.054	436.797	440.830	370.267	0.000	0.000
	0.000	0.000	122.490	0.000	122.490	680.879	496.942	790.366	700.931	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>	PROJECT 64A021: <i>GPS III OCX</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0305265F (2): <i>GPS III Space Segment (MPAF)</i>											

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>	PROJECT 64A021: <i>GPS III OCX</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Phase A OCX Development (Northrop Grumman)	C/CPFF	Northrop Grumman Carson, CA	91.683	0.000		0.000		0.000		0.000	0.000	91.683	0.000
Phase A OCX Development (Raytheon)	C/CPFF	Raytheon Aurora, CO	91.683	0.000		0.000		0.000		0.000	0.000	91.683	0.000
Phase B OCX Block 1 & 2 Development	C/CPFF	TBD	0.000	214.847	Jan 2010	0.000		0.000		0.000	0.000	214.847	0.000
SE&I	C/CPAF	SAIC Huntington Beach, CA	4.614	12.701	Jan 2010	0.000		0.000		0.000	0.000	17.315	0.000
Modernization/SE & Technical Support	Various/ Various	Various Various	31.220	22.402	Jan 2010	0.000		0.000		0.000	0.000	53.622	0.000
Subtotal			219.200	249.950		0.000		0.000		0.000	0.000	469.150	0.000

Remarks
Funding transferred to PE 0305265F starting in FY11

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Wing Support	Various/ Various	Various Various	70.501	42.050	Jan 2010	0.000		0.000		0.000	0.000	112.551	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603423F: <i>Global Positioning System III - Operational Control Segment</i>	PROJECT 64A021: <i>GPS III OCX</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Subtotal			70.501	42.050		0.000		0.000		0.000	0.000	112.551	0.000	

Remarks
 Funding transferred to PE 0305265F starting in FY11

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	289.701	292.000		0.000		0.000		0.000	0.000	581.701	0.000

Remarks
 Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

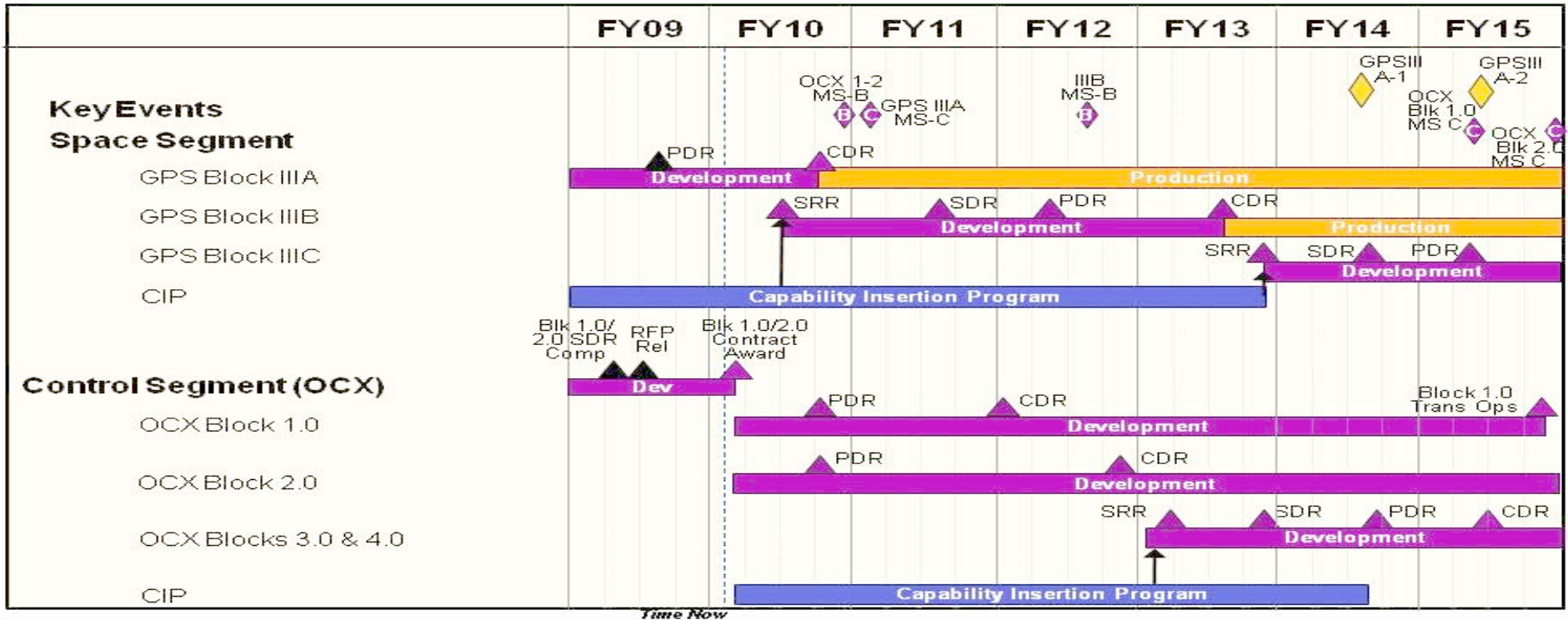
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603423F: *Global Positioning System III - Operational Control Segment*

PROJECT

64A021: *GPS III OCX*



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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603423F: *Global Positioning System III - Operational Control Segment*

PROJECT

64A021: *GPS III OCX*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Release OCX Request for Proposals (RFP)	3	2009	3	2009
OCX Block 1-2 Preliminary Design Review (PDR)	4	2010	4	2010
OCX Block 1-2 Milestone B	4	2010	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space))</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	460.351	461.380	351.817	0.000	351.817	740.127	997.888	1,022.755	1,327.126	Continuing	Continuing
644050: <i>Advanced MILSATCOM</i>	460.351	461.380	351.817	0.000	351.817	740.127	997.888	1,022.755	1,327.126	Continuing	Continuing

Note

FY09 Omnibus reprogramming funding in the amount of \$35.0M is a new start effort in support of the AEHF program.

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) providing 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 Kingdom of the Netherlands). Conduct studies, analyses, and technology risk reduction activities to evolve protected MILSATCOM capabilities.

First time integration and test challenges and flight hardware problems with Space Vehicle-1 (SV-1) delayed the projected launch to September 2010. These issues also impact SV-2 cost and schedule. SV-2 projected launch is now September 2011. A Nunn-McCurdy review, to include an OSD Cost Analysis Improvement Group (CAIG) Independent Cost Estimate (ICE), has completed and the program was certified on 29 December 2008. Added RDT&E funding in FY10-13 to fully fund SV-1 and SV-2 overruns and match the OSD CAIG cost estimate.

The FY10 PB eliminated funding for the Transformational Satellite Communications System (TSAT) program.

The FY11 PB funds the procurement of AEHF SV-5 and SV-6, and initiates an AEHF upgrade program (RDT&E) in FY12 for SV-7 and beyond. The FY11PB also funds efforts such as SV-1 on-orbit test and operations support, SV-2 integration, test and launch; 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.

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R-1 Line Item #34

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space))</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	386.425	464.335	0.000	0.000	0.000
Current President's Budget	460.351	461.380	351.817	0.000	351.817
Total Adjustments	73.926	-2.955	351.817	0.000	351.817
• Congressional General Reductions		-2.955			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	73.926	0.000	351.817	0.000	351.817

Change Summary Explanation

\$36.4.0M FY09 funds were reprogrammed in order to fund the program to the OSD Cost Analysis Improvement Group (CAIG) Independent Cost Estimate.

With the termination of the TSAT program beginning in FY10, the FY09 Omnibus included the following for the AEHF program: 1) \$35.0M to ensure the Air Force can leverage the TSAT technology investment and critical industrial expertise for the protected MILSATCOM capabilities required by strategic and tactical users worldwide. These technologies will be assessed for incorporation onto future AEHF satellites; and 2) \$18.95M for the productization and qualification of radiation hardened electronics for DoD space systems. Funds are required to ensure the advancement of components, brought to the prototype stage by the S&T community, reach a maturity level that programs can use.

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space)</i>				PROJECT 644050: <i>Advanced MILSATCOM</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644050: <i>Advanced MILSATCOM</i>	460.351	461.380	351.817	0.000	351.817	740.127	997.888	1,022.755	1,327.126	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note FY09 Omnibus reprogramming funding in the amount of \$35.0M is a new start effort in support of the AEHF program.											
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) providing 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 Kingdom of the Netherlands). Conduct studies, analyses, and technology risk reduction activities to evolve protected MILSATCOM capabilities. First time integration and test challenges and flight hardware problems with Space Vehicle-1 (SV-1) delayed the projected launch to September 2010. These issues also impact SV-2 cost and schedule. SV-2 projected launch is now September 2011. A Nunn-McCurdy review, to include an OSD Cost Analysis Improvement Group (CAIG) Independent Cost Estimate (ICE), has completed and the program was certified on 29 December 2008. Added RDT&E funding in FY10-13 to fully fund SV-1 and SV-2 overruns and match the OSD CAIG cost estimate. The FY10 PB eliminated funding for the Transformational Satellite Communications System (TSAT) program. The FY11 PB funds the procurement of AEHF SV-5 and SV-6, and initiates an AEHF upgrade program (RDT&E) in FY12 for SV-7 and beyond. The FY11PB also funds efforts such as SV-1 on-orbit test and operations support, SV-2 integration, test and launch; 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.											
B. Accomplishments/Planned Program (\$ in Millions)											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space))</i>	PROJECT 644050: <i>Advanced MILSATCOM</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (2464): <i>Related Proc:</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0303604F: <i>Advanced EHF, MPAF</i>	182.622	1,837.302	246.598	0.000	246.598	875.862	287.001	953.411	322.273	0.000	0.000
• PE 0603854F: <i>Wideband MILSATCOM (Space), Project #644870, CCS-C, RDT&E</i>	19.629	18.321	18.174	0.000	18.174	12.847	12.549	14.615	17.579	0.000	0.000
• PE 0303601F: <i>MILSATCOM Terminals, RDT&E</i>	277.501	253.818	186.582	0.000	186.582	105.274	79.768	15.301	13.723	0.000	0.000

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 has updated the acquisition strategy to include AEHF SV-4, SV-5, and SV-6.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space))</i>	PROJECT 644050: <i>Advanced MILSATCOM</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NSA	MIPR	NSA Camden, NJ	246.530	5.348	Dec 2009	0.712	Dec 2010	0.000		0.712	Continuing	Continuing	0.000
JTEO	C/CPFF	JTEO San Diego, CA	15.491	0.000		0.000		0.000		0.000	0.000	15.491	0.000
MIT/LL	FFRDC	MIT/LL Lexington, MA	21.538	0.000		0.000		0.000		0.000	0.000	21.538	0.000
MITRE	FFRDC	MITRE Bedford, MA	0.779	0.000		0.000		0.000		0.000	0.000	0.779	0.000
Hughes	Various/CPFF	Hughes El Segundo, CA	67.175	0.000		0.000		0.000		0.000	0.000	67.175	0.000
TRW	Various/CPFF	TRW Redondo Beach, CA	62.083	0.000		0.000		0.000		0.000	0.000	62.083	0.000
Various	Various/Various	Various Various	66.659	0.000		0.000		0.000		0.000	0.000	66.659	0.000
Lockheed Martin (Pre-EMD)	Various/FFP	Lockheed Martin Sunnyvale, CA	225.011	0.000		0.000		0.000		0.000	0.000	225.011	0.000
SDD Contractor (Lockheed Martin)	Various/CPAF	Lockheed Martin Sunnyvale, CA	4,332.552	408.419	Dec 2009	306.253	Dec 2010	0.000		306.253	Continuing	Continuing	0.000
Radiation Hardened parts developers	Various/Various	Various Various	117.480	0.000		0.000		0.000		0.000	0.000	117.480	0.000
Subtotal			5,155.298	413.767		306.965		0.000		306.965			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space))</i>	PROJECT 644050: <i>Advanced MILSATCOM</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	Various/ Various	TBD TBD	123.696	0.000		0.000		0.000		0.000	0.000	123.696	0.000
Technical Support	TBD/TBD	TBD TBD	82.917	14.746	Dec 2009	13.232	Dec 2009	0.000		13.232	Continuing	Continuing	0.000
GFP	TBD/TBD	TBD TBD	10.837	3.408		2.700		0.000		2.700	0.000	16.945	0.000
Program Office Support	TBD/TBD	TBD TBD	119.356	29.459		28.920		0.000		28.920	Continuing	Continuing	0.000
Subtotal			336.806	47.613		44.852		0.000		44.852			0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5,492.104	461.380		351.817		0.000		351.817			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

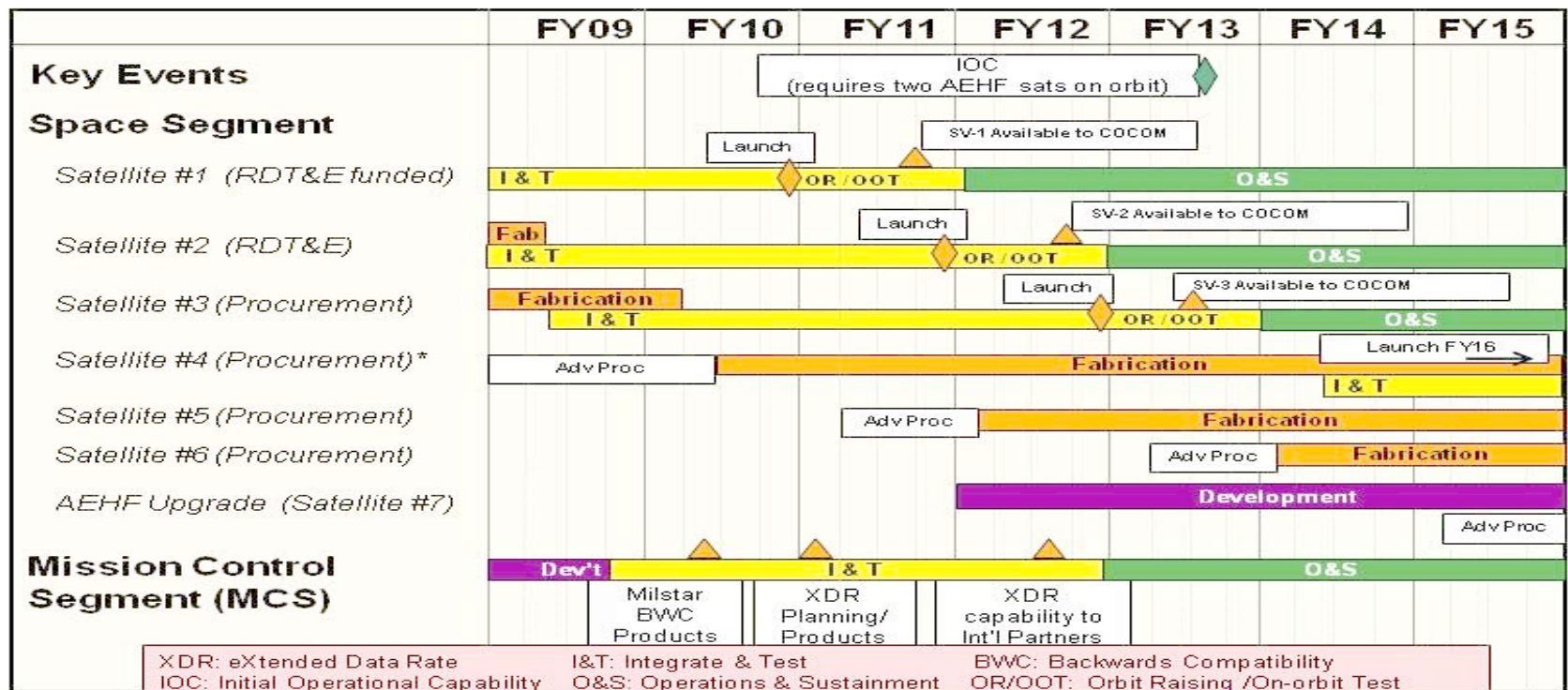
3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0603430F: Advanced (EHF MILSATCOM (Space)

PROJECT

644050: Advanced MILSATCOM



XDR: eXtended Data Rate I&T: Integrate & Test BWC: Backwards Compatibility
 IOC: Initial Operational Capability O&S: Operations & Sustainment OR/OOT: Orbit Raising /On-orbit Test

- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- 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 Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603430F: <i>Advanced (EHF MILSATCOM (Space)</i>	PROJECT 644050: <i>Advanced MILSATCOM</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Field Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5 Milstar satellites and 1 AEHF satellite - BWC Products)	2	2010	2	2010
Launch first AEHF satellite	4	2010	4	2010
Field Ground Segment Software Increment 5 (eXtended Data Rate)	1	2011	1	2011
Launch second AEHF satellite	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	221.065	252.071	164.232	0.000	164.232	101.086	53.076	27.361	13.576	Continuing	Continuing
644052: <i>Polar Satellite Communications</i>	221.065	252.071	164.232	0.000	164.232	101.086	53.076	27.361	13.576	0.000	1,001.495

A. Mission Description and Budget Item Justification

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam and low probability of intercept and detection) 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.

In FY06, the DoD began funding the next generation Polar Satellite Communications capability with two more polar packages via the same type host vehicle (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 including 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.

FY11 funds continue the fabrication of the two hosted EPS packages, pursue technology needs forecasting, and continue the development of the associated ground segment and related support.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	236.965	253.150	0.000	0.000	0.000
Current President's Budget	221.065	252.071	164.232	0.000	164.232
Total Adjustments	-15.900	-1.079	164.232	0.000	164.232
• Congressional General Reductions		-1.079			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-9.900	0.000			
• Other Adjustments	-6.000	0.000	164.232	0.000	164.232

Change Summary Explanation

FY09 funds reprogrammed for higher priorities.

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>	PROJECT 644052: <i>Polar Satellite Communications</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644052: <i>Polar Satellite Communications</i>	221.065	252.071	164.232	0.000	164.232	101.086	53.076	27.361	13.576	0.000	1,001.495
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project (often referred to as Interim Polar) is currently acquiring protected communications services for warfighters operating in the northern polar region. It is similar to Milstar and based on the 1995 JROC approved Polar ORD that contains a subset of requirements for an expedited solution. The expedited program adds small Milstar-compatible packages to 3 classified host satellites to provide limited capability while a long term solution is pursued. The first hosted package was launched in 1997, the next two will be available in FY05 and FY06.

Delay of the first launch follow-on program (Advanced Polar System (APS)) from FY09 to FY13 has caused the Air Force to revisit the polar requirements and explore the possible purchase of a 4th package on a classified host satellite. NOT a TEST

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop and acquire EPS MILSATCOM payloads, mission control segment, and cryptography <i>FY 2009 Accomplishments:</i> In FY2009: Held a successful Preliminary Design Review (PDR) for the payload segment. Executed risk reduction efforts, developed Interface Control Document (ICD)/specification, and conducted trade studies for the Mission Control Segment. Developed requirements and prepared team for pending source selection on the gateway segment. Developed Interim Command and Control terminal specification and collaborated with the Navy Terminal Program Office to ensure the Navy Multi-band Terminal (NMT) will support the Gateway segment. The Systems Engineering Integration Team executed a successful System Design Review (SDR), matured system level ICDs/specifications/	221.065	252.071	164.232	0.000	164.232

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>		PROJECT 644052: <i>Polar Satellite Communications</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>requirements allocation, extended the crypto architecture, procured keys and crypto chips, matured configuration management, and held engineering reviews and system risk boards.</p> <p><i>FY 2010 Plans:</i> In FY2010: Will hold the payload segment Critical Design Review (CDR) and begin manufacturing of the engineering test bed. Will hold the Mission Control Segment PDR and begin software coding. Will release the Request For Propossal (RFP) and hold the source selection for the gateway segment. Will deliver two (2) AEHF Universal System Test-Terminals (AUST-Ts) and contract with the Navy to procure NMTs for the Gateway segment. The Systems Engineering Integration Team will hold the Independent Program Review (IPR) and the Defense Acquisition Executive (DAE) review. In addition, the program will prepare for and conduct the system level PDR.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Will deliver the engineering model test bed for the payload segment and complete integration of payload #1 subsystems. Will hold the Mission Control Segment CDR and begin intersegment testing with the payload and terminal segments. Will award a gateway contract and will conduct the PDR. Will provide an engineering model NMT to the Gateway segment for development. The Systems Engineering Integration Team will execute segment and inter-segment testing (validation/verification).</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable</p>								
Accomplishments/Planned Programs Subtotals				221.065	252.071	164.232	0.000	164.232

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>	PROJECT 644052: <i>Polar Satellite Communications</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (2978): <i>N/A</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

The Enhanced Polar System (EPS) is the follow-on to the currently operational Intern Polar System (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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>	PROJECT 644052: <i>Polar Satellite Communications</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Classified	TBD/TBD	TBD TBD	299.594	0.000		0.000		0.000		0.000	0.000	299.594	0.000
EPS Requirement Analyses and Design Trade Studies	Various/ Various	Various Various	65.416	18.566	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	0.000
NGST EPS Design/ Development Contract	SS/CPAF	NGST Redondo Beach, CA	287.709	164.374	Dec 2009	54.796	Dec 2010	0.000		54.796	Continuing	Continuing	0.000
Lockheed Martin (Mission Control Segment)	SS/CPAF	Lockheed Martin Sunnyvale, CA	13.900	27.010	Oct 2009	40.000	Oct 2010	0.000		40.000	Continuing	Continuing	0.000
Cryptographic Modifications (NSA)	MIPR	NSA Camden, NJ	6.120	3.960	Jan 2010	3.907	Dec 2010	0.000		3.907	Continuing	Continuing	0.000
TBD Gateway Segment	C/TBD	TBD TBD	0.000	0.000		30.000	Dec 2010	0.000		30.000	0.000	30.000	0.000
Subtotal			672.739	213.910		128.703		0.000		128.703			0.000

Remarks
Classified Contract Method/Type/Activity and Location are classified

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>					PROJECT 644052: <i>Polar Satellite Communications</i>				

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Support	Various/ Various	Various Various	19.207	14.153	Dec 2009	15.000	Dec 2010	0.000		15.000	Continuing	Continuing	0.000
Program Office Support	Various/ Various	Various Various	34.299	14.308	Dec 2009	17.809	Dec 2010	0.000		17.809	Continuing	Continuing	0.000
Govt Furnished Property	Various/ Various	Various Various	6.200	9.700	Dec 2009	2.720	Dec 2010	0.000		2.720	Continuing	Continuing	0.000
Subtotal			59.706	38.161		35.529		0.000		35.529			0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	732.445	252.071		164.232		0.000		164.232			0.000

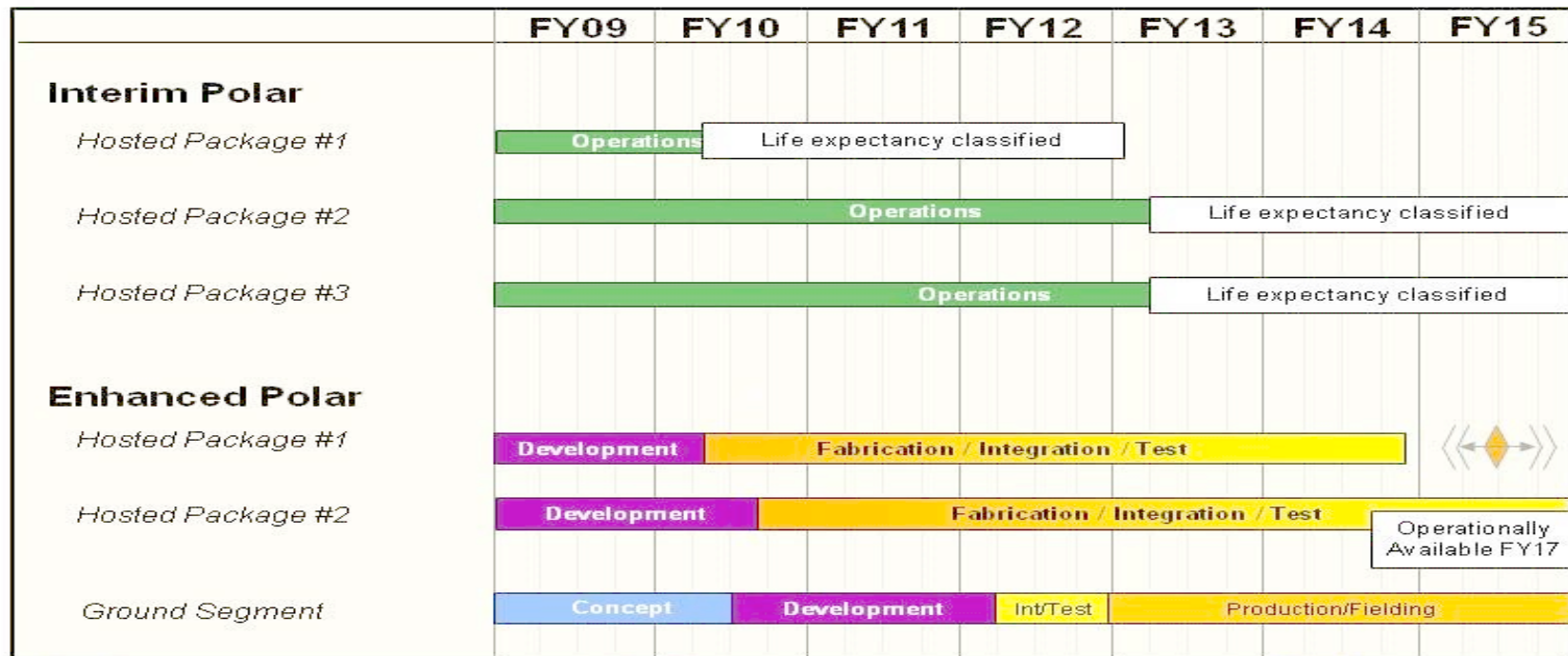
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>	PROJECT 644052: <i>Polar Satellite Communications</i>



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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603432F: <i>Polar MILSATCOM (Space)</i>	PROJECT 644052: <i>Polar Satellite Communications</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Begin fabrication of first Enhanced Polar package	1	2010	1	2010
Begin fabrication of second Enhanced Polar package	2	2010	2	2010
Begin design and development of the Mission Control Segment	3	2010	3	2010
Mission Control Segment Critical Design Review	2	2011	2	2011
Ground Gateway Segment Preliminary Design Review	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	86.110	100.951	45.012	16.000	61.012	45.907	46.370	46.831	47.160	Continuing	Continuing
642611: <i>Technology Insertion Planning and Analysis</i>	64.643	79.187	26.038	16.000	42.038	26.804	26.975	27.141	27.167	Continuing	Continuing
64A007: <i>Space Range</i>	21.467	21.764	18.974	0.000	18.974	19.103	19.395	19.690	19.993	Continuing	Continuing

Note
In FY 2011 OCO requested, \$16.000M, replaces and upgrades equipment left with Army and Air Force counterspace units in Operation Iraqi Freedom (OIF). This technology was developed by the Rapid Reaction Squadron in response to numerous warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs) for OIF.

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.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>
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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 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.

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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	86.110	97.701	0.000	0.000	0.000
Current President's Budget	86.110	100.951	45.012	16.000	61.012
Total Adjustments	0.000	3.250	45.012	16.000	61.012
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		4.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.750	45.012	16.000	61.012

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 642611: *Technology Insertion Planning and Analysis*

Congressional Add: *Commercial Off-the Shelf (COTS) for Space Situation Awareness (SSA).*

Congressional Add: *SSA Tactical Component Network (TCN) Demonstration.*

	<u>FY 2009</u>	<u>FY 2010</u>
	2.800	0.000
	3.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *Multi-mission Deployable Optical System (MDOS).*

Congressional Add: *Space Situational Awareness*

Congressional Add: *High Accuracy Network Determination System/Intelligent Optical Networks for SSA (HANDS/IONS).*

Congressional Add Subtotals for Project: 642611

Congressional Add Totals for all Projects

	FY 2009	FY 2010
Congressional Add: <i>Multi-mission Deployable Optical System (MDOS).</i>	4.000	0.000
Congressional Add: <i>Space Situational Awareness</i>	0.000	4.000
Congressional Add: <i>High Accuracy Network Determination System/Intelligent Optical Networks for SSA (HANDS/IONS).</i>	0.000	0.000
Congressional Add Subtotals for Project: 642611	9.800	4.000
Congressional Add Totals for all Projects	9.800	4.000

Change Summary Explanation

FY 2010: + \$4.0M for Space Situation Awareness

FY 2010: - \$0.750M for FFRDC

FY 2010: Air Force requested technical adjustment to the database transferring \$5M from PE 0604425F to PE 0603438F for High Accuracy Network Determination System (HANDS)

FY 2011: The FY 2010 President's Budget submittal did not reflect FY2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>				PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
642611: <i>Technology Insertion Planning and Analysis</i>	64.643	79.187	26.038	16.000	42.038	26.804	26.975	27.141	27.167	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2011 OCO requested, \$16.000M, replaces and upgrades equipment left with Army and Air Force counterspace units in Operation Iraqi Freedom (OIF). This technology was developed by the Rapid Reaction Squadron in response to numerous warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs) for OIF.

A. Mission Description and Budget Item Justification

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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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
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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.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Space Situational Awareness efforts such as key space situational awareness enabling technologies, space sensor value modeling and architecture analysis.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Developed testing methodology to verify SBSS requirements are considered as part of AFRL Focal Plane Array developments.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continue analysis to support proximity Indications and Warnings sensor trade space. Generating multi-community requirements sets for use in assessing solution options.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuing optical sensor evaluations to augment the Space Surveillance Network, and Space Object Identification missions.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>	3.200	2.760	3.000	0.000	3.000
<p>MAJOR THRUST: Defensive Counterspace efforts. Continue development of key defensive counterspace enabling technologies.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continued vulnerability assessments, development and demonstration of advanced techniques and technologies for space control prevention systems.</p>	10.897	9.796	5.044	0.000	5.044

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>		PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Conversion of an enhanced processing capability developed for missile warning radar to use for the space situation awareness program radars.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Not applicable</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>								
<p>MAIN THRUST: Program Office and Other Technical Support (includes System Engineering, studies and analysis, and Architectural Support)</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Provides Program Office and Other Technical Support including System Engineering and Architectural Support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Provides Program Office and Other Technical Support including System Engineering and Architectural Support.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Provides Program Office and Other Technical Support including System Engineering and Architectural Support.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>				8.868	9.983	9.008	0.000	9.008
Accomplishments/Planned Programs Subtotals				54.843	75.187	26.038	16.000	42.038

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
Congressional Add: Commercial Off-the Shelf (COTS) for Space Situation Awareness (SSA). <i>FY 2009 Accomplishments:</i> In FY 2009: Integrate modeling and simulation (M&S) for SSA analysis at the physics-to-engineering-to-mission/campaign levels to quantify technology performance, utility, and quality of service. Advance the state-of-the-art and demonstrate the cost effectiveness and technological merit of using COTS modeling, simulation and analysis technology for analyses to quantify space-based SSA technology performance and quality of service. <i>FY 2010 Plans:</i> In FY 2010: Not applicable.	2.800	0.000
Congressional Add: SSA Tactical Component Network (TCN) Demonstration. <i>FY 2009 Accomplishments:</i> In FY 2009: Integration of existing Missile Defense Agency ground based sensors into the current Space Situational Awareness decision architecture to provide significant near term SSA enhancement. Began evaluation of the MDA UHF and X-band sensing capabilities for possible inclusion in the AF SSA architecture. <i>FY 2010 Plans:</i> In FY 2010: Not applicable.	3.000	0.000
Congressional Add: Multi-mission Deployable Optical System (MDOS).	4.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Demonstrate the feasibility of integrating multiple advanced SSA technologies into a transportable package (air, sea, land) that can be operated from remote field sites. Completed the procurement of the primary mirror, gimbal, and E/O components. Integrated and tested the telescope and gimbal and procured and integrated imaging optics. Developed software for real-time control and post-processing of images. Tested performance under required environmental (daytime) conditions.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable.</p>		
<p>Congressional Add: Space Situational Awareness</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable</p> <p><i>FY 2010 Plans:</i> In FY 2010: Space Situational Awareness</p>	0.000	4.000
<p>Congressional Add: High Accuracy Network Determination System/Intelligent Optical Networks for SSA (HANDS/IONS).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continues work begun in a JCTD for a network of three small telescopes equipped with both visible and IR sensors for weather mitigation, continuity-of-operations and collaborative space object observations. High Accuracy Network Determination system (HANDS). Congressionally added funding (\$5.0M) improperly applied to PE0606425F but will be executed in this program.</p>	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Adds Subtotals	9.800	4.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (3766): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SSA Development	Various/ Various	Various Various	32.201	12.496	Jan 2010	3.000	Jan 2011	0.000		3.000	Continuing	Continuing	Continuing
DCS Activities	Various/ Various	Various Various	53.258	9.796	Jan 2010	5.044	Jan 2011	0.000		5.044	Continuing	Continuing	Continuing
Counterspace C2	Various/ Various	Various Various	1.197	1.300	Jan 2010	1.400	Jan 2011	0.000		1.400	Continuing	Continuing	Continuing
Counterspace Technology Prototyping	Various/ Various	Various Various	17.300	5.957	Jan 2010	5.486	Jan 2011	16.000	Jan 2011	21.486	Continuing	Continuing	Continuing
SASSA Tech Demo	Various/ Various	Various Various	50.000	24.623	Jan 2010	2.100	Jan 2011	0.000		2.100	0.000	76.723	75.000
SASSA Risk Reduction	TBD/TBD	TBD TBD	0.000	9.850	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
STINGER	TBD/TBD	TBD TBD	0.000	4.432	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			153.956	68.454		17.030		16.000		33.030			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering and Architectural Support	C/CPAF	Northrup Grumman Redondo Beach, CA	6.436	3.819	May 2010	3.996	May 2011	0.000		3.996	Continuing	Continuing	Continuing
Program Office and Other Technical Support	Various/ Various	SMC El Segundo, CA	20.107	6.914	Jan 2010	5.012	Jan 2011	0.000		5.012	Continuing	Continuing	Continuing
Subtotal			26.543	10.733		9.008		0.000		9.008			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	180.499	79.187	26.038	16.000	42.038			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

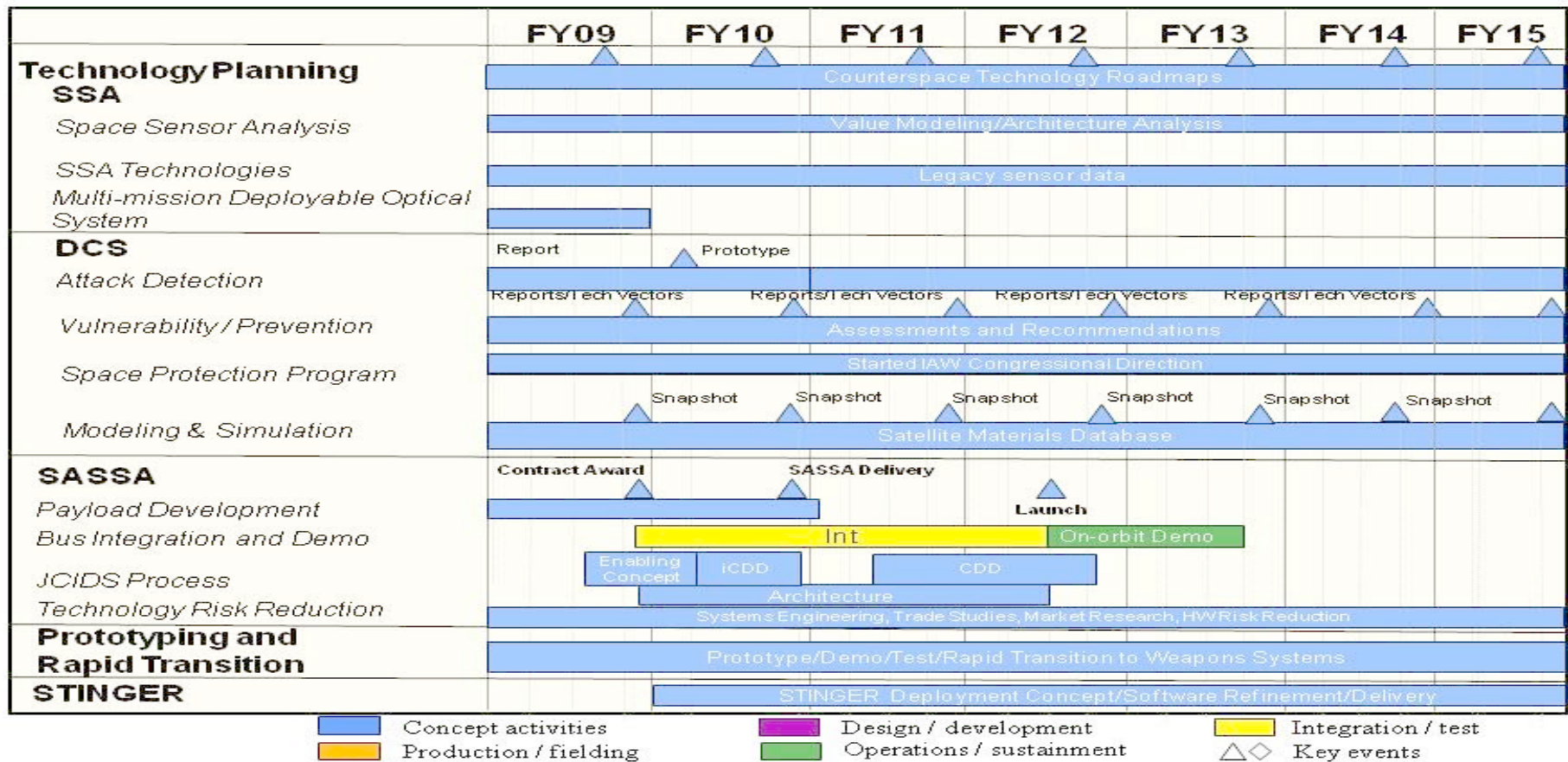
R-1 ITEM NOMENCLATURE

PE 0603438F: Space Control Technology

PROJECT

642611: Technology Insertion Planning and Analysis

SCT Schedule: Technology Insertion



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 642611: <i>Technology Insertion Planning and Analysis</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue Technology Roadmaps & Planning	1	2009	4	2011
SSA- Continue sensor development	1	2009	4	2011
SSA - Multi-mission Deployable Optical System Prototype	1	2009	4	2009
DCS - Continue DCS technology development and evaluation	1	2009	4	2011
DCS - Continue Vulnerability and threat assessment report	1	2009	4	2011
DCS - Continue AFRL Modelling and Simulation	1	2009	4	2011
Prototyping and Rapid Transition to Weapons Systems	1	2009	4	2011
STINGER processing integration for SSA radar systems	1	2010	4	2010
SASSA Contract Definition and Award	1	2009	1	2009
SASSA Sensor Delivery	4	2010	4	2010
SASSA Integration	4	2009	2	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>				PROJECT 64A007: <i>Space Range</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A007: <i>Space Range</i>	21.467	21.764	18.974	0.000	18.974	19.103	19.395	19.690	19.993	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification											
<p>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.</p> <p>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.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Range Control - Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities for the space range</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Developed evolutionary acquisition upgrade strategy approved by MDA. Developed STTR test-bed for Space Range Operations Center (SROC) as well as a test-bed for risk reduction of space range signal monitoring unit (SMU). Began development of the range scheduling tool, Space Center Scheduling Enterprise (S-CSE).</p>							8.966	12.664	11.500	0.000	11.500

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 64A007: <i>Space Range</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Office and Other Technical Support. <i>FY 2009 Accomplishments:</i> In FY 2009: Provides program office and other technical support including systems engineering and architectural support. <i>FY 2010 Plans:</i> In FY 2010: Provides program office and other technical support including systems engineering and architectural support. <i>FY 2011 Base Plans:</i> In FY 2011: Provides program office and other technical support including systems engineering and architectural support. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable	9.420	6.100	4.474	0.000	4.474
Accomplishments/Planned Programs Subtotals	21.467	21.764	18.974	0.000	18.974

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (4159): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

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

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 64A007: <i>Space Range</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Leased Bandwidth	TBD/TBD	DISA Washington, DC	3.081	3.000	Feb 2010	3.000	Feb 2011	0.000		3.000	Continuing	Continuing	Continuing
STTR Upgrade (Execution Test Center)	C/CPAF	Harris Corp Melbourne, FL	6.545	3.558	Nov 2009	0.000		0.000		0.000	0.000	10.103	9.824
Execution Test Center Transition into SROC	C/CPAF	Harris Corp Melbourne, FL	0.000	5.860	Nov 2009	5.870	Nov 2010	0.000		5.870	Continuing	Continuing	Continuing
STTR Transportable	C/CPAF	Harris Corp Melbourne, FL	0.000	0.000		0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
STTR Training Suite	C/CPAF	Harris Corp Melbourne, FL	0.292	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Signal Generation, Monitoring and Collection	C/CPFF	Harris Corp Melbourne, FL	2.183	2.500	Nov 2009	2.000	Nov 2010	0.000		2.000	Continuing	Continuing	Continuing
Automated Scheduling Software Tool	TBD/TBD	Various Various	0.150	0.742	Nov 2009	0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
STTR Tech Refresh	TBD/TBD	Various Various	0.407	0.000		1.630	Mar 2011	0.000		1.630	Continuing	Continuing	Continuing
Advanced Capabilities Environment (ACE)	C/CPAF	Harris Corp Melbourne, FL	0.000	0.000		0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
STTR Studies and Analysis	C/CPFF	Harris Corp Melbourne, FL	1.762	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			14.420	15.660		14.000		0.000		14.000			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 64A007: <i>Space Range</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and Other Technical Support	Various/ Various	SMC El Segundo, CA	16.646	6.104	Nov 2009	4.474	Nov 2010	0.000		4.474	Continuing	Continuing	Continuing
Subtotal			16.646	6.104		4.474		0.000		4.474			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SROC Test and Evaluation	TBD/TBD	TBD TBD	0.000	0.000		0.500		0.000		0.500	0.000	0.500	0.000
Subtotal			0.000	0.000		0.500		0.000		0.500	0.000	0.500	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.066	21.764		18.974		0.000		18.974			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

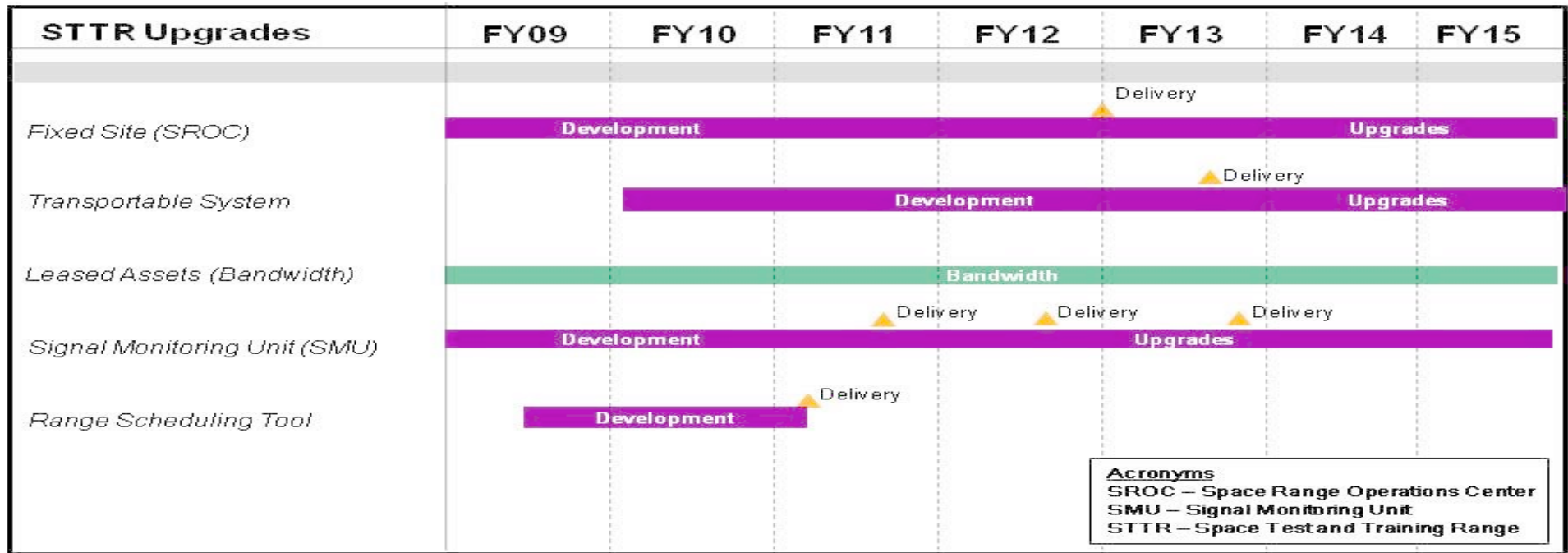
R-1 ITEM NOMENCLATURE

PE 0603438F: *Space Control Technology*

PROJECT

64A007: *Space Range*

STTR Program Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603438F: <i>Space Control Technology</i>	PROJECT 64A007: <i>Space Range</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Deliver Leased Assets	1	2009	4	2011
Upgrade Transportable System	1	2011	4	2011
Develop fixed-site capability (SROC)	1	2009	4	2011
Signal monitoring and collection (SMU)	1	2009	4	2011
Signal Monitoring Unit Delivery (SMU)	4	2011	4	2011
Range Scheduling Software Tool	1	2009	4	2010
Range Scheduling Software Tool Delivery	1	2011	1	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				PE 0603742F: <i>Combat Identification Technology</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	28.708	28.799	26.172	0.000	26.172	25.920	26.097	26.493	26.880	Continuing	Continuing
642597: <i>Noncooperative Identification Subsystems</i>	19.024	25.189	23.557	0.000	23.557	23.822	24.242	24.610	24.972	Continuing	Continuing
642599: <i>Cooperative Identification Techniques</i>	9.684	3.610	2.615	0.000	2.615	2.098	1.855	1.883	1.908	0.000	56.165

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>
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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 ground and air 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	29.300	27.841	0.000	0.000	0.000
Current President's Budget	28.708	28.799	26.172	0.000	26.172
Total Adjustments	-0.592	0.958	26.172	0.000	26.172
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.592	0.958	26.172	0.000	26.172

Change Summary Explanation

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.

FY 2011: The FY2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
642597: <i>Noncooperative Identification Subsystems</i>	19.024	25.189	23.557	0.000	23.557	23.822	24.242	24.610	24.972	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 targetting 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Establish and develop the Target Signature (multispectral) Database Development Program.	0.610	0.259	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: The Radar Vision technology applies Aided Target Recognition (ATR) algorithms.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>		9.203	10.682	9.543	0.000	9.543
<p>MAJOR THRUST: 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.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above listed activities.</p>		2.000	2.480	4.730	0.000	4.730

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Fund the Air Traffic Control Radar Beacon Systems Identification Friend or Foe Mark XII/XIIA System (AIMS) Program Office.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above listed activities. 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Not applicable</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		0.636	0.000	0.000	0.000	0.000
<p>MAJOR THRUST: Continue funding Combat Identification technology flight and other engineering support necessary for management of CID efforts.</p>		1.663	4.544	2.701	0.000	2.701

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>		PROJECT 642597: <i>Noncooperative Identification Subsystems</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above listed activities.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>								
<p>MAJOR THRUST: Conduct CID-related studies/demos and conferences.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>				0.100	0.479	0.300	0.000	0.300

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: X-Patch consists of software code refinement based on feedback from the X-Patch user community.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>	0.000	3.190	3.178	0.000	3.178
Accomplishments/Planned Programs Subtotals	19.024	25.189	23.557	0.000	23.557

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (4775): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Raytheon Company	C/CPFF	No text provided El Segundo, CA	24.527	3.795	Dec 2009	4.685	Dec 2010	0.000		4.685	Continuing	Continuing	Continuing
Northrop Grumman Corporation	C/CPFF	No text provided Linthicum Heights, MD	21.517	4.882	Nov 2009	5.074	Nov 2010	0.000		5.074	Continuing	Continuing	Continuing
Northrop Grumman Corporation (1)	C/CPFF	Rowling Meadows IL	11.677	3.657	Nov 2009	3.047	Nov 2010	0.000		3.047	Continuing	Continuing	Continuing
Science Applications Internation Corporation	SS/CPFF	Dayton OH	27.935	0.250	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
AIMS Program Office	MIPR	Warner Robins GA	6.595	0.000		0.000		0.000		0.000	0.000	6.595	Continuing
General Dynamcis	C/CPFF	Beavercreek OH	2.447	1.269	Dec 2009	1.150	Dec 2010	0.000		1.150	Continuing	Continuing	Continuing
Sverdrup Technology	C/CPFF	Ft Walton Beach FL	5.293	0.180	Nov 2009	0.270	Nov 2010	0.000		0.270	Continuing	Continuing	Continuing
SIREN & Litening Study	MIPR	Dayton OH	1.364	2.600	Dec 2009	0.000		0.000		0.000	0.000	3.964	0.000
DOE - Sandia National Labs	MIPR	Albuquerque NM	2.837	0.725	Dec 2009	2.150	Dec 2010	0.000		2.150	Continuing	Continuing	Continuing
Studies	MIPR	WPAFB OH	0.265	0.479	Dec 2009	0.300	Dec 2010	0.000		0.300	Continuing	Continuing	Continuing
X-Patch	TBD/TBD	WPAFB OH	0.000	3.190	Nov 2009	3.178	Nov 2010	0.000		3.178	Continuing	Continuing	Continuing
Lockheed Martin	C/CPFF	Eglin AFB FL	0.900	0.000		0.000		0.000		0.000	0.000	0.900	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			105.357	21.027		20.104		0.000		20.104			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO support	Various	Hanscom ESC	17.716	2.657	Oct 2009	2.409	Oct 2010	0.000		2.409	Continuing	Continuing	Continuing
Air Force Research Laboratory	MIPR	WPAFB OH	4.247	0.340	Oct 2009	0.350	Oct 2010	0.000		0.350	Continuing	Continuing	Continuing
Subtotal			21.963	2.997		2.759		0.000		2.759			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46th Test Wing	MIPR	Eglin AFB FL	6.461	0.300	Jun 2010	0.500	Jun 2011	0.000		0.500	Continuing	Continuing	Continuing
Atlantic Test Range	MIPR	Patuxent River MD	0.450	0.000		0.000		0.000		0.000	0.000	0.450	0.000
Test Wings	MIPR	Edwards AFB CA	2.592	0.615	Jun 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aberdeen Proving Ground	MIPR	Aberdeen Proving Ground MD	0.162	0.050	Jun 2010	0.050	Jun 2011	0.000		0.050	0.000	0.262	0.100
MISC	MIPR	Redstone Arsenal AL	1.027	0.200	Apr 2010	0.144	Apr 2011	0.000		0.144	Continuing	Continuing	Continuing
NASIC	MIPR	WPAFB OH	0.080	0.000		0.000		0.000		0.000	0.000	0.080	0.000
Yuma	MIPR	Yuma AZ	0.104	0.000		0.000		0.000		0.000	0.000	0.104	0.000
Subtotal			10.876	1.165		0.694		0.000		0.694			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	138.196	25.189	23.557	0.000	23.557			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

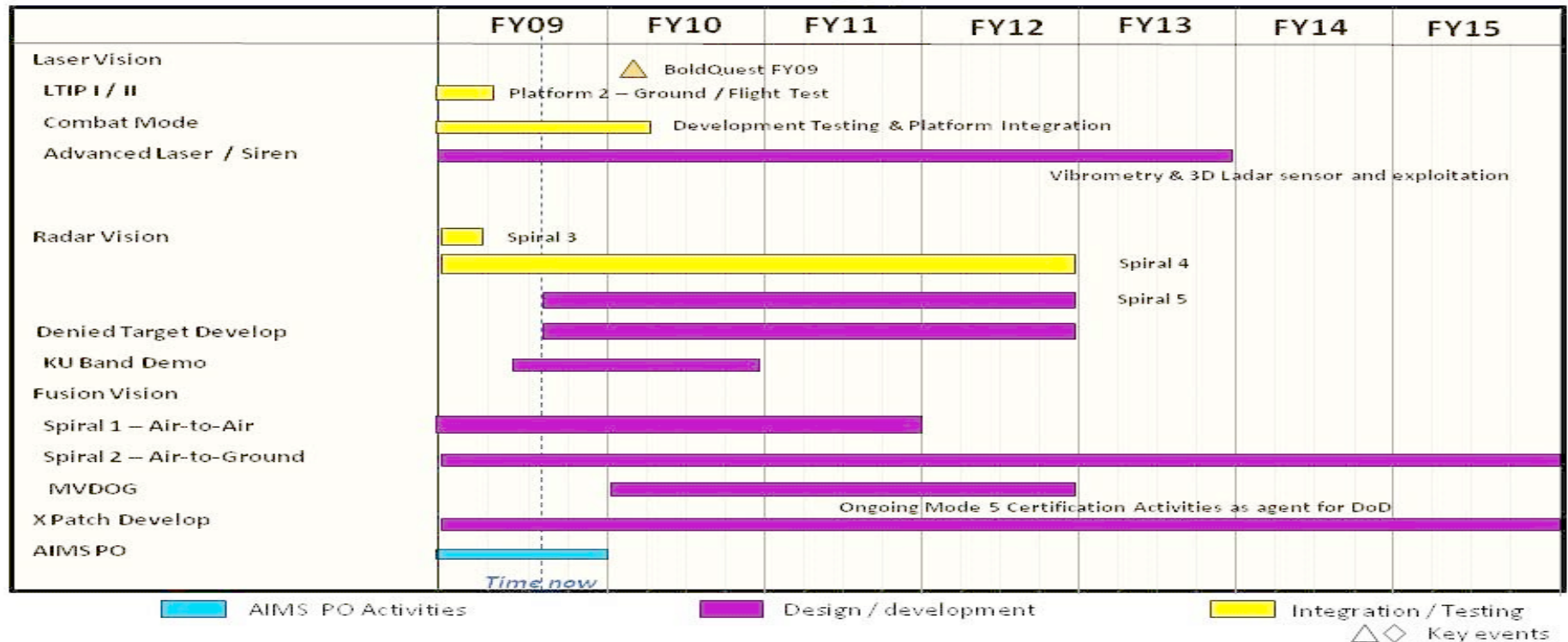
R-1 ITEM NOMENCLATURE

PE 0603742F: *Combat Identification Technology*

PROJECT

642597: *Noncooperative Identification Subsystems*

Non-Cooperative CID Technology Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642597: <i>Noncooperative Identification Subsystems</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
LASER VISION - LTIP I / LTIP II Platform 2 Ground / Flt Test	1	2009	1	2009
LASER VISION - Combat Mode Dev Test & Platform Integ	1	2009	1	2010
LASER VISION - Advanced Laser Sensing/Aided Target Recognition	1	2009	4	2011
RADAR VISION - Radar Vision Spiral 3	1	2009	1	2009
RADAR VISION - Radar Vision Spiral 4	1	2009	4	2011
RADAR VISION - Radar Vision Spiral 5	3	2009	4	2011
RADAR VISION - Denied Target Development	3	2009	4	2011
RADAR VISION - Ku-Band Demonstration	2	2009	4	2010
FUSION VISION - Spiral 1 - Air-toAir	1	2009	4	2011
FUSION VISION - Spiral 2 - Air-to-Ground	1	2009	4	2011
MVDOG	1	2010	4	2011
X-Patch Development	1	2009	4	2011
AIMSPO - IFF Certification Activities	1	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642599: <i>Cooperative Identification Techniques</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
642599: <i>Cooperative Identification Techniques</i>	9.684	3.610	2.615	0.000	2.615	2.098	1.855	1.883	1.908	0.000	56.165
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 ground and air 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). <i>FY 2009 Accomplishments:</i> In FY 2009: 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. Continue funding Combat Identification technology flight and other engineering support necessary for management of Mode 5 efforts.	5.028	2.280	0.833	0.000	0.833

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642599: <i>Cooperative Identification Techniques</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Not applicable</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>					
Accomplishments/Planned Programs Subtotals	9.684	3.610	2.615	0.000	2.615

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (5387): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

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

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642599: <i>Cooperative Identification Techniques</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering/ Program Management (AIMS PO)AF 616	TBD/TBD	Robins AFB GA	1.447	1.330	Nov 2009	1.782		0.000		1.782	Continuing	Continuing	Continuing
Subtotal			1.447	1.330		1.782		0.000		1.782			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals		30.823	3.610		2.615		0.000	2.615			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

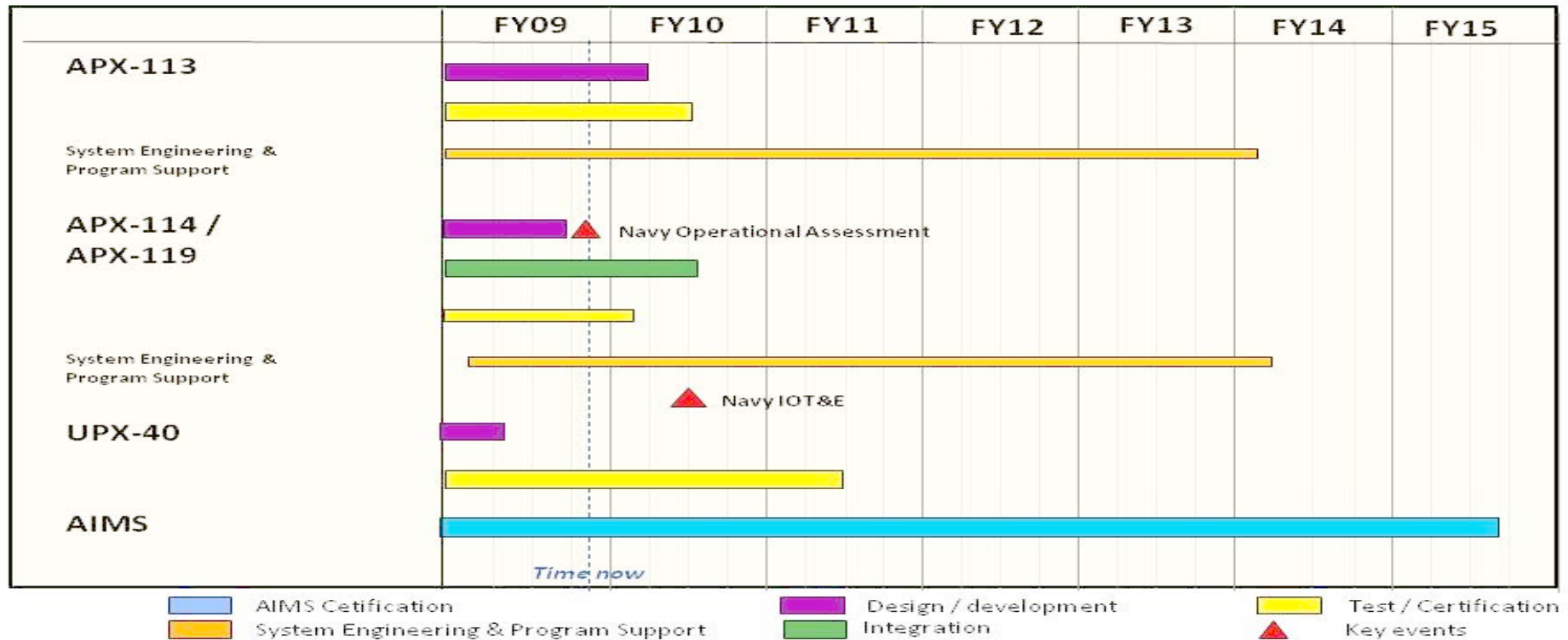
R-1 ITEM NOMENCLATURE

PE 0603742F: *Combat Identification Technology*

PROJECT

642599: *Cooperative Identification Techniques*

Cooperative CID Technology Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603742F: <i>Combat Identification Technology</i>	PROJECT 642599: <i>Cooperative Identification Techniques</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
APX-113 - Systems Development/Demonstration	1	2009	1	2010
APX-113 - Test and Evaluation - AIMS Certification	1	2009	4	2009
APX-113 System Engineering & Program Support	1	2009	2	2010
APX-114/APX-119 - Systems Development/Demonstration	1	2009	3	2009
APX-114/APX-119 - Systems Integration	1	2009	3	2010
APX-114/APX-119 - Test and Evaluation - AIMS Certification	1	2009	1	2010
APX-114 /APX-119 System Engineering & Program Support	1	2009	4	2010
UPX-40 - Systems Development/Demonstration	1	2009	2	2009
UPX-40 - Test and Evaluation - AIMS Certification	1	2009	2	2011
AIMS Program Office Support	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	4.241	4.351	4.372	0.000	4.372	4.439	4.519	4.589	4.656	Continuing	Continuing
64NATO: <i>Nato Coop R&D</i>	4.241	4.351	4.372	0.000	4.372	4.439	4.519	4.589	4.656	Continuing	Continuing

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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	4.322	4.351	0.000	0.000	0.000
Current President's Budget	4.241	4.351	4.372	0.000	4.372
Total Adjustments	-0.081	0.000	4.372	0.000	4.372
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.081	0.000			
• Other Adjustments	0.000	0.000	4.372	0.000	4.372

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603790F: *NATO Cooperative R&D*

Change Summary Explanation

FY11: The FY 2010 President's Budget submittal didn't reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64NATO: <i>Nato Coop R&D</i>	4.241	4.351	4.372	0.000	4.372	4.439	4.519	4.589	4.656	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System Interoperability Analysis and Demonstration (ESC and NATO). <i>FY 2009 Accomplishments:</i> In FY 2009: 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.	0.150	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A						
MAJOR THRUST: Provide the capability for the Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board (AFRL and Australia) <i>FY 2009 Accomplishments:</i> In FY 2009: 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. <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.100	0.000	0.000	0.000	0.000
MAJOR THRUST: Development of Electro-Optic and Infrared Countermeasures and Protection Measures (AFRL and UK).		0.300	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A						
MAJOR THRUST: Distributed Collaboration for Network-Centric Command and Control (AFRL and Australia). <i>FY 2009 Accomplishments:</i> In FY 2009: 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. <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.200	0.000	0.000	0.000	0.000
MAJOR THRUST: Toxicity of Engineered Nanomaterials and Their Interaction with Biological systems (AFRL and India). <i>FY 2009 Accomplishments:</i> In FY 2009: Cooperative project to develop nanotoxicoinformatics tools to support nanomaterials research and development across a wide range of applications. <i>FY 2010 Plans:</i> In FY 2010: N/A		0.100	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>						
<p>MAJOR THRUST: Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials (AFRL and Australia).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continue 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.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>		0.100	0.100	0.000	0.000	0.000
<p>MAJOR THRUST: Modulation of Immune Response by Inhaled Engineered Nanoparticles (AFRL and Sweden).</p>		0.100	0.100	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Flapping Wing Micro Air Vehicle Collaborative Development (AFRL and Korea). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Cooperative project to design, develop and test a prototype micro air vehicle. <i>FY 2011 Base Plans:</i> In FY 2011: Continue cooperative project to design, develop and test a prototype micro air vehicle. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	0.300	0.100	0.000	0.100
MAJOR THRUST: Ultrahigh Temperature Ceramics (AFRL and UK). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Cooperative project to accelerate understanding and development of ultrahigh temperature ceramic materials for system transition. <i>FY 2011 Base Plans:</i> In FY 2011: Continue cooperative project to accelerate understanding and development of ultrahigh temperature ceramic materials for system transition. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	0.300	0.250	0.000	0.250
MAJOR THRUST: Compact Penetrating Weapons for the Defeat of Hardened Targets (AFRL - UK).		0.000	0.300	0.400	0.000	0.400

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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>		PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Cooperative project to improve maximum penetration and lethal effectiveness capability in weapons for use with advanced fighter aircraft and other aircraft.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project to improve maximum penetration and lethal effectiveness capability in weapons for use with advanced fighter aircraft and other aircraft.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>								
<p>MAJOR THRUST: Dynamic Network Visualization Techniques for Cyberspace (AFRL - Singapore).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Cooperative project to develop visualization and interaction techniques for showing dynamic network information for cyberspace operations.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project to develop visualization and interaction techniques for showing dynamic network information for cyberspace operations.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>				0.000	0.300	0.400	0.000	0.400

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Assessment of Military Operations in Urban Terrain (AFRL - Germany). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Cooperative project to investigate the lethality of an array of munitions against military operations against urban terrain targets. <i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project to investigate the lethality of an array of munitions against military operations against urban terrain targets. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	0.300	0.300	0.000	0.300
MAJOR THRUST: Thermal Barrier Coating Health and Turbine Temperature Sensing (AFRL and UK). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Cooperative project to test thermal barrier coating in suitable environments where common nomenclature, test specification, data format, standardization, and interoperability can be established. <i>FY 2011 Base Plans:</i> In FY 2011: 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	0.300	0.350	0.000	0.350

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A						
MAJOR THRUST: Efficacy of Vibrotactile Stimulation in Simulated Operational Conditions (AFRL and The Netherlands). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Cooperative project to validate the efficacy of a vibrotactile landing aid for helicopter pilots under simulated operational conditions, i.e. after prolonged time-on-task and wearing full garment in a warm environment. <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	0.300	0.000	0.000	0.000
MAJOR THRUST: Next Generation Advanced Composite Processing Science (AFRL and Canada). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: 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	0.300	0.050	0.000	0.050

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project to build prototype machine translation system for English and German to Dari to support coalition operations in Afghanistan.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>						
<p>MAJOR THRUST: Live, Virtual and Constructive Immersive Decision Making Environments (711 HPW/RHA and Canada).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project to significantly improve cost and effectiveness of LVC technology, focusing on UAV, Homeland Defense and Electronic Warfare training, rehearsal and advanced threat modeling.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>		0.000	0.000	0.300	0.000	0.300
<p>MAJOR THRUST: Robust Solid State Materials for Optical Sensors Protection (AFRL and Sweden).</p>		0.000	0.000	0.200	0.000	0.200

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A						
MAJOR THRUST: Molecular Basis of Stress Responses Using In Vitro Neuronal Models (AFRL and India). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project will enhance warfighter performance optimization through the controlling and monitoring of molecular analytes corresponding to cognitive function and its stressors. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	0.000	0.050	0.000	0.050
MAJOR THRUST: Synthesis, Formulation and Characterization of Structural Nano-Energetics (AFRL and Singapore). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: N/A		0.000	0.000	0.300	0.000	0.300

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Cooperative project will develop structural nano-energetic material to transition for replacement of current structural components on micro-munitions and UAVs and enhanced blast effects.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	4.241	4.351	4.372	0.000	4.372

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (6779): <i>Not Applicable.</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFRL Hanscom AFB, MA	TBD/TBD	TBD TBD	0.600	0.100		0.000		0.000		0.000	Continuing	Continuing	Continuing
AFRL Eglin AFB, FL	TBD/TBD	TBD TBD	0.200	0.400		0.800		0.000		0.800	Continuing	Continuing	Continuing
ESC Hanscom, MA	TBD/TBD	TBD TBD	0.000	0.400		0.600		0.000		0.600	Continuing	Continuing	Continuing
AFRL Edwards AFB, CA	TBD/TBD	TBD TBD	0.134	0.400		0.000		0.000		0.000	Continuing	Continuing	Continuing
46th Test Wing Eglin AFB, FL	TBD/TBD	TBD TBD	0.300	0.300		0.100		0.000		0.100	Continuing	Continuing	Continuing
AFRL Tyndal AFB, FL	TBD/TBD	TBD TBD	0.000	0.400		0.300		0.000		0.300	Continuing	Continuing	Continuing
AFRL Meza, AZ	TBD/TBD	TBD TBD	0.300	0.400		0.000		0.000		0.000	Continuing	Continuing	Continuing
AFRL Rome, NY	TBD/TBD	TBD TBD	0.200	0.400		0.100		0.000		0.100	Continuing	Continuing	Continuing
AFRL WPAFB, OH	TBD/TBD	TBD TBD	1.919	1.000		1.989		0.000		1.989	Continuing	Continuing	Continuing
Subtotal			3.653	3.800		3.889		0.000		3.889			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>				PROJECT 64NATO: <i>Nato Coop R&D</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Armaments Center, FL	TBD/TBD	TBD TBD	0.300	0.400		0.483		0.000		0.483	Continuing	Continuing	Continuing
Arnold Engineering Development Center, TN	TBD/TBD	TBD TBD	0.288	0.151		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.588	0.551		0.483		0.000		0.483			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.241	4.351		4.372		0.000		4.372			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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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-4, RDT&E Schedule Profile: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Machine Translation for International Security Assistance Force	FY11	2011	2016	63790F
Live, Virtual, and Constructive Immersive Decision Making Environments	FY11	2011	2016	63790F
Robust Solid State Materials for Optical Sensors Protection	FY11	2011	2016	63790F
Common Coalition Airborne Access Portal	FY11	2011	2016	63790F
Radio Frequency Modeling and Simulation for Distributed Electronic Warfare, Situational Awareness and Response	FY11	2011	2016	63790F
Advanced Ladar and Imaging Analysis System	FY11	2011	2016	63790F
Molecular Basis of Stress Responses Using In Vitro Neuronal Models	FY11	2011	2016	63790F
Synthesis, Formulation and Characterization of Structural Nano-Energetics	FY11	2011	2016	63790F

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
US Theater Battle Management Core System and NATO ACCS signed	1	2009	1	2009
- Test and Analysis	1	2009	2	2009
- Final Report	3	2009	4	2009
Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board	1	2009	1	2009
- Testing and Analysis	1	2009	2	2009
- Final Report (1)	3	2009	4	2009
Development of Electro-Optic & Infrared Countermeasures and Protection Measures	1	2009	1	2009
- Testing and Analysis (2)	1	2009	2	2009
- Final Report (3)	3	2009	4	2009
Engagement-level Modeling for HPM Weapons Applications	1	2009	1	2009
- Testing and Analysis (4)	1	2009	2	2009
- Final Report (5)	4	2009	4	2009
Hypersonic Flight Research and Development	1	2009	1	2009
- Testing and Analysis (6)	1	2009	2	2009
- Final Report (7)	4	2009	4	2009
US Theater Battle Management Core Systems (TBMCS)	1	2009	1	2009
- Testing and Analysis (8)	1	2009	2	2009
- Final Report (9)	3	2009	4	2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
Coalition Airspace Information Sharing (CAIS)	1	2009	1	2009
- Testing and Analysis (10)	1	2009	2	2009
- Final Report (11)	3	2009	4	2009
Mission Planning and NATO Tasking Interoperability	1	2009	1	2009
- Testing and Analysis (12)	1	2009	2	2009
- Final Report (13)	3	2009	4	2009
Study of Insensitive Explosives for High-Speed Penetrators	1	2009	1	2009
- Testing and Analysis (14)	1	2009	2	2009
- Final Report (15)	2	2009	4	2009
Integrally Bladed Rotor Report Validation	1	2009	1	2009
- Testing and Analysis (16)	1	2009	2	2009
- Final Report (17)	3	2009	4	2009
Distributed Collaboration for Network-Centric Command and Control	1	2009	1	2009
- Testing and Analysis (18)	1	2009	2	2009
- Final Report (19)	3	2009	4	2009
Toxicity of Nano-Engineered Materials	1	2009	1	2009
- Testing and Analysis (20)	1	2009	2	2009
- Final Report (21)	3	2009	4	2009
Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials	1	2009	1	2009
Signed Agreement	2	2009	2	2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
- Testing and Analysis (22)	2	2009	2	2010
Final Report	3	2010	4	2010
Modulation of Immune Response by Inhaled Engineered Nanoparticles	1	2009	1	2009
- Signed Agreement	2	2009	2	2009
- Testing and Analysis (23)	2	2009	2	2010
- Final Report (24)	3	2010	4	2010
Image Gyro	1	2009	1	2009
- Signed Agreement (25)	2	2009	2	2009
- Testing and Analysis (26)	2	2009	2	2010
- Final Report (27)	3	2010	4	2010
Durability Assessment and Probabilistic Life Prediction of Titanium Alloys	1	2009	1	2009
- Signed Agreement (28)	2	2009	2	2009
- Testing and Analysis (29)	2	2009	2	2010
- Final Report (30)	3	2010	4	2010
Aging Systems Materials and Process Technologies	1	2009	1	2009
- Signed Agreement (31)	2	2009	2	2009
- Testing and Analysis (32)	2	2009	2	2010
- Final Report (33)	3	2010	4	2010
Military Aircraft Survivability Through Improved Composite Structures	1	2010	1	2010
- Signed Agreement (34)	2	2010	2	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
- Testing and Analysis (35)	2	2010	2	2011
- Final Report (36)	3	2011	4	2011
Flapping Wing Micro Air Vehicle Collaborative Development	1	2010	1	2010
- Signed Agreement (37)	2	2010	2	2010
- Testing and Analysis (38)	2	2010	2	2011
- Final Report (39)	3	2011	4	2011
Ultrahigh Temperature Ceramics	1	2010	1	2010
- Signed Agreement (40)	2	2010	2	2010
- Testing and Analysis (41)	2	2010	2	2011
- Final Report (42)	3	2011	4	2011
Compact Penetrating Weapons for the Defeat of Hardened Targets	1	2010	1	2010
- Signed Agreement (43)	2	2010	2	2010
- Testing and Analysis (44)	2	2010	2	2011
- Final Report (45)	3	2011	4	2011
Dynamic Network Visualization Techniques for Cyberspace	1	2010	1	2010
- Signed Agreement (46)	2	2010	2	2010
- Testing and Analysis (47)	2	2010	2	2011
- Final Report (48)	3	2011	4	2011
Assessment of Military Operations in Urban Terrain	1	2010	1	2010
- Signed Agreement (49)	2	2010	2	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
- Testing and Analysis (50)	2	2010	2	2011
- Final Report (51)	3	2011	4	2011
Thermal Barrier Coating Health and Turbine Temperature Sensing	1	2010	1	2010
- Signed Agreement (52)	2	2010	2	2010
- Testing and Analysis (53)	2	2010	2	2011
- Final Report (54)	3	2011	4	2011
Efficacy of Vibrotactile Stimulation in Simulated Operational Conditions	1	2010	1	2010
- Signed Agreement (55)	2	2010	2	2010
- Testing and Analysis (56)	2	2010	2	2011
- Final Report (57)	3	2011	4	2011
Next Generation Advanced Composite Processing Science	1	2010	1	2010
- Signed Agreement (58)	2	2010	2	2010
- Testing and Analysis (59)	3	2010	2	2011
- Final Report (60)	3	2011	4	2011
Machine Translation for International Security Assistance Force	1	2011	1	2011
- Signed Agreement (61)	2	2011	2	2011
Live, Virtual and Constructive Immersive Decision Making Environments	1	2011	1	2011
- Signed Agreement (62)	2	2011	2	2011
- Test and Evaluation	2	2011	4	2011
Robust Solid State Materials for Optical Sensors Protection	1	2011	1	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603790F: <i>NATO Cooperative R&D</i>	PROJECT 64NATO: <i>Nato Coop R&D</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
- Signed Agreement (63)	2	2011	2	2011
- Testing and Evaluation	2	2011	4	2011
Common Coalition Airborne Access Portal	1	2011	1	2011
- Signed Agreement (64)	2	2011	2	2011
- Testing and Evaluation (65)	2	2011	4	2011
Rado Frequency Modeling and Simulation for Distributed Electronic Warfare, Situational Awareness and Response	1	2011	1	2011
- Signed Agreement (66)	2	2011	2	2011
- Test and Evaluation (67)	2	2011	4	2011
Advanced Ladar and Imaging Analysis System	1	2011	1	2011
- Signed Agreement (68)	2	2011	2	2011
- Testing and Evaluation (69)	2	2011	4	2011
Molecular Basis of Stress Responses Using In Vitro Neuronal Models	1	2011	1	2011
- Signed Agreement (70)	2	2011	2	2011
- Testing and Evaluation (71)	2	2011	4	2011
Synthesis, Formulation and Characterization of Structural Nano-Energetics	1	2011	1	2011
- Signed Agreement (72)	2	2011	2	2011
- Testing and Evaluation (73)	2	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.603	0.632	0.635	0.000	0.635	0.644	0.654	0.664	0.673	Continuing	Continuing
645035: <i>Intl Space Coop R&D</i>	0.603	0.632	0.635	0.000	0.635	0.644	0.654	0.664	0.673	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.620	0.632	0.000	0.000	0.000
Current President's Budget	0.603	0.632	0.635	0.000	0.635
Total Adjustments	-0.017	0.000	0.635	0.000	0.635
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.017	0.000	0.635	0.000	0.635

Change Summary Explanation

FY11: The 2010 President's Budget submittal did not reflect FY 2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645035: <i>Intl Space Coop R&D</i>	0.603	0.632	0.635	0.000	0.635	0.644	0.654	0.664	0.673	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Multidemsional Diffusion of High Energy Radiation Belt Electrons (AFRL and UK). <i>FY 2009 Accomplishments:</i> In FY09: 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	0.220	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY09: N/A</p> <p><i>FY 2010 Plans:</i> In FY10: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY11: Overhead Persistent Infrared (OPIR) Data Fusion Experiments of Early Launch Detection and Tracking (AFSPC and Australia) - Cooperative project will leverage US and Australian expertise in fusing HF and OPIR Radar. The Australian HF Radar SkyWave Line-of-Sight (SkyLOS) component technologies when combined with OPIR provide a significant improvement over OPIR sensors alone. The integration of the can achieve a potential force enhancer for ballistic missile defense and warning applications.</p> <p><i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.603	0.632	0.635	0.000	0.635

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (7596): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603791F: <i>International Space Cooperative R&D</i>	645035: <i>Intl Space Coop R&D</i>

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFRL, WPAFB	TBD/TBD	TBD TBD	0.110	0.143	Feb 2010	0.199	Dec 2010	0.000		0.199	Continuing	Continuing	Continuing
AFRL EDWARDS AFB, CA	TBD/TBD	TBD TBD	0.493	0.389	Feb 2010	0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
Space System Center	TBD/TBD	TBD TBD	0.000	0.000		0.200	Dec 2010	0.000		0.200	0.000	0.200	0.000
Subtotal			0.603	0.532		0.499		0.000		0.499			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFRL EDWARDS AFB, CA	TBD/TBD	TBD TBD	0.000	0.100	Mar 2010	0.136	Dec 2010	0.000		0.136	Continuing	Continuing	Continuing
Subtotal			0.000	0.100		0.136		0.000		0.136			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.603	0.632	0.635	0.000	0.635			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Forecasting Communication and Navigation Disruptions due to Inospheric Disturbance During Solar Minimum	FY06	2007	2011	63791F
Multidimensional 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
High Frequency Radar – Overhead Persistent Infrared Data Fusion Experiments for Early Launch Detection and Tracking	FY11	2011	2016	63791F

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603791F: <i>International Space Cooperative R&D</i>	PROJECT 645035: <i>Intl Space Coop R&D</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Multidimensional Diffusion of High Energy Radiation Belt Electrons	1	2009	1	2009
- Study	1	2009	2	2009
- Final Report	4	2009	4	2009
Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands	1	2009	1	2009
- Technical development	1	2009	4	2009
- Test and analysis	1	2010	4	2010
- Final Report (1)	1	2010	1	2010
Energy Transport by Neutral Winds During Magnetic Storms	1	2010	1	2010
- Technical Development (2)	1	2010	4	2010
- Test and analysis	1	2011	4	2011
Post Mission Analysis of High Frequency Radar - Overhead Persistent Infrared Data Fusion Experiments for Early Launch Detection and Tracking	1	2011	1	2011
- Technical Development (3)	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	8.349	0.000	8.349	9.852	10.456	11.517	12.479	Continuing	Continuing
64A025: <i>Space Protection Program Assessment and Analysis</i>	0.000	0.000	8.349	0.000	8.349	9.852	10.456	11.517	12.479	0.000	0.000

Note

This is a new PE in FY 2011. All Space Protection Program funding and content transferred from PE 0603438F, Space Control Technology and PE 0305940F, Space Situation Awareness.

A. Mission Description and Budget Item Justification

Growing dependence on space and demonstrated vulnerabilities have highlighted the need to actively plan and respond to threats against national security space effects and deliver informed options to national leaders and system acquirers. Public Law 110-181 mandated development of a DoD space protection strategy and the recent "Sense of Congress" has been that "the United States should place greater priority on the protection of national security space systems." In response to these needs, concerns and direction, the Air Force (AF) and National Reconnaissance Office (NRO) formed a partnership and leveraged a combination of Department of Defense (DoD) and Office of the Director of National Intelligence (ODNI) resources in March 2008 to establish and execute the Space Protection Program (SPP); a joint, enduring program to develop an integrated protection approach for the nation covering all defense, intelligence, civil, commercial and allied space systems. In the absence of a SPP-specific construct or Program Element Code (PEC), the DoD portion of the SPP was budgeted and executed under existing program/mission areas in FY08-FY10. As the SPP mission matured and specific efforts were defined/directed, the activity evolved into an independent effort requiring implementation of a financial construct consistent with this evolution and emergent mission. FY11 marks the initiation and use of the SPP-specific Program Element Code and SPP-specific inputs/exhibits to planning, programming and budgeting processes.

SPP is the foundational element of the National Space Protection Strategy; unifying and integrating AF, NRO, DoD and IC activities to deliver strategic recommendations to senior leaders and inform their decisions on how best to protect our space systems and stay ahead of the threat. The SPP mission is to preserve national security space effects through an integrated strategy to articulate vulnerabilities, assess threat impacts, identify options and recommend solutions leading to comprehensive space protection capabilities.

A fully-functioning SPP effort allows for the active planning, comprehensive analysis and timely delivery of products/tools to respond to threats against national security space effects and deliver informed options to national leaders and system acquirers. As designed, the SPP is to execute an integrated strategy to articulate vulnerabilities, assess threat impacts, identify options and recommend solutions leading to comprehensive space protection capabilities. Specifically, this involves

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	
<p>identifying and initiating protection-focused architectural decisions, generating comprehensive products to identify national capabilities and interdependencies, delivering tailored decision aids to operations centers, instituting key defense initiatives to address vulnerabilities in multiple orbit regimes, integrating cyberspace into the National Infrastructure Protection Framework, and continuing specific tasks to implement the Space Protection Strategy.</p> <p>Task A - Analytical Justification. Identify, prioritize, and develop recommendations for space protection options to preserve national space capabilities and guide future Science and Technology (S&T) research and investment focus areas. This task will conduct capability-based vulnerability and susceptibility assessments of blue architectures to identify options to enhance the survivability of the overall architectures. These assessments will deliver comprehensive technically justified set of space protection recommendations. Task A will also develop a set of protection roadmaps to establish core protection capabilities and prioritize protection investments across the entire space domain.</p> <p>Task B – Capabilities and Interdependencies (C&I). Develop and maintain a capabilities and interdependencies analysis capability for our nation by operating a C&I analysis team and continuously updating a C&I database. This task will provide senior leaders and our nation's space operational command centers with understanding of space capabilities, interdependencies, and consequence of loss in support of planning and decision making that impact the economic and physical security of the United States. In coordination with USTRATCOM and Joint Functional Component Command-Space, the task will provide Combatant Commanders a specific C&I product capturing theater space services dependencies, reliance on those services, and the consequence of the loss of those services. This product will be tailored to highlight space service reliance in each phase of the theater OPLANS/CONPLANS and have the capability to export data for use in other tools (e.g. visualization tools). Additionally, Task B will develop and maintain a future space architecture identifying the future on-orbit space architecture for the current year through additional 12 years focusing on DoD, Intelligence Community, Civil, Commercial-leased, and Friends & Allies space systems. This task also includes participation in wargames and exercises; ensuring that SPP C&I products and analysis are leveraged to improve strategy development at the strategic and operational levels.</p> <p>Task C - Alternative Futures. Provide insight to senior space leaders on how their space activities shape the strategic environment. Directly responsible to develop and coordinate Strategic Communication strategies on space protection across DoD and IC agencies. These strategies focus on space mission areas, architectures, programs and significant space and cyber events and how it relates to the overarching space protection strategy. Develops protection policy and strategy recommendations to include the development and implementation of the SECDEF and DNI approved National Space Protection Strategy for the nation. This strategy must be updated every 2 years.</p> <p>This project is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P) because it supports the research, analysis, development and prototyping of space protection activities.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	8.349	0.000	8.349
Total Adjustments	0.000	0.000	8.349	0.000	8.349
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	8.349	0.000	8.349

Change Summary Explanation

FY 2011: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A025: <i>Space Protection Program Assessment and Analysis</i>	0.000	0.000	8.349	0.000	8.349	9.852	10.456	11.517	12.479	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This is a new Program Element in FY2011. All Space Protection Program funding and content were transferred from PE 0630438F, Space Control Technology, and PE 0305940F, Space Situational Awareness, in FY 2011.

A. Mission Description and Budget Item Justification

Funds for the Space Protection Program (SPP) were not loaded into BPAC A025 during the budget cycle. They currently reside in BPAC 2611 Technology Insertion Planning and Analysis.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Space Protection/Security Systems & Capabilities <i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable <i>FY 2010 Plans:</i> In FY 2010: Not applicable <i>FY 2011 Base Plans:</i> In FY 2011: Identify, prioritize, and develop recommendations for space protection options to guide future Science and Technology (S&T) research and investment focus areas. Compile and analyze US National Security systems/capabilities (current and future) for decision makers. Develop alternative	0.000	0.000	5.785	0.000	5.785

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>futures support to provide senior space leaders insights and recommendations on how space activities shape the strategic environment.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Provide oversight, advisory and other technical support to the Space Protection Program.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Provide oversight, advisory and other technical support to the Space Protection Program.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		0.000	0.000	1.761	0.000	1.761
<p>MAJOR THRUST: Provide program support and infrastructure.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable</p>		0.000	0.000	0.803	0.000	0.803

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>		PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>							
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
<p><i>FY 2011 Base Plans:</i> In FY 2011: Provide program support and infrastructure.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>											
Accomplishments/Planned Programs Subtotals				0.000	0.000	8.349	0.000	8.349			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0603438F: <i>Space Control Technology, AF RDT&E</i>	6.300	6.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0305940F: <i>Space Situational Awareness, OMAF</i>	2.800	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D. Acquisition Strategy											
All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. The program consists of numerous small projects.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Assessment and Analysis Projects	Various/ Various	Various Various	0.000	0.000		5.785	Dec 2010	0.000		5.785	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		5.785		0.000		5.785			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support and Infrastructure	Various/ Various	Various Various	0.000	0.000		0.803	Dec 2010	0.000		0.803	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.803		0.000		0.803			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Oversight, Advisory and other Technical Support	Various/ Various	Various Various	0.000	0.000		1.761	Dec 2010	0.000		1.761	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		1.761		0.000		1.761			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000		8.349	0.000	8.349		

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

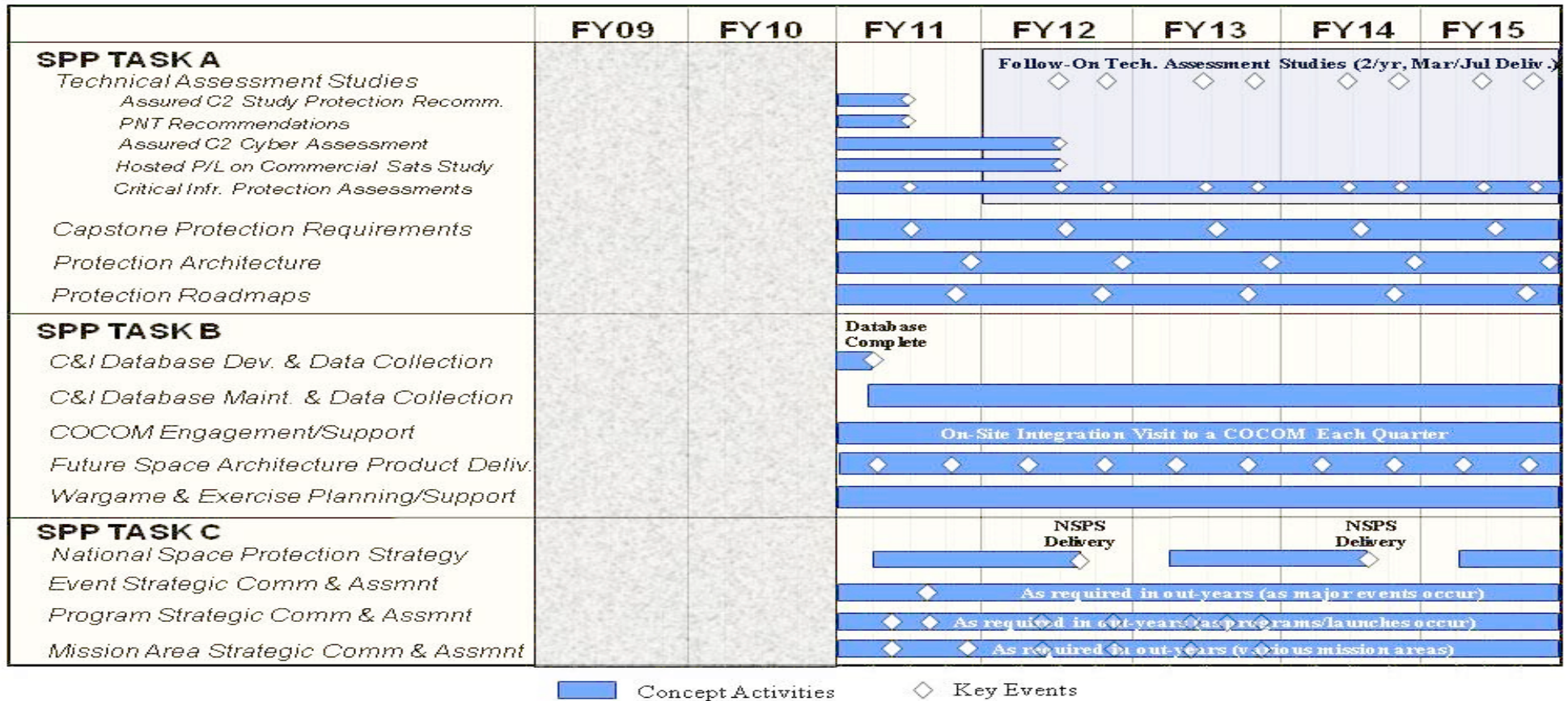
R-1 ITEM NOMENCLATURE

PE 0603830F: Space Protection Program

PROJECT

64A025: Space Protection Program
Assessment and Analysis

SPACE PROTECTION PROGRAM (SPP) Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603830F: <i>Space Protection Program</i>	PROJECT 64A025: <i>Space Protection Program Assessment and Analysis</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Task A Assured C2 Study Protection Recommendations Development	1	2011	2	2011
Task A Position, Navigation, Timing Recommendations	1	2011	2	2011
Task A Critical Infrastructure Protection Assessments	1	2011	4	2011
Task A Assured C2 Cyber Assessment	1	2011	4	2011
Task A Hosted Payloads on Commercial Satellites Study	1	2011	4	2011
Task B C&I Database Development & Data Collection	1	2011	1	2011
Task B C&I Database Maintenance & Data Collection	2	2011	4	2011
Task B COCOM Support	1	2011	4	2011
Task B Future Space Architecture Development	2	2011	2	2011
Task B Future Space Architecture Development (II)	4	2011	4	2011
Task C National Space Protection Strategy (NSPS)	2	2011	4	2011
Task C Event Strategic Communication	3	2011	3	2011
Task C Program Strategic Communication	2	2011	2	2011
Task C Mission Area Strategic Communication	2	2011	2	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	428.618	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
644944: <i>ADVANCED WIDEBAND SYSTEM</i>	428.618	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,383.300

Note

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

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 Mission Operations System (TMOS) and Systems Engineering and Integration (SE&I) contracts were terminated on 8 June and 9 June 2009, respectively. The two Space Segment Risk Reduction and System Definition (RRSD) contracts expired on 7 July 2009.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	761.285	0.000	0.000	0.000	0.000
Current President's Budget	428.618	0.000	0.000	0.000	0.000
Total Adjustments	-332.667	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-332.667	0.000	0.000	0.000	0.000

Change Summary Explanation

The Department terminated the TSAT program beginning FY10. Reprogrammed \$10.0M for higher priorities and Congress approved sourcing \$152M in an FY09 above threshold reprogramming action. Additionally, \$150M was rescinded in the FY09 Supplemental bill. SBIR reduction totaled \$20.667M.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644944: <i>ADVANCED WIDEBAND SYSTEM</i>	428.618	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,383.300
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

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

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 Mission Operations System (TMOS) and Systems Engineering and Integration (SE&I) contracts were terminated on 8 June and 9 June 2009, respectively. The two Space Segment Risk Reduction and System Definition (RRSD) contracts expired on 7 July 2009.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Contract close-out <i>FY 2009 Accomplishments:</i> In FY2009: Terminated TMOS and SE&I contracts and allowed the two RRSD contracts to expire. <i>FY 2010 Plans:</i> In FY2010: N/A	428.618	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY2011: N/A					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable					
Accomplishments/Planned Programs Subtotals	428.618	0.000	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0603854F: <i>Project 644870, CCS-C, RDT&E</i>	19.629	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Program Terminated

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>				PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Architecture Studies	C/CPAF	Various Various	14.900	0.000		0.000		0.000		0.000	0.000	14.900	0.000
Lockheed Martin: Technology Maturation/ Risk Reduction & Program System Definition	C/CPFF	Lockheed Martin Sunnyvale, CA	726.495	0.000		0.000		0.000		0.000	0.000	726.495	0.000
Boeing: Technology Maturation/Risk Reduction & Program System Definition	C/CPFF	Boeing El Segundo, CA	730.619	0.000		0.000		0.000		0.000	0.000	730.619	0.000
Booz Allen Hamilton: System Engineering & Integration / SE&I Follow-on Contractor TBD	TM	Booz Allen Hamilton El Segundo, CA	268.511	0.000		0.000		0.000		0.000	0.000	268.511	0.000
TMOS PRDAs	C/FFP	Various Various	55.139	0.000		0.000		0.000		0.000	0.000	55.139	0.000
TMOS: Lockheed Martin Integrated Systems and Solutions	C/CPAF	Lockheed Martin Integrated Systems and Solutions San Jose, CA	407.532	0.000		0.000		0.000		0.000	0.000	407.532	0.000
Risk Reduction: Technology Maturation	Various/ Various	Various Various	536.356	0.000		0.000		0.000		0.000	0.000	536.356	0.000
Risk Reduction: Technology Maturation	C/CPFF	Lockheed Martin Sunnyvale, CA	27.651	0.000		0.000		0.000		0.000	0.000	27.651	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(Space Segment) Lockheed Martin													
Risk Reduction: Technology Maturation (Space Segment) Boeing	C/CPFF	Boeing El Segundo, CA	27.651	0.000		0.000		0.000		0.000	0.000	27.651	0.000
Radiation Hardened Parts Developers	Various/ Various	Various Various	42.752	0.000		0.000		0.000		0.000	0.000	42.752	0.000
Subtotal			2,837.606	0.000		0.000		0.000		0.000	0.000	2,837.606	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Support	Various/ Various	Various Various	254.583	0.000		0.000		0.000		0.000	0.000	254.583	0.000
Program Support	Various/ Various	Various Various	63.444	0.000		0.000		0.000		0.000	0.000	63.444	0.000
Subtotal			318.027	0.000		0.000		0.000		0.000	0.000	318.027	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,155.633	0.000	0.000	0.000	0.000	0.000	3,155.633	0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>

**TSAT Program
Terminated**

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603845F: <i>Transformational SATCOM (TSAT)</i>	PROJECT 644944: <i>ADVANCED WIDEBAND SYSTEM</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Program Terminated	1	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	21.020	20.646	20.580	0.000	20.580	20.359	20.464	20.768	21.069	Continuing	Continuing
644778: <i>Integrated Broadcast Service</i>	21.020	20.646	20.580	0.000	20.580	20.359	20.464	20.768	21.069	0.000	0.000

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 Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four 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.
- Four 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	21.020	20.739	0.000	0.000	0.000
Current President's Budget	21.020	20.646	20.580	0.000	20.580
Total Adjustments	0.000	-0.093	20.580	0.000	20.580
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.093	20.580	0.000	20.580

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>				PROJECT 644778: <i>Integrated Broadcast Service</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644778: <i>Integrated Broadcast Service</i>	21.020	20.646	20.580	0.000	20.580	20.359	20.464	20.768	21.069	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four 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.
- Four 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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>		PROJECT 644778: <i>Integrated Broadcast Service</i>	
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Continue systems engineering and development of architectures.</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: 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</p> <p><i>FY 2010 Plans:</i> In FY2010: 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</p> <p><i>FY 2011 Base Plans:</i> In FY2011: 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</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>	1.115	1.906	1.773	0.000	1.773
<p>MAJOR THRUST: Continue the Phase II/System Development and Demonstration of the GINS and TINs</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continue the Phase II/System Development and Demonstration of the GINS and TINs</p> <p><i>FY 2010 Plans:</i> In FY2010: Continue the Phase II/System Development and Demonstration of the GINS and TINs</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continue the Phase II/System Development and Demonstration of the GINS and TINs</p>	14.912	14.346	14.572	0.000	14.572

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>	PROJECT 644778: <i>Integrated Broadcast Service</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Continue Test & Evaluation <i>FY 2009 Accomplishments:</i> In FY2009: Continue Test & Evaluation <i>FY 2010 Plans:</i> In FY2010: Continue Test & Evaluation <i>FY 2011 Base Plans:</i> In FY2011: Continue Test & Evaluation <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		1.264	1.552	1.602	0.000	1.602
MAJOR THRUST: Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution <i>FY 2009 Accomplishments:</i> In FY2009: Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution <i>FY 2010 Plans:</i> In FY2010: Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution		1.912	2.142	1.933	0.000	1.933

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>		PROJECT 644778: <i>Integrated Broadcast Service</i>							
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
<p><i>FY 2011 Base Plans:</i> In FY2011: Enterprise Systems Engineering/CMF Integration/CIB Integration</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>											
Accomplishments/Planned Programs Subtotals				21.020	20.646	20.580	0.000	20.580			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0305179F: <i>Integrated Broadcast Service (OPAF)</i>	19.526	12.434	12.612	0.000	12.612	12.872	13.114	13.307	13.524	0.000	0.000
• PE 0305179F (1): <i>Integrated Broadcast Service (O&M)</i>	18.688	12.566	18.535	0.000	18.535	20.089	20.268	20.577	21.340	0.000	0.000
D. Acquisition Strategy											
<p>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 2-4).</p> <p>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.</p>											
E. Performance Metrics											
<p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>				PROJECT 644778: <i>Integrated Broadcast Service</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Phase 2 Spiral 2 - 4	C/CPAF	BTG, Inc./Titan/ L-3 Comm Reston, VA	14.912	14.346	Nov 2009	14.572	Nov 2010	0.000		14.572	Continuing	Continuing	Continuing
JTRS MATRIX Reformatter	C/FFP	L-3 Comm, ISD Greenville, TX	1.220	0.000		0.000		0.000		0.000	0.000	1.220	7.992
Subtotal			16.132	14.346		14.572		0.000		14.572			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interoperability and Developmental Testing	MIPR	JITC Ft Huachuca, AZ & 46th OSS: Eglin AFB, FL	1.264	1.552	Jan 2010	1.602	Jan 2011	0.000		1.602	Continuing	Continuing	Continuing
Subtotal			1.264	1.552		1.602		0.000		1.602			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>	PROJECT 644778: <i>Integrated Broadcast Service</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO/Professional Acqisition Support Services (PASS), Engineering and Technical Acquisition Support Service (ETASS), Specialized Cost Service (SCS)	Various/ Various	Local Area (Bedford, MA)/ Washington DC Area	1.912	2.142	Jan 2010	1.933	Jan 2011	0.000		1.933	Continuing	Continuing	Continuing
MITRE	SS/CPFF	Mgt Bedford, MA	1.115	1.906	Oct 2009	1.773	Oct 2010	0.000		1.773	Continuing	Continuing	Continuing
Enterprise Engineering/CMF Integration/CIB Integration	SS/CPFF	L-3 Comm, IS Greenville, TX	0.597	0.700	Mar 2010	0.700	Mar 2011	0.000		0.700	Continuing	Continuing	Continuing
Subtotal			3.624	4.748		4.406		0.000		4.406			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.020	20.646	20.580	0.000	20.580			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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R-1 Line Item #42

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

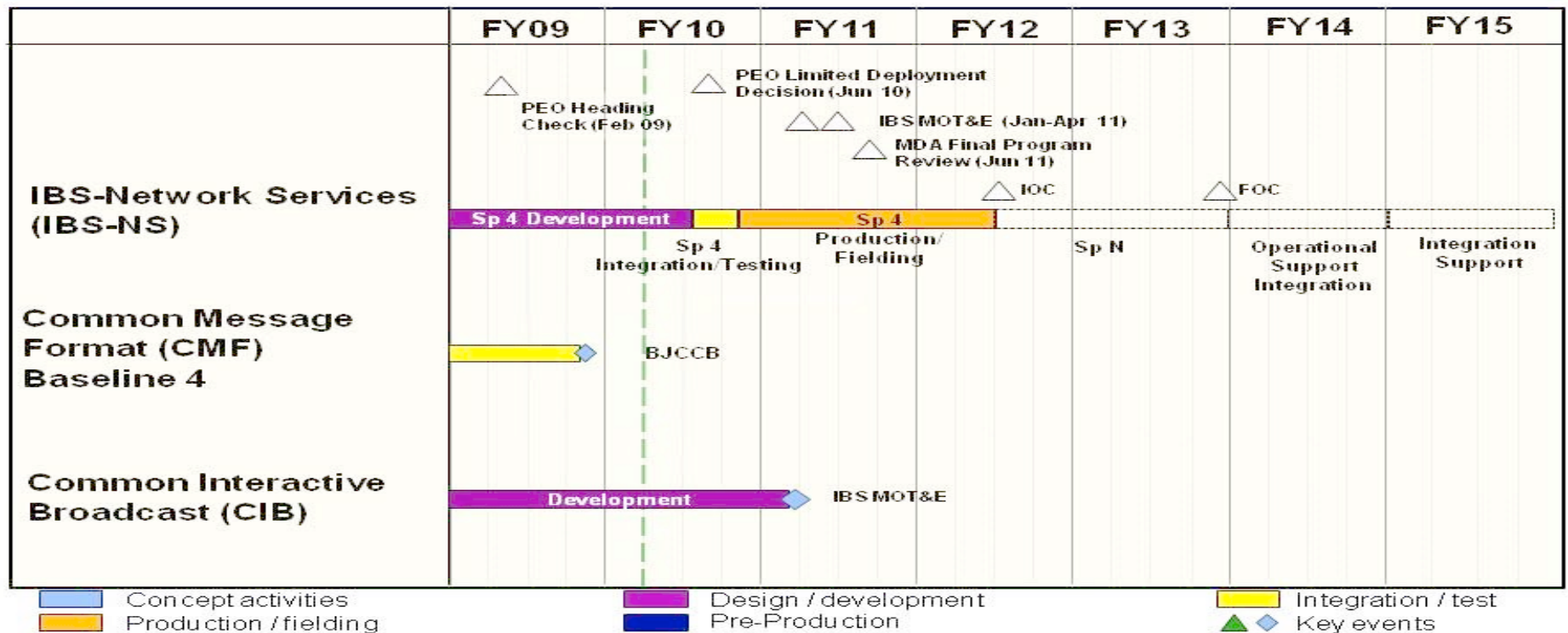
PE 0603850F: Integrated Broadcast Service (DEM/VAL)

PROJECT

644778: Integrated Broadcast Service



IBS Broadcast Segment Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603850F: <i>Integrated Broadcast Service (DEM/VAL)</i>	PROJECT 644778: <i>Integrated Broadcast Service</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
IBS-NS Development	1	2009	3	2010
IBS-NS Integration/Test	3	2010	4	2010
IBS-NS PEO Heading Check	2	2009	2	2009
CMF BJCCB Configuration Control	4	2009	4	2009
CIB Development/Test	1	2009	1	2011
PEO Limited Deployment Decision	3	2010	3	2010
MDA Final Program Review	3	2011	3	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	58.937	68.097	66.745	0.000	66.745	67.976	69.282	70.335	71.413	Continuing	Continuing
641020: <i>ICBM Guidance Applications</i>	20.572	16.387	15.154	0.000	15.154	14.351	14.559	14.781	15.007	Continuing	Continuing
641021: <i>ICBM Propulsion Applications</i>	26.022	43.383	43.260	0.000	43.260	45.272	46.202	46.907	47.625	Continuing	Continuing
641022: <i>ICBM Reentry Vehicle Applications</i>	4.898	5.471	5.538	0.000	5.538	5.757	5.925	6.014	6.107	Continuing	Continuing
641023: <i>Rocket System Launch Program</i>	0.027	0.026	0.024	0.000	0.024	0.025	0.025	0.026	0.026	Continuing	Continuing
644209: <i>Long Range Planning (LRP)</i>	7.418	2.830	2.769	0.000	2.769	2.571	2.571	2.607	2.648	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>
--	--

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	70.237	66.079	0.000	0.000	0.000
Current President's Budget	58.937	68.097	66.745	0.000	66.745
Total Adjustments	-11.300	2.018	66.745	0.000	66.745
• Congressional General Reductions		-0.382			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-11.300	0.000	66.745	0.000	66.745

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 641021: *ICBM Propulsion Applications*

Congressional Add: *MM III Advanced Third Stage Domestic Fiber Motor Case Development*

Congressional Add Subtotals for Project: 641021

Project: 644209: *Long Range Planning (LRP)*

Congressional Add: *Conventional Strike Mission Integration Demonstration*

Congressional Add Subtotals for Project: 644209

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	0.000	2.400
	0.000	2.400
	4.787	0.000
	4.787	0.000
	4.787	2.400

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641020: <i>ICBM Guidance Applications</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
641020: <i>ICBM Guidance Applications</i>	20.572	16.387	15.154	0.000	15.154	14.351	14.559	14.781	15.007	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop, in coordination with the Navy, advanced solid-state guidance technology with higher reliability.	20.572	16.387	15.154	0.000	15.154
<i>FY 2009 Accomplishments:</i> In FY09: Completed preliminary requirements/architecture review for the advanced inertial measurement unit (AIMU). Finished design trade analysis (i.e instrument packaging). The strategic gyro and the strategic resonating beam accelerometer met accuracy, performance, vibration and test goals. Validated use of modeling to enhance a radiation hardness assurance program.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>		PROJECT 641020: <i>ICBM Guidance Applications</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY10: Continue to develop, prototype, and test solid-state instrument technologies (accelerometers and gyros). Continue to develop, analyze, evaluate, prototype, and test advanced solid-state inertial measurement unit concepts. Continue assessment, evaluation, and test of radiation hard electronics for strategic guidance applications. Conduct assessment, development, and implementation of test options to demonstrate future system concepts. Finish build and test of AIMU engineering model 1 and design engineering model 2 which will incorporate the the solid state strategic gyro and accelerometer.</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue to develop, prototype, and test solid-state instrument technologies (accelerometers and gyros). Continue to develop, analyze, evaluate, prototype, and test advanced solid-state inertial measurement unit concepts. Continue assessment, evaluation, and test of radiation hard electronics for strategic guidance applications. Conduct precision inertial navigation system experiment to demonstrate future strategic system concepts. Conduct assessment, development, and implementation of test options to demonstrate future system concepts. Complete model 2 AIMU prototype and conduct flight or sled test.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
Accomplishments/Planned Programs Subtotals				20.572	16.387	15.154	0.000	15.154

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641020: <i>ICBM Guidance Applications</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (9157): <i>None.</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641020: <i>ICBM Guidance Applications</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Develop, analyze, evaluate, prototype, test instrument technologies; IMU concepts	Various/ Various	AFRL Kirtland AFB NM; Honeywell; Redmond WA, Clearw...	67.291	14.505	Nov 2009	12.403	Nov 2010	0.000		12.403	Continuing	Continuing	Continuing
Assess, develop and implement precision inertial navigation system experiment	TBD/TBD	TBD TBD	0.000	0.000		1.000	Jan 2011	0.000		1.000	0.000	1.000	Continuing
Assess, evaluate and test of radiation hard electronics	Various/ Various	Navy Crane, Institute for Space and Defense Electronics Vanderbilt U.	0.500	0.500	Jan 2010	0.500	Jan 2011	0.000		0.500	Continuing	Continuing	Continuing
Subtotal			67.791	15.005		13.903		0.000		13.903			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Program Support	Various/ Various	SMC	6.017	1.132	Nov 2009	1.060	Nov 2010	0.000		1.060	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641020: <i>ICBM Guidance Applications</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Los Angeles CA; 526 ICBMSG, Hill AFB UT											
Subtotal			6.017	1.132		1.060		0.000		1.060			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test	Various/ Various	AFRL Kirtland AFB NM; Honeywell, Redmond WA, Clearwa...	0.750	0.250	Nov 2009	0.191	Nov 2010	0.000		0.191	Continuing	Continuing	Continuing
Subtotal			0.750	0.250		0.191		0.000		0.191			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641020: <i>ICBM Guidance Applications</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	74.558	16.387	15.154	0.000	15.154			

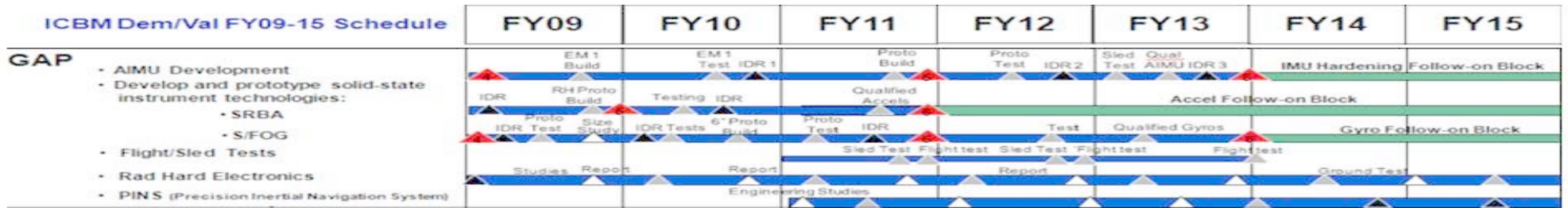
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641020: <i>ICBM Guidance Applications</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603851F: *ICBM - DEM/VAL*

PROJECT

641020: *ICBM Guidance Applications*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
IMU EM/Prototype Build	3	2009	3	2011
IMU Test	2	2010	2	2010
IMU Design Reviews	4	2010	4	2010
Gyro/Accelerometer Prototype build	4	2009	3	2010
Gyro/Accelerometer Design Reviews	2	2009	3	2011
Gyro/Accelerometer Tests	2	2009	1	2011
Rad-Hard Electronics Report	4	2009	4	2011
Flight/Sled Tests	3	2011	4	2011

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R-1 Line Item #43

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641021: <i>ICBM Propulsion Applications</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
641021: <i>ICBM Propulsion Applications</i>	26.022	43.383	43.260	0.000	43.260	45.272	46.202	46.907	47.625	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Assess, develop, evaluate, and demonstrate common solid propulsion technology and manufacturing leading to a static fire test launch. <i>FY 2009 Accomplishments:</i> In FY2009: Develops strategic propulsion capability and explores improvements to current systems. Supports the Solid Rocket Motor (SRM) industrial base & critical infrastructure. Completed successful Medium Class Stage (MCS) sea level static test at Edwards AFB. Completed MCS altitude motor and awaiting testing at the Arnold Engineering Development Center (AEDC). Completed successful MCS hydro-test on advanced third stage motor. Completed system requirement review for Large Class Stage (LCS) motors. Began LCS motor development.	26.022	40.983	43.260	0.000	43.260

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>		PROJECT 641021: <i>ICBM Propulsion Applications</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY2010: Develops strategic propulsion capability and explores improvements to current systems. Supports the Solid Rocket Motor (SRM) industrial base & critical infrastructure. Continue assessment and demonstration of ordnance and post-boost technology development. Continue LCS motor development. Complete case build and wind for LCS hydro test. Complete hydro test on LCS motors. Begin composite case design and build for advanced third stage motor.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Develops strategic propulsion capability and explores improvements to current systems. Supports the Solid Rocket Motor (SRM) industrial base & critical infrastructure. Continue assessment and demonstration of ordnance and post-boost technology development. Continue LCS motor development. Complete intermediate design review for the LCS motors. Complete static fire test for LCS motors.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
Accomplishments/Planned Programs Subtotals				26.022	40.983	43.260	0.000	43.260
				FY 2009	FY 2010			
<p>Congressional Add: MM III Advanced Third Stage Domestic Fiber Motor Case Development</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Not Applicable</p> <p><i>FY 2010 Plans:</i> In FY2010: MM III Advanced Third Stage Domestic Fiber Motor Case Development</p>				0.000	2.400			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641021: <i>ICBM Propulsion Applications</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Adds Subtotals	0.000	2.400

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (9427): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641021: <i>ICBM Propulsion Applications</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Evaluation and test of solid propulsion technologies	Various/ Various	AFRL Edwards AFB CA; Aerojet: Sacramento CA; ATK Th...	111.919	39.697	Nov 2009	34.474	Nov 2010	0.000		34.474	Continuing	Continuing	Continuing
Assess and demonstrate ordnance and post-boost components	Various/ Various	AFRL Edwards AFB, CAAerojet: Sacramento CA; ATK Thi...	0.000	1.000	Jan 2010	1.000	Jan 2011	0.000		1.000	Continuing	Continuing	Continuing
Evaluation of hazard classification methods	Various/ Various	AFRL , Edwards AFB, CAAerojet: Sacramento CA; ATK Th...	0.000	1.000	Jan 2010	1.000	Jan 2011	0.000		1.000	Continuing	Continuing	Continuing
Subtotal			111.919	41.697		36.474		0.000		36.474			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Program Support		AFRL	10.729	1.686	Nov 2009	1.786	Nov 2010	0.000		1.786	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641021: <i>ICBM Propulsion Applications</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	Various/ Various	Edwards AFB CA; 526 ICBMSG: Hill AFB UT											
Subtotal			10.729	1.686		1.786		0.000		1.786			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Static Fire (Edwards/ AEDC)	C/CPAF	Edwards/AEDC No text provided	0.531	0.000		5.000	Jan 2011	0.000		5.000	Continuing	Continuing	Continuing
Subtotal			0.531	0.000		5.000		0.000		5.000			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	123.179	43.383	43.260	0.000	43.260			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641021: <i>ICBM Propulsion Applications</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

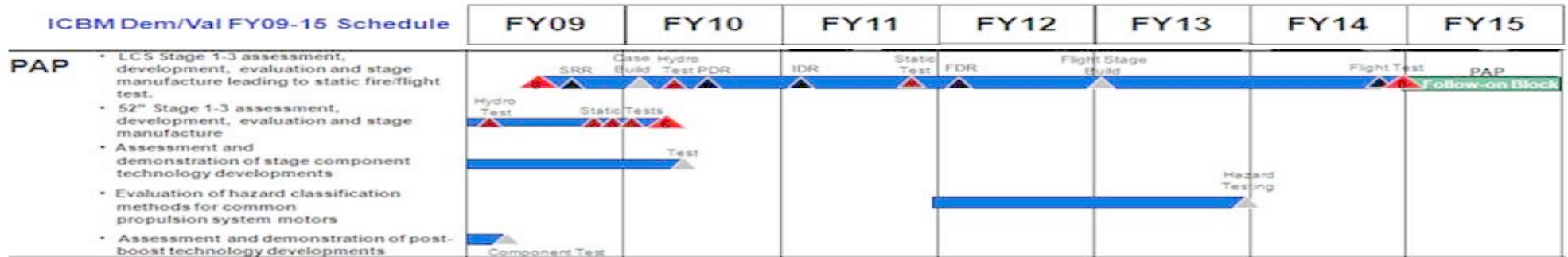
R-1 ITEM NOMENCLATURE

PE 0603851F: *ICBM - DEM/VAL*

PROJECT

641021: *ICBM Propulsion Applications*

ICBM Dem/Val FY09-15 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641021: <i>ICBM Propulsion Applications</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
MCS motor static fire test	3	2009	1	2010
MCS motor hydro test	1	2009	1	2009
Post Boost Motor component test	1	2009	1	2009
LCS System Requirements Review	3	2009	3	2009
LCS motors case build	1	2010	3	2010
LCS motors hydro test	2	2010	2	2010
LCS motors Intermediate Design Review	1	2011	1	2011
LCS motors static fire test	4	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
641022: <i>ICBM Reentry Vehicle Applications</i>	4.898	5.471	5.538	0.000	5.538	5.757	5.925	6.014	6.107	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop, evaluate, and test reentry vehicle materials and technologies for use in current and future strategic systems. <i>FY 2009 Accomplishments:</i> In FY09: Identified and evaluated replacement materials for carbon-carbon (C/C) thermal protection systems (TPS). Upgraded TPS mass ablation code to 3-D capability. Evaluated replacement C/C nosetip material. Validated reentry vehicle materials at Arnold Engineering Development Center (AEDC).	4.898	5.471	5.538	0.000	5.538

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY10: Continue C/C TPS material studies. Continue to validate reentry vehicle materials at NASA Ames. Conduct TPS testing of C/C silicon carbide at NASA Dryden. Evaluate alternate battery technology to increase service life, reduce costs, and increase reliability. Conduct material test vehicle flight data analysis.</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue development, evaluation, and testing of Reentry Vehicle materials and technologies.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	4.898	5.471	5.538	0.000	5.538

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (9675): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Continue development, evaluation and testing of Rentry Vehicle materials and technologies	Various/ Various	Northrop Grumman Clearfield UT; FMI: Biddeford ME; Boeing: Anah...	38.642	3.606	Nov 2009	4.174	Nov 2010	0.000		4.174	Continuing	Continuing	Continuing
Subtotal			38.642	3.606		4.174		0.000		4.174			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO/Other Program Support	Various/ Various	526 ICBMSG Hill AFB UT	4.792	0.703	Nov 2009	0.714	Nov 2010	0.000		0.714	Continuing	Continuing	Continuing
Subtotal			4.792	0.703		0.714		0.000		0.714			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Materials	TM	AFRL Materials Lab Wright-Patterson AFB;	1.150	0.400	Feb 2010	0.400	Dec 2010	0.000		0.400	Continuing	Continuing	Continuing
Ground ARC Jet Testing	PO	Arnold Engineering & Development Center Arnold AFB TN; NASA Ames: Santa Clara CA	0.700	0.250	Jan 2010	0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
TPS Testing	MIPR	Dryden Flight Research Center Edwards AFB CA	2.869	0.512	Dec 2009	0.000	Dec 2010	0.000		0.000	0.000	3.381	0.000
Subtotal			4.719	1.162		0.650		0.000		0.650			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	48.153	5.471	5.538	0.000	5.538			

Remarks

Total Prior Years Cost may include only FY 2009 data.

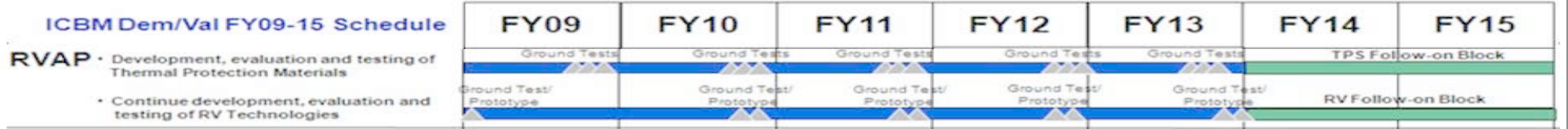
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641022: <i>ICBM Reentry Vehicle Applications</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Reentry Vehicle Thermal Protection System Material Testing	3	2009	4	2011
Conduct Reentry Vehicle Antenna Window thermal testing	2	2011	4	2011
Conduct Material Test Vehicle Flight data analysis	4	2009	4	2009
Develop Rentry Vehicle modeling and simulation tools	2	2009	4	2011
Carbon-Carbon Nosetip Material Mechanical Test	3	2009	3	2011
Carbon-Carbon Nosetip Material Thermal Test	4	2009	4	2011
Battery Prototype Build	3	2010	3	2010
Battery Prototype Ground Test	1	2011	1	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641023: <i>Rocket System Launch Program</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
641023: <i>Rocket System Launch Program</i>	0.027	0.026	0.024	0.000	0.024	0.025	0.025	0.026	0.026	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
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.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Study and analyze adoption of low cost front-end systems for use on deactivated missile assets. <i>FY 2009 Accomplishments:</i> In FY09: Studied and analyzed adoption of low cost front-end systems for use on deactivated missile assets. <i>FY 2010 Plans:</i> In FY10: Continue to study and analyze adoption of low cost front-end systems for use on deactivated missile assets.							0.027	0.026	0.024	0.000	0.024

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641023: <i>Rocket System Launch Program</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY11: Continue to study and analyze adoption of low cost front-end systems for use on deactivated missile assets.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	0.027	0.026	0.024	0.000	0.024

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (9913): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 641023: <i>Rocket System Launch Program</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Support	Various/ Various	Space Development and Test Wing Kirtland AFB NM	3.730	0.026	Jan 2010	0.024	Jan 2011	0.000		0.024	Continuing	Continuing	Continuing
Subtotal			3.730	0.026		0.024		0.000		0.024			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.730	0.026	0.024	0.000	0.024			

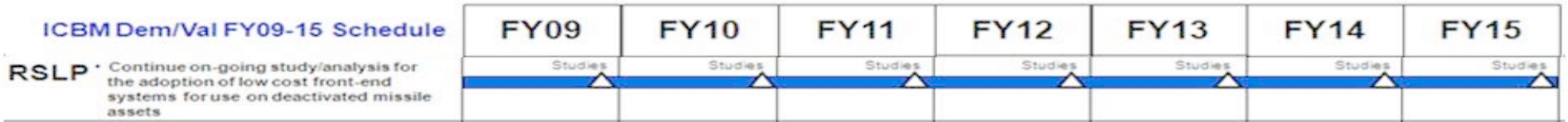
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641023: <i>Rocket System Launch Program</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 641023: <i>Rocket System Launch Program</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Annual Study/Analysis	4	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>				PROJECT 644209: <i>Long Range Planning (LRP)</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
644209: <i>Long Range Planning (LRP)</i>	7.418	2.830	2.769	0.000	2.769	2.571	2.571	2.607	2.648	Continuing	Continuing	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
A. Mission Description and Budget Item Justification												
<p>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.</p> <p>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.</p>												
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
<p>MAJOR THRUST: Analyze and plan current and future ICBM modifications for long term sustainment, technology insertion, employment and force structure.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Completed a Next Generation ICBM Attributes and Fuze study. Developed an initial ICBM Roadmap.</p> <p><i>FY 2010 Plans:</i> In FY10: Complete range architecture, concrete, industrial base and modular mechanical ordinance destruct system (MMODS) studies. Continue ICBM Roadmap development and expansion.</p>						2.631	2.830	2.769	0.000	2.769		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>		PROJECT 644209: <i>Long Range Planning (LRP)</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY11: Continue support of the consolidated long range plan. Continue feasibility and life extension studies. Continue ICBM Roadmap development and expansion.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
Accomplishments/Planned Programs Subtotals				2.631	2.830	2.769	0.000	2.769
				FY 2009	FY 2010			
<p>Congressional Add: Conventional Strike Mission Integration Demonstration</p> <p><i>FY 2009 Accomplishments:</i> In FY 2011 OCO: Not Applicable.</p> <p><i>FY 2010 Plans:</i> In FY 2011 OCO: Not Applicable. (1)</p>				4.787	0.000			
Congressional Adds Subtotals				4.787	0.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 644209: <i>Long Range Planning (LRP)</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (10044): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 644209: <i>Long Range Planning (LRP)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Long range plan	SS/CPAF	Northrop Grumman Clearfield UT	5.920	0.160	Dec 2009	0.170	Dec 2010	0.000		0.170	Continuing	Continuing	Continuing
Conventional Strike Mission integration demo	Various/ Various	Various Various	9.504	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Studies	Various/ Various	Northrop Grumman Clearfield UT; The MITRE Corporation: Bedford ...	37.560	1.920	Jan 2010	1.892	Dec 2010	0.000		1.892	Continuing	Continuing	Continuing
Subtotal			52.984	2.080		2.062		0.000		2.062			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other program support	Various/ Various	526 ICBMSG Hill AFB UT	4.745	0.750	Nov 2009	0.707	Nov 2010	0.000		0.707	Continuing	Continuing	Continuing
Subtotal			4.745	0.750		0.707		0.000		0.707			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 644209: <i>Long Range Planning (LRP)</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks													
			Total Prior Years Cost	FY 2010	FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			57.729	2.830	2.769		0.000		2.769				

Remarks
Total Prior Years Cost may include only FY 2009 data.

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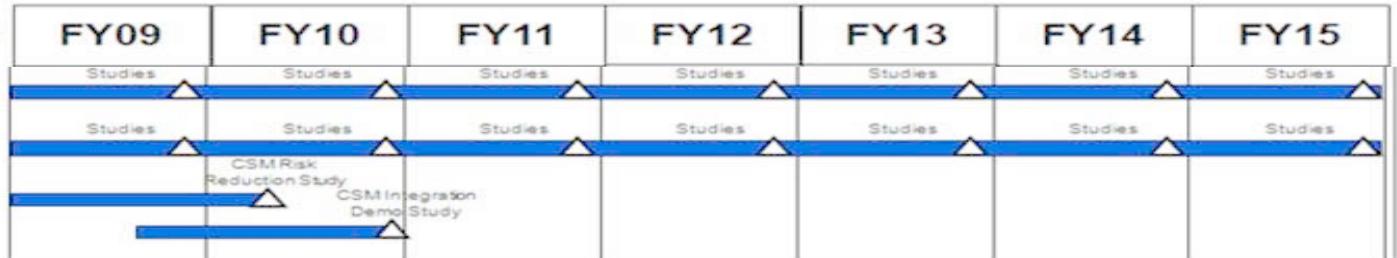
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603851F: <i>ICBM - DEM/VAL</i>	PROJECT 644209: <i>Long Range Planning (LRP)</i>

ICBM Dem/Val FY09-15 Schedule

ILRP

- Continue support of the consolidated long range plan
- Continue feasibility and life extension studies
- Conduct Conventional Strike Missiles capability demonstration
- Conduct Conventional Strike Mission integration demonstration



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
ICBM Long Range Plan	4	2009	4	2011
Studies	4	2009	4	2011
Conventional Strike Missile Capability Demo -- Mission Planning, C2 Architecture, and CONOPS Delivered	2	2010	2	2010
Conventional Strike Mission Integration Demo -- Mission Integration/Planning and C2 Demo	2	2010	2	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	29.520	70.650	36.123	0.000	36.123	12.847	12.549	14.615	17.579	Continuing	Continuing
644811: <i>Wideband Gapfiller</i>	9.891	52.329	17.949	0.000	17.949	0.000	0.000	0.000	0.000	0.000	412.691
644870: <i>Command & Control System Consolidated (CCSC)</i>	19.629	18.321	18.174	0.000	18.174	12.847	12.549	14.615	17.579	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Wideband Global SATCOM (WGS) System, previously known as Wideband Gapfiller Satellites, provides DoD users 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). 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.

WGS Block I consists of satellites 1-3. These satellites were successfully launched on 10 Oct 07 3 Apr 09, and 5 Dec 09, respectively.

WGS Block II consists of satellites 4-6. Block II satellites will incorporate minor 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 provides funds needed to buy WGS-6 in exchange for access to constellation-wide resources. Launch for satellite 6 is scheduled for Mar 13.

WGS Block II Follow-on currently consists of satellites 7 and 8 with projected launches in FY16 and FY17, respectively. With the cancellation of the Transformational Satellite Communications System (TSAT) program, the Air Force is updating the Satellite Communications (SATCOM) Initial Capabilities Document (ICD), and will conduct a comprehensive Analysis of Alternatives across the MILSATCOM enterprise. The results will inform future budget cycles, to include the number of WGS satellites required to provide continuity of wideband services to military users around the world and meet increasing wideband demand.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system provides integrated launch and on-orbit command and control (C2) functionality for MILSATCOM satellites. CCS-C uses modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include Milstar,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>
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DSCS, WGS, and the Advanced Extremely High Frequency (AEHF) system. CCS-C will also support the implementation of space situational awareness and new C2 training systems.

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

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	52.080	70.956	0.000	0.000	0.000
Current President's Budget	29.520	70.650	36.123	0.000	36.123
Total Adjustments	-22.560	-0.306	36.123	0.000	36.123
• Congressional General Reductions		-0.306			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-22.560	0.000	36.123	0.000	36.123

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 644811: *Wideband Gapfiller*

Congressional Add: *Perform evolutionary studies*

Congressional Add Subtotals for Project: 644811

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	9.891	0.000
	9.891	0.000
	9.891	0.000

Change Summary Explanation

Congress added \$40M FY09 funds for WGS program sustainment and evolution. \$30M of the FY09 congressional add was reprogrammed as Missile Procurement, Air Force (MPAF) to address WGS sustainment. \$7.44M FY09 funds have been reprogrammed to the CCS-C program in support of the Standard Space Trainer and continued development and operations readiness due to delayed WGS SV-2 and SV-3 launch dates.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603854F: *Wideband MILSATCOM (Space)*

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644811: <i>Wideband Gapfiller</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644811: <i>Wideband Gapfiller</i>	9.891	52.329	17.949	0.000	17.949	0.000	0.000	0.000	0.000	0.000	412.691
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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). 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.

FY11 funds, but is not limited to, Block II Follow-on non-recurring engineering.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Block II Follow-on Non-Recurring Engineering (NRE) <i>FY 2009 Accomplishments:</i> In FY2009: N/A <i>FY 2010 Plans:</i> In FY2010: Initiate Block II Follow-on NRE, includes parts obsolescence studies and redesign/ requalification. Support Capability Insertion Program (CIP) for future capability enhancements. <i>FY 2011 Base Plans:</i> In FY2011: Continue Block II Follow-on NRE and support CIP for future capability enhancements.	0.000	52.329	17.949	0.000	17.949

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644811: <i>Wideband Gapfiller</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable					
Accomplishments/Planned Programs Subtotals	0.000	52.329	17.949	0.000	17.949

	FY 2009	FY 2010
Congressional Add: Perform evolutionary studies <i>FY 2009 Accomplishments:</i> In FY2009: Conducted WGS Enhancement studies, to include Lasercom. <i>FY 2010 Plans:</i> In FY2010: N/A	9.891	0.000
Congressional Adds Subtotals	9.891	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0303600F: <i>WGS, MPAF</i>	51.628	213.440	575.711	0.000	575.711	473.356	23.103	34.937	100.334	0.000	0.000
• PE 0303600F (1): <i>GBS Transmit Strings, OPAF</i>	0.000	1.672	1.661	0.000	1.661	0.000	0.000	0.000	0.000	0.000	30.097
	19.629	18.321	18.174	0.000	18.174	12.847	12.549	14.815	17.579	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644811: <i>Wideband Gapfiller</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0603854F: <i>Project # 644870, CCS-C, RDT&E</i>											

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. An updated Acquisition Strategy for the WGS Block II Follow-on satellites is in DoD coordination.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>				PROJECT 644811: <i>Wideband Gapfiller</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block II Parts Obsolescence Redesign	SS/FPI	Boeing EI Segundo CA	91.737	0.000		0.000		0.000		0.000	0.000	91.737	0.000
Block I EMD (satellites 1-3)	C/FFP	Boeing EI Segundo CA	143.013	0.000		0.000		0.000		0.000	0.000	143.013	0.000
UAV Bypass NRE	SS/FFP	Boeing EI Segundo CA	14.000	0.000		0.000		0.000		0.000	0.000	14.000	0.000
Payload/Production Studies	Various/Various	Various Various	37.778	0.000		0.000		0.000		0.000	0.000	37.778	0.000
Block II Follow-on NRE	SS/FPI	Boeing EI Segundo CA	0.000	49.829	Jun 2010	16.145	Dec 2010	0.000		16.145	0.000	65.974	0.000
Subtotal			286.528	49.829		16.145		0.000		16.145	0.000	352.502	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Terminals Engineering Office	PO	JTEO McLean, VA	6.618	0.000		0.000		0.000		0.000	0.000	6.618	0.000
Pre-EMD	Various/Various	Various Various	5.579	0.000		0.000		0.000		0.000	0.000	5.579	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644811: <i>Wideband Gapfiller</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Program Support	Various/ Various	Various Various	13.442	2.500	Jan 2010	1.804	Dec 2010	0.000		1.804	0.000	17.746	0.000	
Subtotal			25.639	2.500		1.804		0.000		1.804	0.000	29.943	0.000	

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	312.167	52.329		17.949		0.000		17.949	0.000	382.445	0.000

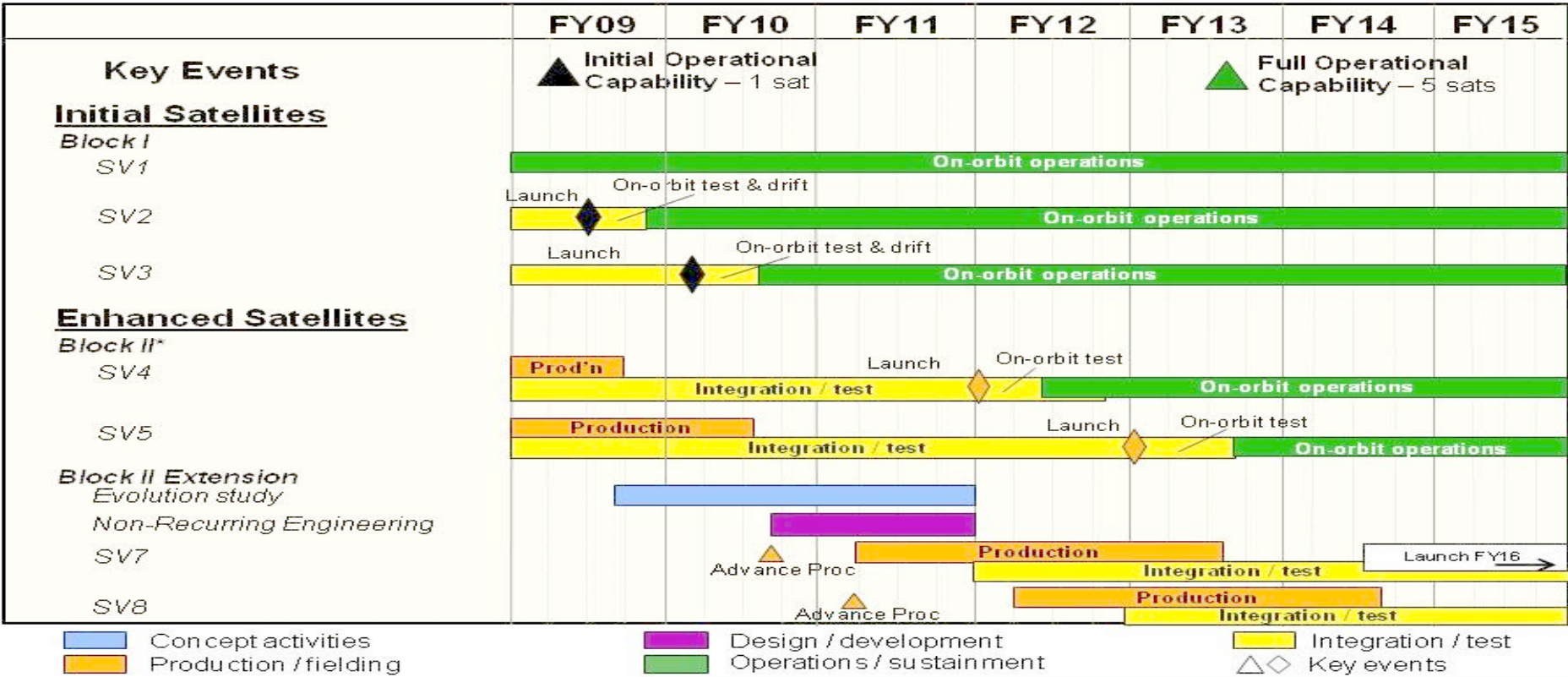
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603854F: Wideband MILSATCOM (Space)	PROJECT 644811: Wideband Gapfiller



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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603854F: *Wideband MILSATCOM*
(Space)

PROJECT

644811: *Wideband Gapfiller*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Evolutionary Study Efforts	3	2009	3	2009
Initiate Block II Follow-on non-recurring engineering	3	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644870: <i>Command & Control System Consolidated (CCSC)</i>	19.629	18.321	18.174	0.000	18.174	12.847	12.549	14.615	17.579	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Schriever AFB and Vandenberg AFB, for MILSATCOM satellites as the legacy 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 space situational awareness and new C2 training systems.

FY11 funds provide required command and control capability to launch WGS and AEHF satellites.

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

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop and acquire satellite-specific software to support handover of on-orbit operations of WGS satellites and launch, early-orbit, and on-orbit operations of AEHF satellites. <i>FY 2009 Accomplishments:</i> In FY2009: Funded handover and operations of WGS Space Vehicle-2 (SV-2), development to support handover of WGS SV-3, and initial requirements and design for replacement of the WGS Flight Dynamics System with modified CCS-C orbit analysis software. Continued development for the FY2010 launch of AEHF SV-1 and development of the Standard Space Trainer for DSCS and Milstar.	19.629	18.321	18.174	0.000	18.174

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY2010: Fund completion of development to support WGS SV-3 handover, initiate development to support WGS Block II satellites, continue design and develop software for replacement of the WGS Flight Dynamics System with modified CCS-C orbit analysis software. Complete development for the FY2010 launch of AEHF SV-1, prepare for launch of AEHF SV-2, and continue development of the Standard Space Trainer for DSCS and Milstar.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Fund Interim Contractor Support for modifications of the WGS Block I satellite databases and software, continue development to support WGS Block II satellites, continue development of software for replacement of the WGS Flight Dynamics System with modified CCS-C orbit analysis software. Complete development for the FY2011 launch of AEHF SV-2, prepare for launch of AEHF SV-3, and continue development of the Standard Space Trainer for Milstar.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>					
Accomplishments/Planned Programs Subtotals	19.629	18.321	18.174	0.000	18.174

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (10654): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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. The current contract has been extended to 2012 to provide launch readiness support to ongoing WGS and AEHF satellite development. A new contract is expected to be awarded in 2012.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Contractors	C/FFP	Various Various	6.800	0.000		0.000		0.000		0.000	0.000	6.800	0.000
Development Contractor: Integral Systems, Inc.	C/CPAF	Integral Systems, Inc Lanham, MD	136.678	15.924	Oct 2009	15.664	Oct 2010	0.000		15.664	Continuing	Continuing	0.000
Subtotal			143.478	15.924		15.664		0.000		15.664			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CCSC Program Support Cost	TBD/TBD	TBD TBD	24.953	2.397	Oct 2009	2.510	Oct 2010	0.000		2.510	Continuing	Continuing	0.000
Subtotal			24.953	2.397		2.510		0.000		2.510			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	168.431	18.321	18.174	0.000	18.174			0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

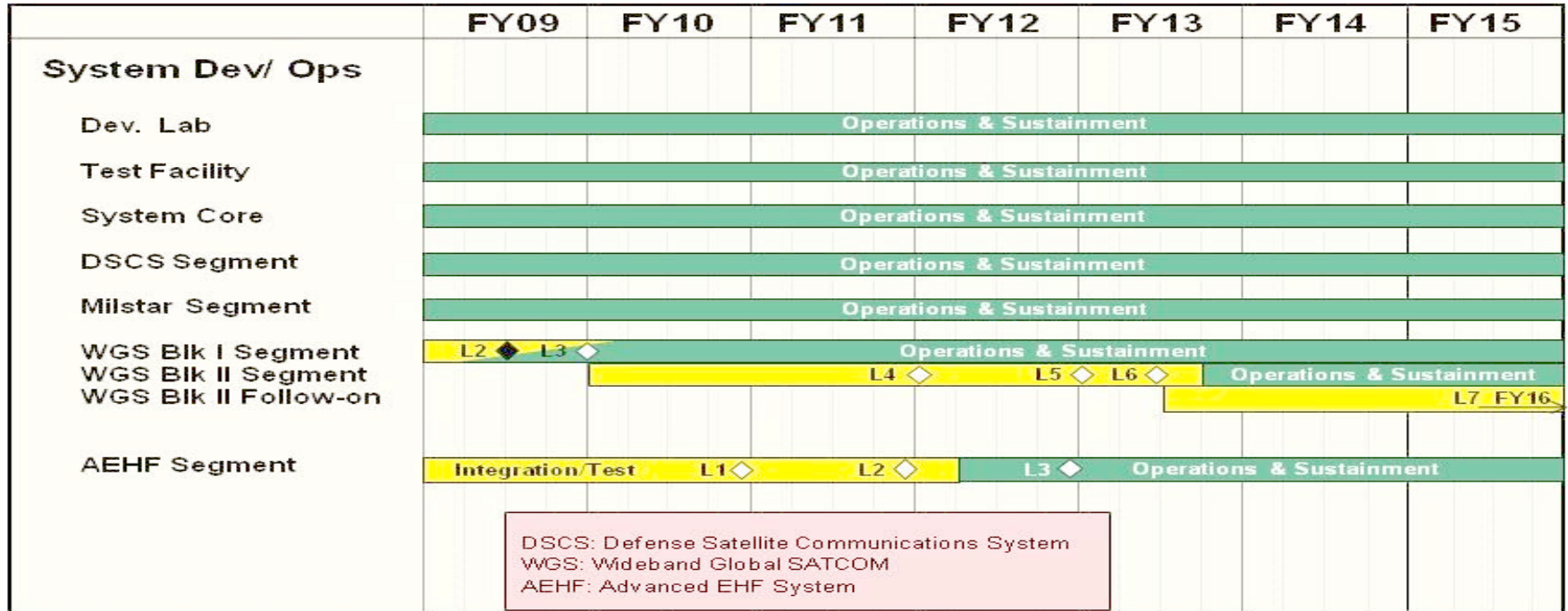
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603854F: *Wideband MILSATCOM (Space)*

PROJECT

644870: *Command & Control System Consolidated (CCSC)*



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

Design / development
 Integration / test
 Operations / sustainment

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603854F: <i>Wideband MILSATCOM (Space)</i>	PROJECT 644870: <i>Command & Control System Consolidated (CCSC)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue AEHF Integration & Test	1	2009	4	2011
WGS 2 launch	3	2009	3	2009
Transition WGS into Sustainment	3	2009	3	2009
WGS 3 launch	1	2010	1	2010
AEHF 1 launch	4	2010	4	2010
AEHF 2 launch	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	13.565	10.396	2.534	0.000	2.534	2.566	2.598	2.630	2.661	Continuing	Continuing
644852: <i>Pollution Prevention</i>	13.565	10.396	2.534	0.000	2.534	2.566	2.598	2.630	2.661	Continuing	Continuing

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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	2.877	10.396	0.000	0.000	0.000
Current President's Budget	13.565	10.396	2.534	0.000	2.534
Total Adjustments	10.688	0.000	2.534	0.000	2.534
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	10.688	0.000	2.534	0.000	2.534

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>				PROJECT 644852: <i>Pollution Prevention</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644852: <i>Pollution Prevention</i>	13.565	10.396	2.534	0.000	2.534	2.566	2.598	2.630	2.661	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: RCRA <i>FY 2009 Accomplishments:</i> In FY 2009: Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction, Clean Air Act Compliance Burden Reduction, Clean Water Act Compliance Burden Reduction <i>FY 2010 Plans:</i> In FY 2010: Continuation of above activities.	13.565	10.396	2.534	0.000	2.534

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>	PROJECT 644852: <i>Pollution Prevention</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above activities.					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable					
Accomplishments/Planned Programs Subtotals	13.565	10.396	2.534	0.000	2.534

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (10930): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

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

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>	PROJECT 644852: <i>Pollution Prevention</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Research Lab	Various	Various Various	9.373	8.275	May 2010	0.455	May 2011	0.000		0.455	Continuing	Continuing	Continuing
Subtotal			9.373	8.275		0.455		0.000		0.455			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Research Lab	Various	Various Various	1.747	0.667	May 2010	1.720	May 2011	0.000		1.720	Continuing	Continuing	Continuing
Subtotal			1.747	0.667		1.720		0.000		1.720			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>	PROJECT 644852: <i>Pollution Prevention</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Research Lab	Various	Various Various	0.582	0.158	Sep 2010	0.200	Sep 2011	0.000		0.200	Continuing	Continuing	Continuing
Subtotal			0.582	0.158		0.200		0.000		0.200			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Research Lab	Various	Various Various	1.863	1.296	May 2010	0.159	Sep 2011	0.000		0.159	Continuing	Continuing	Continuing
Subtotal			1.863	1.296		0.159		0.000		0.159			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	13.565	10.396		2.534		0.000		2.534			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

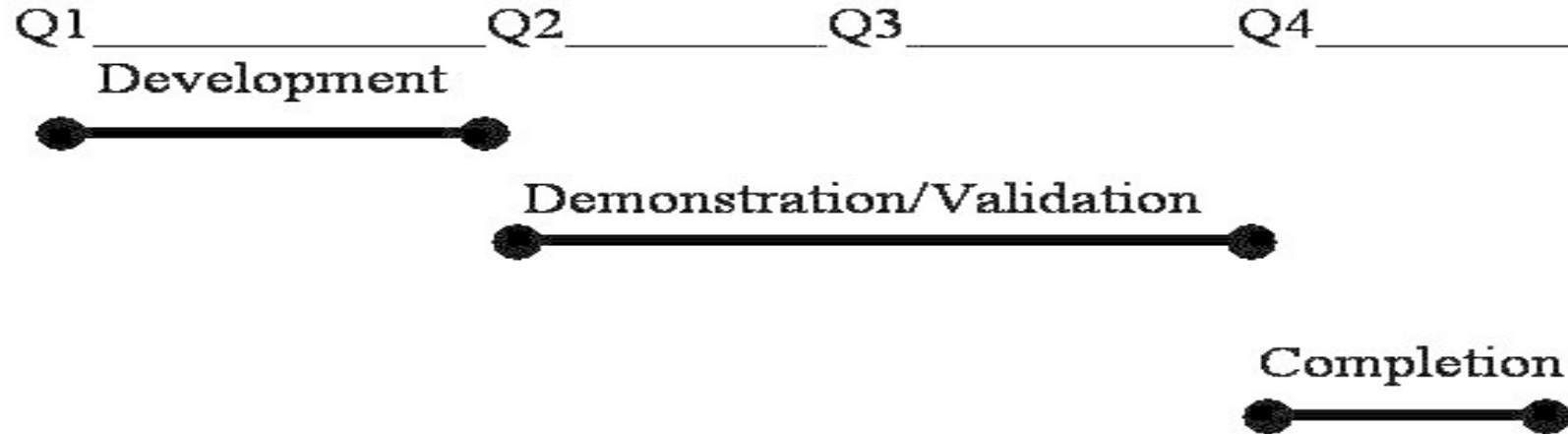
R-1 ITEM NOMENCLATURE

PE 0603859F: *Pollution Prevention*

PROJECT

644852: *Pollution Prevention*

Pollution Prevention Demonstration Schedules



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603859F: <i>Pollution Prevention</i>	PROJECT 644852: <i>Pollution Prevention</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Development	1	2009	1	2011
Prototype	2	2009	3	2011
Contract Completion	4	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				PE 0603860F: <i>Joint Precision Approach and Landing System</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing
644652: <i>Joint Precision Approach and Landing</i>	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing

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 Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Description Document (CDD) for the JPALS Family of Systems and the Annex for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibility 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 approach and 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 U.S. 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 Precision Approach and Landing Capability Initial Capabilities Document (ICD). 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 (CRAF) landing at DoD airfields. The 2005 JPALS Precision Approach and Landing ICD identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments.

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-centric 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.

FY11 efforts continue risk reduction activities related to incorporating JPALS capability in existing avionics and the evolutionary acquisition strategy in preparation for Milestone B, including completion of the technology readiness assessment with OSD participation, and a greater emphasis on aircraft integration activities. The degree of test activity will decline, with ramp-up scheduled in advance of the Engineering, and Manufacturing and Development (EMD) contract award in FY13.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603860F: *Joint Precision Approach and Landing System*

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 integration into the precision landing system architecture.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	7.153	23.174	0.000	0.000	0.000
Current President's Budget	7.153	22.953	13.952	0.000	13.952
Total Adjustments	0.000	-0.221	13.952	0.000	13.952
• Congressional General Reductions		-0.221			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.952	0.000	13.952

Change Summary Explanation

FY10 funding increase required to support multiple aircraft integration studies, anti-jam and threat analysis, architecture trade studies and analysis, and related program management support
 FY11 funding reduced for higher priority programs

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>				PROJECT 644652: <i>Joint Precision Approach and Landing</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644652: <i>Joint Precision Approach and Landing</i>	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Description Document (CDD) for the JPALS Family of Systems and the Annex for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibility 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 approach and 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 U.S. 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 Precision Approach and Landing Capability Initial Capabilities Document (ICD). 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 (CRAF) landing at DoD airfields. The 2005 JPALS Precision Approach and Landing ICD identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments.

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-centric 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.

FY11 efforts continue risk reduction activities related to incorporating JPALS capability in existing avionics and the evolutionary acquisition strategy in preparation for Milestone B, including completion of the technology readiness assessment with OSD participation, and a greater emphasis on aircraft integration activities. The degree of test activity will decline, with ramp-up scheduled in advance of the Engineering, and Manufacturing and Development (EMD) contract award in FY13.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>

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 integration into the precision landing system architecture.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603860F: *Joint Precision Approach and Landing System*

PROJECT

644652: *Joint Precision Approach and Landing*

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Perform technology studies, and research and development activities to support the acquisition of JPALS fixed, mobile, and airborne capabilities.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: JPALS funding was used to complete technology development efforts necessary to mature critical technologies to a technology readiness level of 6. Acquisition planning activities were initiated to develop an RFP, acquisition strategy and source selection plan. Laboratory and field testing was performed to evaluate threat mitigation and to demonstrate off the shelf components that could be used in the development of JPALS systems.</p> <p><i>FY 2010 Plans:</i> In FY 2010: JPALS funding will support risk reduction efforts in the areas of threat mitigation, ground and airborne JPALS architecture development, and aircraft integration studies.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Efforts will continue on the areas initiated in FY 2010, with increased focus on integration with lead platform aircraft.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>	7.153	22.953	13.952	0.000	13.952
Accomplishments/Planned Programs Subtotals	7.153	22.953	13.952	0.000	13.952

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (11213): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Increment 2 Engineering, and Manufacturing Development (EMD) contracts for development of Fixed-Base and Tactical JPALS systems will be competitively awarded.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>					PROJECT 644652: <i>Joint Precision Approach and Landing</i>				

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Anti-Jam and Threat Analysis	TM	AFRL Wright Patterson AFB, AES: California, MD	0.395	2.100	Mar 2010	0.500		0.000		0.500	0.000	2.995	0.000
Architecture Trade Studies and Analysis	TM	AES California, MD, Honeywell: Albuquerque, NM	1.595	9.400	Mar 2010	1.125		0.000		1.125	0.000	12.120	0.000
Aircraft Requirements and Integration Studies	TM	Honeywell Albuquerque, NM, BAE: Wayne, NJ	0.100	1.500	Mar 2010	4.400		0.000		4.400	0.000	6.000	0.000
Subtotal			2.090	13.000		6.025		0.000		6.025	0.000	21.115	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JPALS Responsible Test Organization (RTO)	TM	46th Test Wing Eglin AFB, FL	0.030	0.600	Oct 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Other T&E	TM	Jacobs Technology Lincoln, MA	0.125	0.125	Oct 2009	0.125	Oct 2010	0.000		0.125	0.000	0.375	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.155	0.725		0.125		0.000		0.125			

Remarks
"Other T&E" will be supported thru the ETASS contract.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Professional Acquisition Support Services (PASS), Quantech Services; Specialized Cost Services (SCS), Tecolote; Engineering & Technical Advisory Support Services (ETASS), Jacobs Technology; and Fed...	TM	Quantech Services Bedford, MA, Jacobs Technology: Lincoln, MA, T...	4.908	9.228	Oct 2009	7.802	Oct 2010	0.000		7.802	Continuing	Continuing	Continuing
Subtotal			4.908	9.228		7.802		0.000		7.802			

Remarks
All management contracts awarded competitively except MITRE

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.153	22.953	13.952	0.000	13.952			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

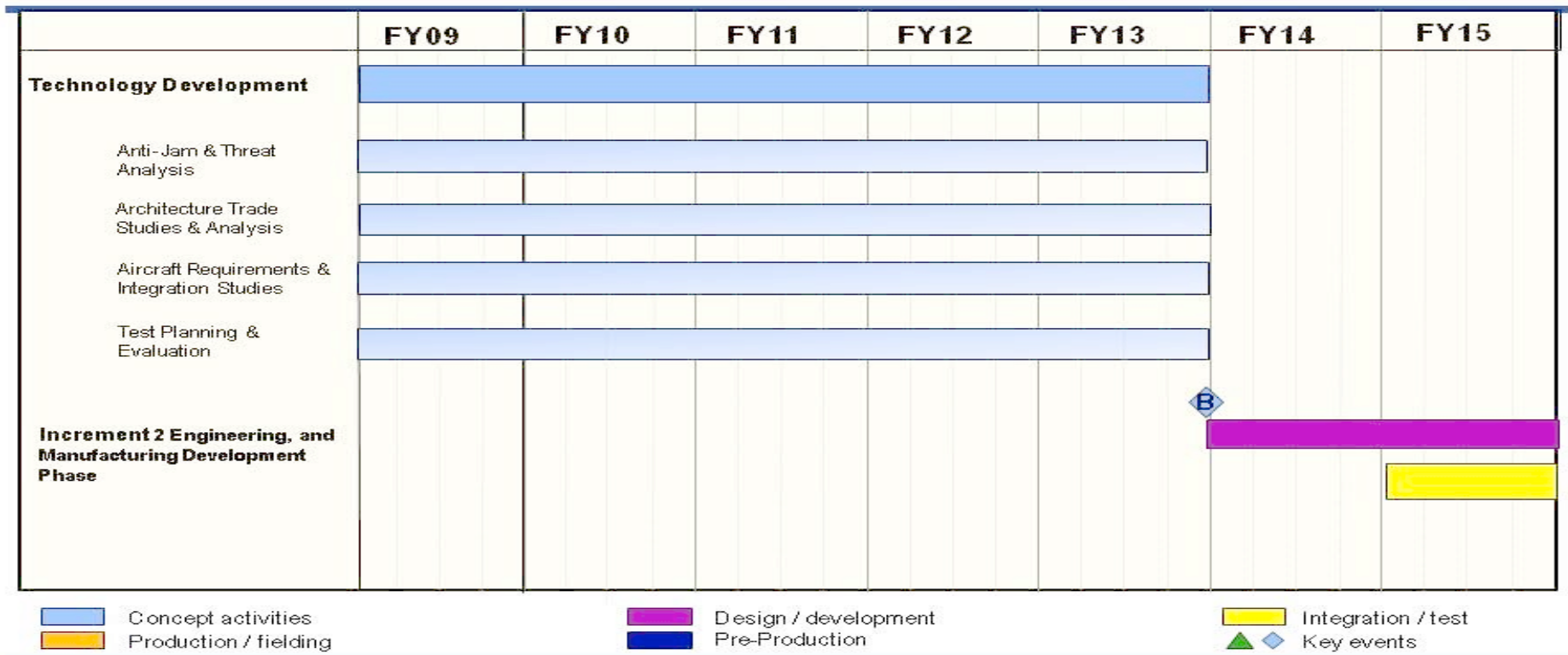
PE 0603860F: *Joint Precision Approach and Landing System*

PROJECT

644652: *Joint Precision Approach and Landing*



Joint Precision Approach and Landing System (JPALS)



PB 11 R-Doc

Integrity - Service - Excellence

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603860F: <i>Joint Precision Approach and Landing System</i>	PROJECT 644652: <i>Joint Precision Approach and Landing</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Anti-Jam & Threat Analysis	1	2009	4	2011
Architecture Trade Studies & Analysis	1	2009	4	2011
Aircraft Requirements & Integration Studies	1	2009	4	2011
Test Planning & Evaluation	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604015F: <i>Long Range Strike</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	198.957	0.000	198.957	198.738	297.779	396.536	643.591	Continuing	Continuing
643308: <i>Long Range Strike</i>	0.000	0.000	198.957	0.000	198.957	198.738	297.779	396.536	643.591	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops and demonstrates Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, survivability, lethality, connectivity, and affordability.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	198.957	0.000	198.957
Total Adjustments	0.000	0.000	198.957	0.000	198.957
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	198.957	0.000	198.957

Change Summary Explanation

Current program focus on efforts to support the industrial base for a future long range strike program
The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner."

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604015F: <i>Long Range Strike</i>				PROJECT 643308: <i>Long Range Strike</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
643308: <i>Long Range Strike</i>	0.000	0.000	198.957	0.000	198.957	198.738	297.779	396.536	643.591	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note PE0604015F is a new start effort in FY11.											
A. Mission Description and Budget Item Justification This program develops and demonstrates Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, survivability, lethality, connectivity, and affordability.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: Support the industrial base for a future long range strike program. <i>FY 2009 Accomplishments:</i> In FY2009: Not Applicable <i>FY 2010 Plans:</i> In FY2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY2011: Support the industrial base for a future long range strike program. Capability areas of interest include advanced sensors, electronic warfare and countermeasures, survivability, manufacturing readiness, "net ready" and communications, open systems architectures and multi-level security, mission management, weapons and combat ID. Activities include program planning, and requirements review / definition.							0.000	0.000	198.957	0.000	198.957

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604015F: <i>Long Range Strike</i>	PROJECT 643308: <i>Long Range Strike</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	198.957	0.000	198.957

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (11582): <i>Not applicable</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

To be determined.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604015F: <i>Long Range Strike</i>	PROJECT 643308: <i>Long Range Strike</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	0.000	0.000			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604015F: <i>Long Range Strike</i>	PROJECT 643308: <i>Long Range Strike</i>

PE 0604015F
No Schedule at this time

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
645363: <i>MP-RTIP</i>	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 (processing, exploitation, and dissemination of sensor data), 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	22.612	0.000	0.000	0.000
Current President's Budget	0.000	22.612	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

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). Funding was added by the AF corporate structure to this PE since PE 0207450F (E-10) was terminated and the verification effort is platform independent (i.e. not specific to PE 0207581F JSTARS or PE 0305220F RQ-4 UAV).

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>	PROJECT 645363: <i>MP-RTIP</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645363: <i>MP-RTIP</i>	0.000	22.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

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).

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 (processing, exploitation, and dissemination of sensor data), 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>	PROJECT 645363: <i>MP-RTIP</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207581F: <i>JOINT STARS, (RDT&E)</i>	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>	PROJECT 645363: <i>MP-RTIP</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction Effort	TBD/TBD	TBD TBD	0.000	16.546	Mar 2010	0.000		0.000		0.000	0.000	16.546	0.000
Subtotal			0.000	16.546		0.000		0.000		0.000	0.000	16.546	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AoA Support	TBD/TBD	TBD TBD	0.000	2.000	Mar 2010	0.000		0.000		0.000	0.000	2.000	0.000
Subtotal			0.000	2.000		0.000		0.000		0.000	0.000	2.000	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>				PROJECT 645363: <i>MP-RTIP</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Program Management Support	Various/ Various	Various Boston MA	0.000	4.066	Jan 2010	0.000		0.000		0.000		0.000	4.066	0.000
Subtotal			0.000	4.066		0.000		0.000		0.000		0.000	4.066	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date				
Project Cost Totals	0.000	22.612		0.000		0.000		0.000	0.000	22.612	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

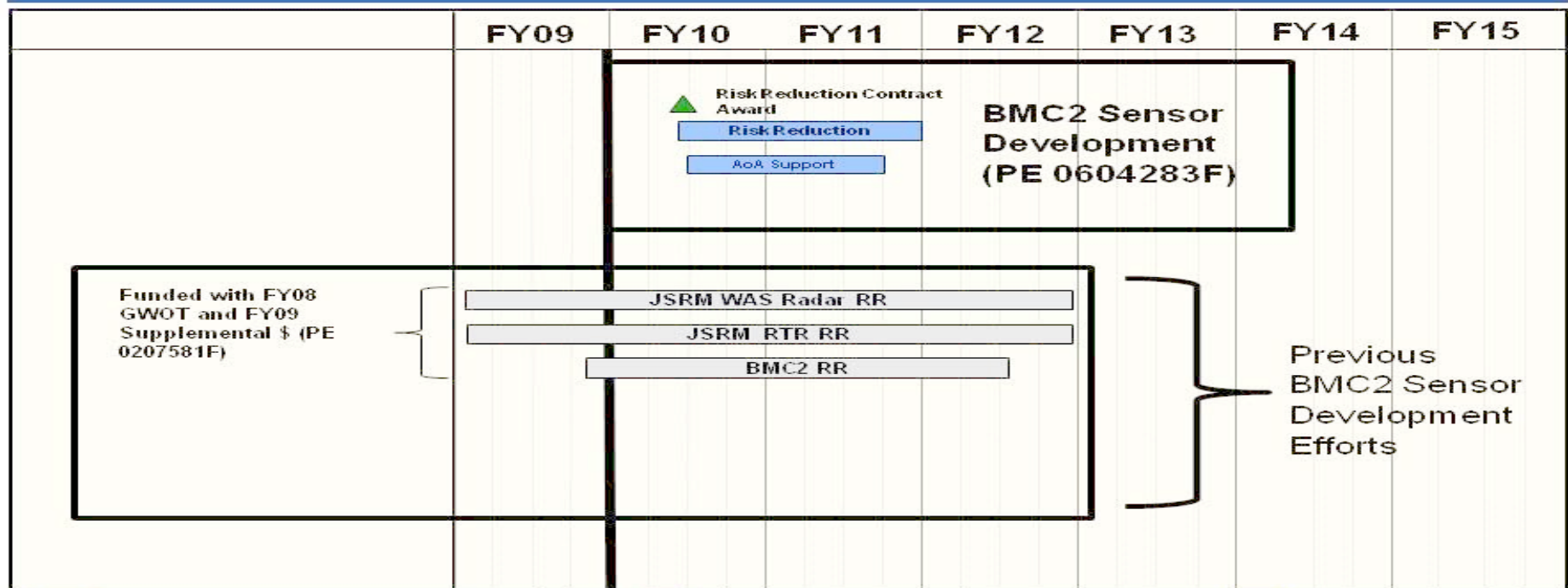
PE 0604283F: *BMC2 Sensor Development*



PROJECT


645363: *MP-RTIP*






BMC2 Sensor Development Program Schedule



 Concept activities
 Production / fielding

 Design / development
 Pre-Production

 Integration / test
  Key events

PB11 R-Docs

Depicted by installation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604283F: <i>BMC2 Sensor Development</i>	PROJECT 645363: <i>MP-RTIP</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction Contract Award	2	2010	2	2010
Risk Reduction	2	2010	4	2011
AoA Support	2	2010	3	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				PE 0604327F: <i>Hardened Target Munitions</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	28.310	20.891	22.389	0.000	22.389	42.640	1.720	0.000	0.000	Continuing	Continuing
645341: <i>Direct Strike Penetrator Systems</i>	28.310	20.891	22.389	0.000	22.389	42.640	1.720	0.000	0.000	20.101	157.050

Note

FY09 OMNIBUS reprogramming funding of \$28.310M is a new start effort in support of the Massive Ordnance Penetrator (MOP) program.

A. Mission Description and Budget Item Justification

Hard Target Munitions 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 project includes development of Massive Ordnance Penetrator (MOP), 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 includes advanced component development activities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	20.891	0.000	0.000	0.000
Current President's Budget	28.310	20.891	22.389	0.000	22.389
Total Adjustments	28.310	0.000	22.389	0.000	22.389
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	28.310	0.000	22.389	0.000	22.389

Change Summary Explanation

Funds requested in FY09 OMNIBUS to start the MOP program. Request for funds and new start was approved. Additional changes to the program that are not shown above include \$21.0M FY08 funds added via the same OMNIBUS request, and a \$4.9M FY08 below threshold request (BTR).

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>	PROJECT 645341: <i>Direct Strike Penetrator Systems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645341: <i>Direct Strike Penetrator Systems</i>	28.310	20.891	22.389	0.000	22.389	42.640	1.720	0.000	0.000	20.101	157.050
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Direct Strike Penetrator Systems project includes development of Massive Ordnance Penetrator (MOP), 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. The MOP, which was developed by the Defense Threat Reduction Agency (DTRA) as a technology demonstration, will be further developed, tested, and integrated onto the B-2 bomber for a Direct Strike Penetrator capability in a high threat environment.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Massive Ordnance Penetrator (MOP) Weapon Development. Make changes to the B-52 Technology Demonstration design to allow integration of the MOP onto the B-2A. <i>FY 2009 Accomplishments:</i> In FY 2009: Completed the MOP weapon Operational Flight Program (OFP) for integration with the B-2. Completed design of the MOP carriage and release equipment (CARE), CARE ground support equipment and MOP loading adapter (MLA). Initiated Technical Order documentation. Completed preliminary mission planning aircraft weapon equipment (AWE) software build. Established systems engineering requirements baseline and risk management process	16.600	11.491	10.740	0.000	10.740

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>	PROJECT 645341: <i>Direct Strike Penetrator Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
<p>MAJOR THRUST: System Test and Evaluation. Conduct ground and flight tests of the MOP weapon system in order to demonstrate weapon effectiveness and suitability.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Began system test planning and target construction.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Complete test and integration functions necessary to employ the MOP onto the B-2A. Included are safe separation analysis, software design updates, ground / flight worthiness testing, and safe separation flight tests.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Complete multiple live and inert flight tests. Analyze data and evaluate the demonstrated weapon capability against the performance specification.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		2.200	2.600	5.400	0.000	5.400
<p>MAJOR THRUST: Flight Test Asset Fabrication. Fabricate all hardware (weapons, loading adapters, and carriage equipment) needed to execute flight testing</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Fabricated MOP warhead cases to be filled and assembled for B-2 integration flight test. Fabricated MLAs to support weapon loading during test. Fabricated CARE and CARE GSE to support flight testing.</p>		3.100	2.800	4.604	0.000	4.604

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>	PROJECT 645341: <i>Direct Strike Penetrator Systems</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	41.022	15.903	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101127F: <i>B-2 Squadrons</i>	0.000	11.690	12.978	0.000	12.978	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0208030F: <i>BPAC 353020 General Purpose Bombs</i>	20.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Quick reaction capability with a sole source cost plus incentive fee contract to a single contractor.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>	PROJECT 645341: <i>Direct Strike Penetrator Systems</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapon Development	SS/CPIF	Boeing (St Louis)	42.500	11.491	Jan 2010	10.740	Dec 2010	0.000		10.740	36.699	101.430	101.430
Qualification Testing	SS/CPIF	Boeing (St Louis)	4.700	2.300	Jan 2010	0.000		0.000		0.000	0.000	7.000	7.000
Subtotal			47.200	13.791		10.740		0.000		10.740	36.699	108.430	108.430

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Test & Evaluation	TBD/TBD	Eglin AFB FL	2.200	2.600	Feb 2010	5.400	Dec 2010	0.000		5.400	3.156	13.356	13.356
Flight Test Assets Fabrication	SS/CPIF	Boeing (St Louis)	3.100	2.800	Feb 2010	4.604	Dec 2010	0.000		4.604	0.000	10.504	10.504
Subtotal			5.300	5.400		10.004		0.000		10.004	3.156	23.860	23.860

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604327F: <i>Hardened Target Munitions</i>				PROJECT 645341: <i>Direct Strike Penetrator Systems</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
AAC	TBD/TBD	Eglin AFB FL	1.710	1.700		1.645		0.000		1.645		4.505	9.560	9.560
Subtotal			1.710	1.700		1.645		0.000		1.645		4.505	9.560	9.560

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.210	20.891		22.389		0.000		22.389	44.360	141.850	141.850

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0604327F: Hardened Target Munitions

PROJECT

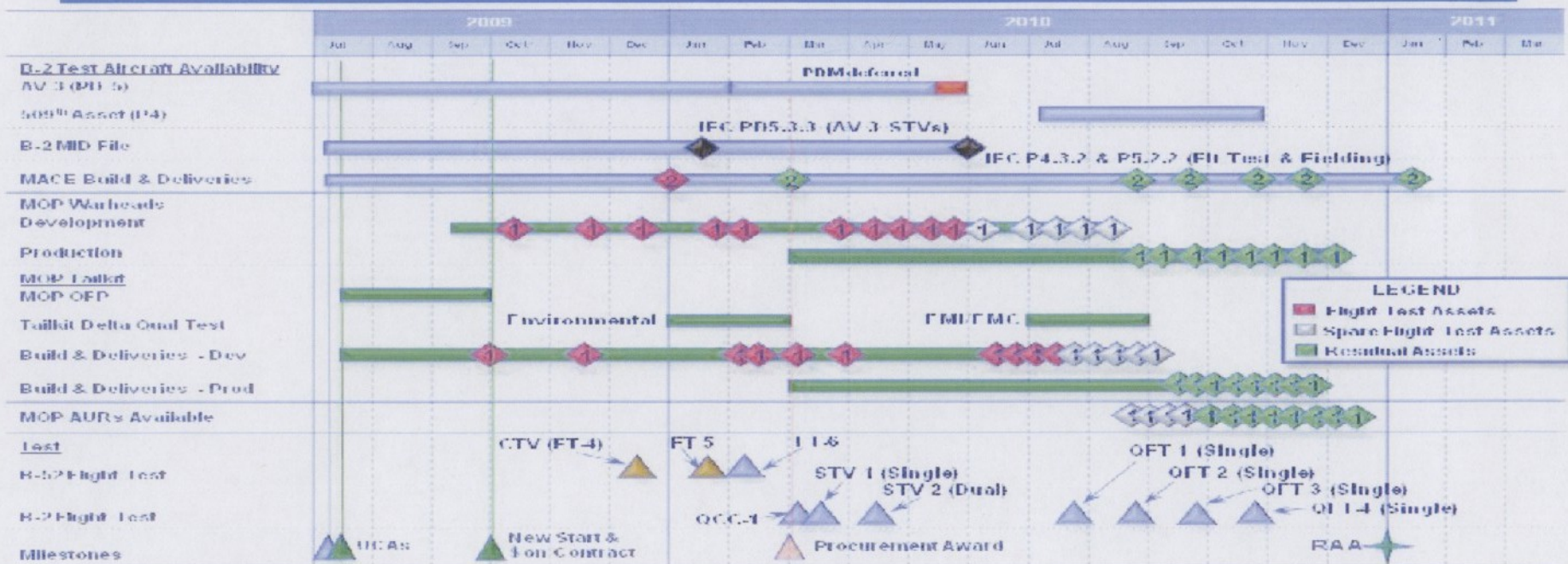
645341: Direct Strike Penetrator Systems



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MOP QRC Schedule



Based on Boeing Version 4.6 test matrix as of 2 Nov 09

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0604327F: *Hardened Target Munitions*

PROJECT

645341: *Direct Strike Penetrator Systems*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Design Modification & Qualification Testing	4	2009	4	2010
Fuze & Ground Testing	3	2010	4	2010
Test Article Fabrication	4	2009	4	2010
Flight Test	2	2010	1	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	6.882	9.799	0.000	9.799	9.858	3.086	0.000	0.000	Continuing	Continuing
645342: <i>Concept Development</i>	0.000	6.882	9.799	0.000	9.799	9.858	3.086	0.000	0.000	Continuing	Continuing

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.

This program continues risk reduction and concept development efforts to ensure critical technologies are adequately assessed to support the Materiel Solution Analysis (MSA) phase of the program.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	6.882	0.000	0.000	0.000
Current President's Budget	0.000	6.882	9.799	0.000	9.799
Total Adjustments	0.000	0.000	9.799	0.000	9.799
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	9.799	0.000	9.799

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>	PROJECT 645342: <i>Concept Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645342: <i>Concept Development</i>	0.000	6.882	9.799	0.000	9.799	9.858	3.086	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

This program continues risk reduction and concept development efforts to ensure critical technologies are adequately assessed to support the Materiel Solution Analysis (MSA) phase of the program.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue Risk Reduction Studies <i>FY 2009 Accomplishments:</i> In FY2009: N/A. <i>FY 2010 Plans:</i> In FY2010: Continue missile components and system design. Funds component technology efforts [Seeker Integrated Target Endgame (SITES), Multi-Role Responsive Ordnance Kill Mechanism (MR ROKM), Dual-Role Air Dominance Missile Technology (DRADM-T), and JDRADM technology demonstration] to mature critical technologies to enter MSA. Continue mission support and provide program management to execute studies.	0.000	1.800	0.691	0.000	0.691

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>	PROJECT 645342: <i>Concept Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	0.000	6.882	9.799	0.000	9.799

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207163F: <i>AMRAAM</i>	8.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>	PROJECT 645342: <i>Concept Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction Studies	Various/ Various	Various Various	0.000	1.600	Dec 2009	0.291	Dec 2010	0.000		0.291	0.000	1.891	0.000
MSA	Various/ Various	Various Various	0.000	4.882	Dec 2009	8.708	Dec 2010	0.000		8.708	0.000	13.590	0.000
Subtotal			0.000	6.482		8.999		0.000		8.999	0.000	15.481	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management and Admin (PMA)	TM	Various Various	0.000	0.400	Dec 2009	0.800	Dec 2010	0.000		0.800	0.000	1.200	0.000
Subtotal			0.000	0.400		0.800		0.000		0.800	0.000	1.200	0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	6.882	9.799	0.000	9.799	0.000	16.681

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>	PROJECT 645342: <i>Concept Development</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

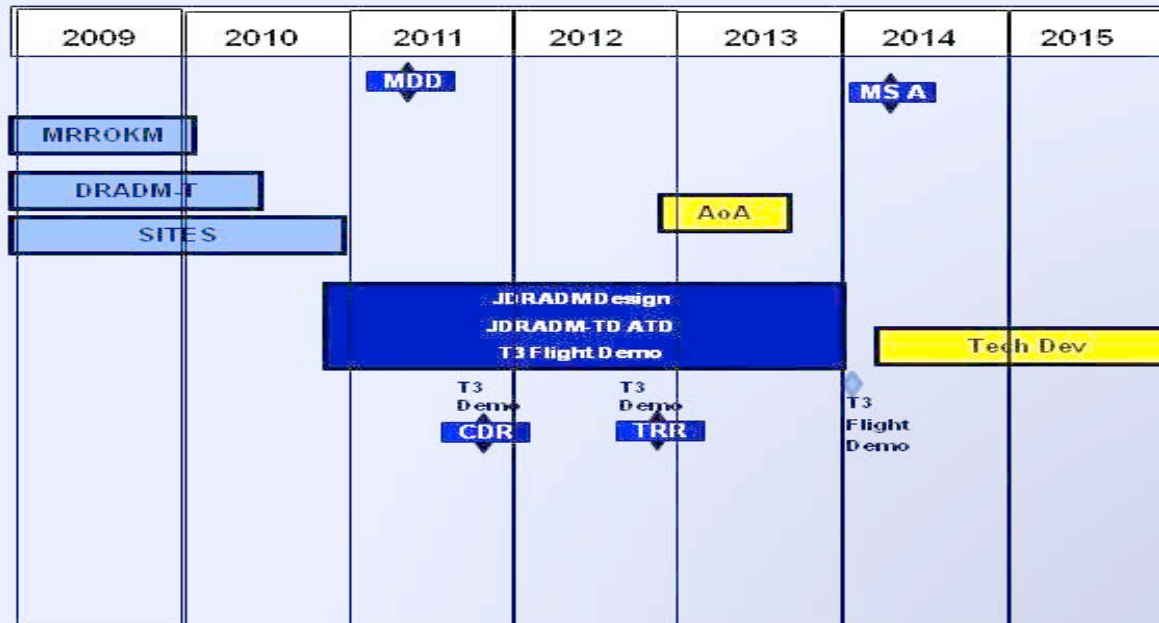
R-1 ITEM NOMENCLATURE

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

PROJECT

645342: *Concept Development*

JDRADM Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604330F: <i>Joint Dual-Role Air Dominance Missile (JDRADM)</i>	PROJECT 645342: <i>Concept Development</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Risk reduction study contract award	2	2009	2	2009
Concept refinement contract award	1	2010	1	2010
Concept refinement Phase 1	2	2010	4	2010
Concept refinement Phase 2	1	2011	3	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	35.533	34.339	0.000	34.339	23.963	23.810	23.719	23.725	Continuing	Continuing
645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>	0.000	28.651	27.534	0.000	27.534	19.237	19.104	19.036	19.064	0.000	0.000
64A024: <i>Space Systems Requirements Analysis & Maturation</i>	0.000	6.882	6.805	0.000	6.805	4.726	4.706	4.683	4.661	0.000	0.000

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 pre-systems acquisition planning and early systems engineering 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	35.533	0.000	0.000	0.000
Current President's Budget	0.000	35.533	34.339	0.000	34.339
Total Adjustments	0.000	0.000	34.339	0.000	34.339
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	34.339	0.000	34.339

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>
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Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. A detailed explanation of changes between the two budget positions is not provided because it cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>				PROJECT 645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>	0.000	28.651	27.534	0.000	27.534	19.237	19.104	19.036	19.064	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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, early-phase systems engineering and pre-systems acquisition 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 pre-systems acquisition planning and early systems engineering 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 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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
integration of improved system capability development with closely coupled assured sustainment of the developed capability. <i>FY 2011 Base Plans:</i> In FY 2011: Continue executing integrated materiel studies and analyses across the AF to formulate, plan, and coordinate pre-systems acquisition planning and early systems engineering activities. Efforts include but are not limited to: providing the next generation aircraft training capability and environment; and conducting systems engineering/cost analyses to address capability gaps in recovery of airfield pavements after hostile attacks and in long-term airfield pavement sustainment at forward operating locations. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A.					
Accomplishments/Planned Programs Subtotals	0.000	28.651	27.534	0.000	27.534

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (12940): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Force Application pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	4.984	Mar 2010	6.362	Dec 2010	0.000		6.362	Continuing	Continuing	Continuing
Command and Control pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	4.546	Mar 2010	4.546	Feb 2011	0.000		4.546	Continuing	Continuing	Continuing
Battlespace Awareness pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	4.914	Mar 2010	4.055	Feb 2011	0.000		4.055	Continuing	Continuing	Continuing
Net Centric pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	5.114	Mar 2010	3.478	Feb 2011	0.000		3.478	Continuing	Continuing	Continuing
Protection pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	3.978	Apr 2010	3.978	Apr 2011	0.000		3.978	Continuing	Continuing	Continuing
Force Support pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	5.115	Apr 2010	5.115	Apr 2011	0.000		5.115	Continuing	Continuing	Continuing
Subtotal			0.000	28.651		27.534		0.000		27.534			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	28.651	27.534	0.000	27.534			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

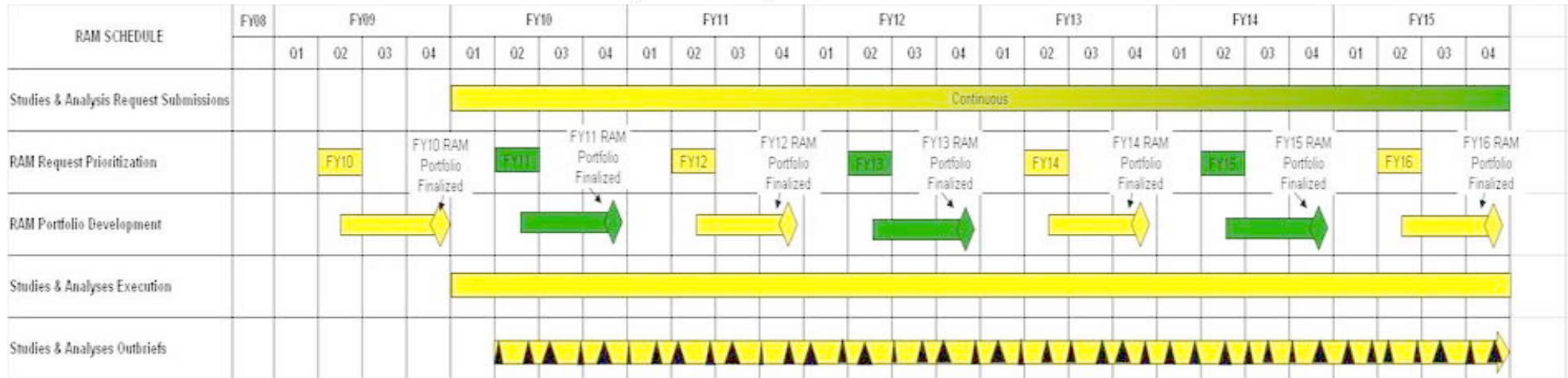
R-1 ITEM NOMENCLATURE

PE 0604337F: *Requirements Analysis and Maturation*

PROJECT

645349: *Non-Space Systems Requirements Analysis & Maturation*

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



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 645349: <i>Non-Space Systems Requirements Analysis & Maturation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FY10 RAM Prioritization	2	2009	2	2009
FY11 RAM Prioritization	2	2010	2	2010
FY12 RAM Prioritization	2	2011	2	2011
FY10 RAM Portfolio Development Finalized	4	2009	4	2009
FY11 RAM Portfolio Development Finalized	4	2010	4	2010
FY12 RAM Portfolio Development Finalized	4	2011	4	2011
Studies & Analysis	1	2010	4	2011
Studies & Analysis Outbriefs	2	2010	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A024: <i>Space Systems Requirements Analysis & Maturation</i>	0.000	6.882	6.805	0.000	6.805	4.726	4.706	4.683	4.661	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 early-phase systems engineering and pre-systems acquisition 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 AF and DoD senior leaders to support their acquisition decisions for the 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 Combatant Commands.

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 pre-acquisition planning and early systems engineering will support consolidation of previously unique system capabilities resident only within individualized program elements.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Conduct RAM activities supporting Space Situational Awareness (SSA) and C2 capabilities--assists in development of SSA and C2 capabilities to meet space mission needs. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable. <i>FY 2010 Plans:</i> In FY 2010: Execute space enterprise pre-systems acquisition planning and early systems engineering efforts to streamline and exploit information dissemination through the existing and emerging space command and control architecture. <i>FY 2011 Base Plans:</i> In FY 2011: Continue executing space enterprise pre-systems acquisition planning and early systems engineering efforts to streamline and exploit information dissemination through the existing and emerging space command and control architecture. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A.		0.000	0.350	0.350	0.000	0.350
MAJOR THRUST: Conduct RAM activities supporting Space Protection (SP) and Information Operations (IO) capabilities--secures space domain and provides USSTRATCOM the means to achieve desired effects. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable. <i>FY 2010 Plans:</i> In FY 2010: Execute space enterprise pre-systems acquisition planning and early systems engineering efforts to formulate materiel responses to the increasing space threat environment.		0.000	0.350	0.350	0.000	0.350

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable.</p> <p><i>FY 2010 Plans:</i> 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.</p> <p><i>FY 2011 Base Plans:</i> 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.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A.</p>					
Accomplishments/Planned Programs Subtotals	0.000	6.882	6.805	0.000	6.805

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (13447): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Space Situational Awareness and Command & Control pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.350	Mar 2010	0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
Space Protection and Information Operations pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.350	Mar 2010	0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
Missile Warning / Missile Defense pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	1.982	Mar 2010	1.905	Dec 2010	0.000		1.905	Continuing	Continuing	Continuing
Deterrence and Strike pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.350	Mar 2010	0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
Positioning, Navigation and Timing pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	1.050	Mar 2010	1.050	Dec 2010	0.000		1.050	Continuing	Continuing	Continuing
Military Satellite Communications pre-systems acquisition	TBD/TBD	TBD TBD	0.000	1.050	Mar 2010	1.050	Dec 2010	0.000		1.050	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
planning and early systems engineering													
Launch, Ranges and Networks pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.700	Mar 2010	0.700	Dec 2010	0.000		0.700	Continuing	Continuing	Continuing
Operationally Responsive Space pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.350	Mar 2010	0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
AF-Wide Enterprise pre-systems acquisition planning and early systems engineering	TBD/TBD	TBD TBD	0.000	0.700	Mar 2010	0.700	Dec 2010	0.000		0.700	Continuing	Continuing	Continuing
Subtotal			0.000	6.882		6.805		0.000		6.805			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	6.882	6.805	0.000	6.805		

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

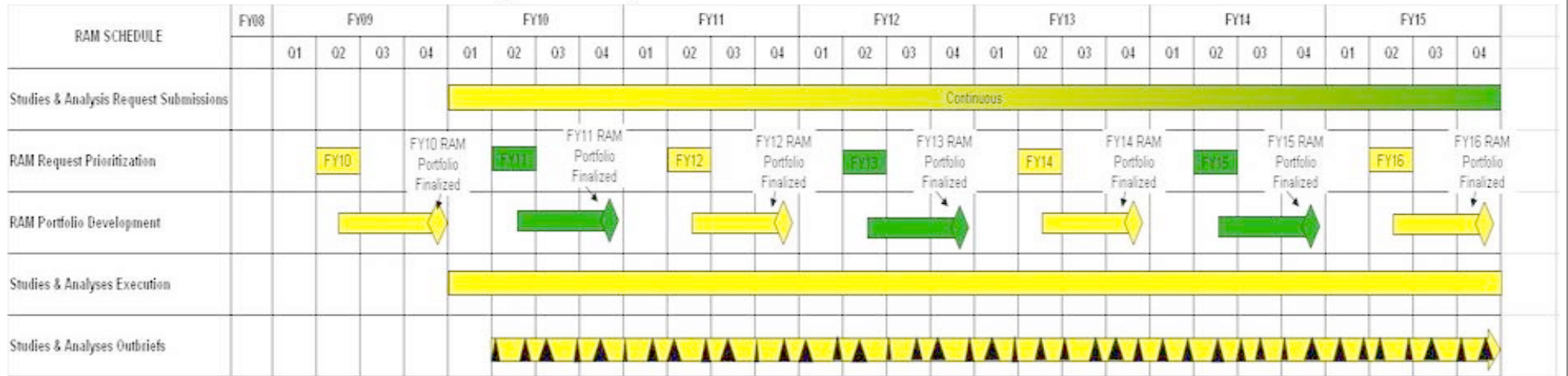
R-1 ITEM NOMENCLATURE

PE 0604337F: *Requirements Analysis and Maturation*

PROJECT

64A024: *Space Systems Requirements Analysis & Maturation*

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



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604337F: <i>Requirements Analysis and Maturation</i>	PROJECT 64A024: <i>Space Systems Requirements Analysis & Maturation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FY10 RAM Prioritization	2	2009	2	2009
FY11 RAM Prioritization	2	2010	2	2010
FY12 RAM Prioritization	2	2011	2	2011
FY10 RAM Portfolio Development Finalized	4	2009	4	2009
FY11 RAM Portfolio Development Finalized	4	2010	4	2010
FY12 RAM Portfolio Development Finalized	4	2011	4	2011
Studies & Analyses	1	2010	4	2011
Studies & Analyses Outbriefs	2	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
646001: <i>Evolved MILSATCOM</i>	0.000	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification

This program element funds technology demonstration, development and study efforts for future Satellite Communications (SATCOM) capability enhancements. These capabilities could be utilized on future blocks of current SATCOM systems, hosted SATCOM payloads, or next-generation SATCOM systems. The goal of the effort is to sufficiently mature new technologies, system architectures, and business concepts to reduce overall risk of future SATCOM efforts and improve space/ground/terminal synchronization.

FY10 funds efforts such as: preparation and approval of the Joint Space Communications Layer Initial Capabilities Document (ICD), conducting the Materiel Solutions Analysis (MSA), development of the technologies, architectures, and business concepts for SATCOM including modification of current protected and wideband MILSATCOM systems and potential for incorporating new military-unique and/or commercial capabilities.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	50.000	0.000	0.000	0.000
Total Adjustments	0.000	50.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		50.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 646001: *Evolved MILSATCOM*

Congressional Add: *Funds studies and technology demonstration and development efforts for future SATCOM capability enhancements*

Congressional Add Subtotals for Project: 646001

Congressional Add Totals for all Projects

	FY 2009	FY 2010
	0.000	50.000
	0.000	50.000
	0.000	50.000

Change Summary Explanation

Congress added funds for studies and technology development efforts for future SATCOM capability enhancements.

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R-1 Line Item #52

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
646001: <i>Evolved MILSATCOM</i>	0.000	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program element funds technology demonstration, development and study efforts for future Satellite Communications (SATCOM) capability enhancements. These capabilities could be utilized on future blocks of current SATCOM systems, hosted SATCOM payloads, or next-generation SATCOM systems. The goal of the effort is to sufficiently mature new technologies, system architectures, and business concepts to reduce overall risk of future SATCOM efforts and improve space/ground/terminal synchronization.

FY10 funds efforts such as: preparation and approval of the Joint Space Communications Layer Initial Capabilities Document (ICD), conducting the Materiel Solutions Analysis (MSA), development of the technologies, architectures, and business concepts for SATCOM including modification of current protected and wideband MILSATCOM systems and potential for incorporating new military-unique and/or commercial capabilities.

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

	FY 2009	FY 2010
Congressional Add: Funds studies and technology demonstration and development efforts for future SATCOM capability enhancements	0.000	50.000
<p><i>FY 2009 Accomplishments:</i> In FY2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY2010: The program will fund completion of a Joint Space Communications Layer ICD; conduct Materiel Solutions Analysis (MSA) efforts; develop capability insertion program (CIP) and commercial capability plans; provide technical support, including studies and analysis; provide program office support and other related activities.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Adds Subtotals	0.000	50.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0603430F: <i>AEHF, RDT&E</i>	441.401	461.667	351.817	0.000	351.817	740.127	997.888	1,022.755	1,327.126	0.000	0.000
• PE 0303604F: <i>AEHF, MPAF</i>	182.622	1,837.302	246.598	0.000	246.598	875.862	287.001	953.411	322.273	0.000	0.000
• PE 0603854F: <i>WGS, RDT&E</i>	9.891	52.329	17.949	0.000	17.949	0.000	0.000	0.000	0.000	0.000	382.445
• PE 0303600F: <i>WGS, MPAF</i>	51.628	213.440	575.711	0.000	575.711	473.356	23.103	34.937	100.334	0.000	0.000
• PE 0303601F: <i>MILSATCOM Terminals, RDT&E</i>	277.501	253.318	186.582	0.000	186.582	105.274	79.768	15.301	13.723	0.000	0.000
• PE 0303601F (1): <i>MILSATCOM Terminals, OPAF</i>	105.919	138.736	219.634	0.000	219.634	368.487	340.066	250.769	100.679	0.000	0.000
• PE 0303601F (2): <i>MILSATCOM Terminals, APAF</i>	0.000	72.639	152.594	0.000	152.594	282.867	247.119	129.233	83.291	0.000	0.000

D. Acquisition Strategy

Upon completion of the ICD the program will proceed through a Materiel Design Decision (MDD) and MSA which will determine the mix of enhancements to existing systems and potential for incorporating new military-unique and/or commercial capabilities.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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R-1 Line Item #52

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Capability Insertion Program Studies	Various/ Various	Various Various	0.000	23.637	Feb 2010	0.000		0.000		0.000	0.000	23.637	0.000
Technology Development & Demonstration	Various/ Various	Various Various	0.000	9.907	Apr 2010	0.000		0.000		0.000	0.000	9.907	0.000
Subtotal			0.000	33.544		0.000		0.000		0.000	0.000	33.544	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical analysis & support	Various/ Various	Various Various	0.000	6.504	Feb 2010	0.000		0.000		0.000	0.000	6.504	0.000
Analysis of Alternatives (AoA) support	Various/ Various	Various Various	0.000	6.200	Apr 2010	0.000		0.000		0.000	0.000	6.200	0.000
Program Office Support	TBD/TBD	TBD TBD	0.000	3.752	Feb 2010	0.000		0.000		0.000	0.000	3.752	0.000
Subtotal			0.000	16.456		0.000		0.000		0.000	0.000	16.456	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	50.000	0.000	0.000	0.000	0.000	50.000	0.000

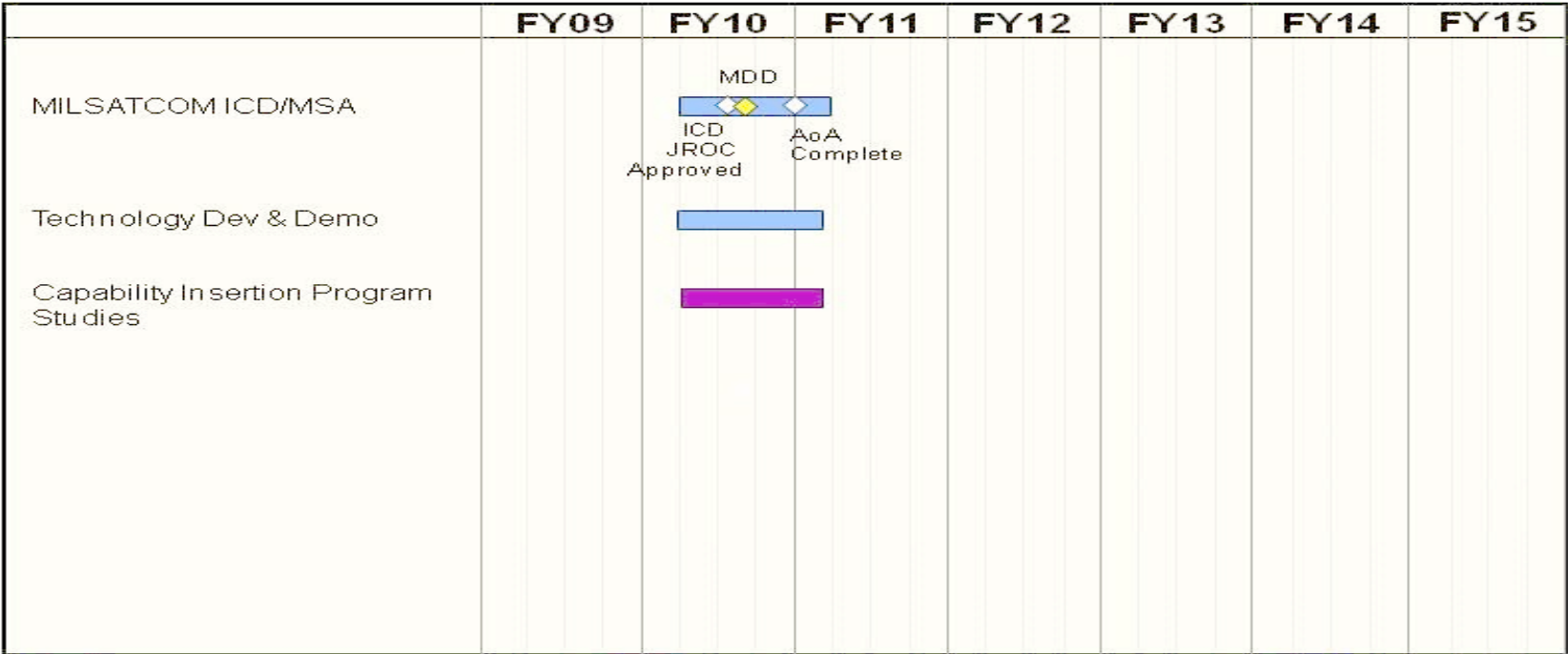
Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>

PE 0604436F – Next Generation MILSATCOM Technology Development



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

R-4 Program Schedule Detail

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604436F: <i>Next-Generation MILSATCOM Technology</i>	PROJECT 646001: <i>Evolved MILSATCOM</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
JROC approved ICD	2	2010	2	2010
Materiel Design Decision	3	2010	3	2010
AoA complete	4	2010	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	18.778	32.513	0.000	32.513	27.038	5.208	0.000	0.000	Continuing	Continuing
645312: <i>Hard Target Void Sensing Fuze</i>	0.000	18.778	32.513	0.000	32.513	27.038	5.208	0.000	0.000	0.000	83.700

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.

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

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).

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	18.778	0.000	0.000	0.000
Current President's Budget	0.000	18.778	32.513	0.000	32.513
Total Adjustments	0.000	0.000	32.513	0.000	32.513
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	32.513	0.000	32.513

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0604635F: *Ground Attack Weapons Fuze Development*

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>				PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645312: <i>Hard Target Void Sensing Fuze</i>	0.000	18.778	32.513	0.000	32.513	27.038	5.208	0.000	0.000	0.000	83.700
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Begin HTVSF EMD effort. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Begin HTVSF EMD effort to develop a joint use Air Force/Navy item to interface with legacy pentatrator weapons to provide a capability to survive a 5K - 15K psi penetration environment and detonate in a specific void inside the target or at a specific delay time programmed into the fuze.	0.000	17.194	20.573	0.000	20.573

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>		PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>							
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
<p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>											
<p>MAJOR THRUST: Ensure required government furnished equipment is available for the EMD program to include items such as bomb bodies/warheads, tailkits, and telemetry sets.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Provide items such as bomb bodies/warheads, tailkits and telemetry sets to support HTVSF EMD contract efforts and testing.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue to provide government furnished items listed to support all contract and testing efforts.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>				0.000	0.786	0.301	0.000	0.301			
Accomplishments/Planned Programs Subtotals				0.000	18.778	32.513	0.000	32.513			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604602F: <i>Armament Ordnance Development</i>	8.569	9.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0208030F: <i>WRM Ammunition</i>	0.000	0.000	0.000	0.000	0.000	0.000	18.750	37.500	38.500	0.000	0.000

D. Acquisition Strategy

EMD – 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
 After contract award: 6 month Delta CDRs start Jan 11

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HTVSF EMD	C/CPIF	Alliant Techsystems or Thales Missile Electronics Minneapolis, MN, or Basingstroke, UK	0.000	17.194	Jul 2010	20.573	Jan 2011	0.000		20.573	23.466	61.233	Continuing
Subtotal			0.000	17.194		20.573		0.000		20.573	23.466	61.233	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
External	Various/ Various	ManTech, StratCom, AFOTEC, Safety support Various	0.000	0.000		0.390		0.000		0.390	0.388	0.778	0.000
GFE	TBD/TBD	TBD TBD	0.000	0.786		0.301		0.000		0.301	0.320	1.407	0.000
Subtotal			0.000	0.786		0.691		0.000		0.691	0.708	2.185	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Target build and sled/flight test	Various/ Various	46th Test Wing Various	0.000	0.000		10.145		0.000		10.145	6.505	16.650	0.000
Subtotal			0.000	0.000		10.145		0.000		10.145	6.505	16.650	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program management/analysis support	TBD/TBD	679 ARSS Eglin AFB, FL	0.000	0.798		1.104		0.000		1.104	1.567	3.469	0.000
Subtotal			0.000	0.798		1.104		0.000		1.104	1.567	3.469	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	18.778		32.513		0.000		32.513	32.246	83.537	

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

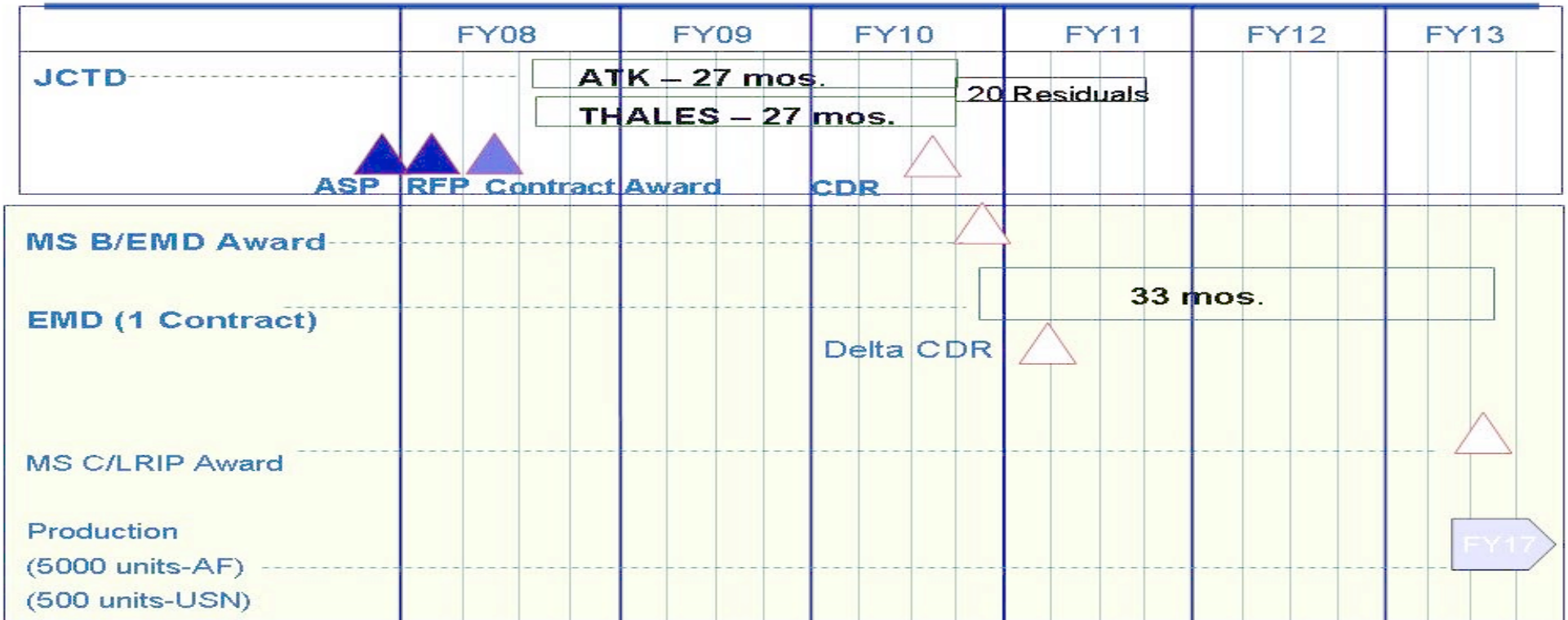
R-1 ITEM NOMENCLATURE

PE 0604635F: *Ground Attack Weapons Fuze Development*

PROJECT

645312: *Hard Target Void Sensing Fuze*

HTVSF EMD:Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	PROJECT 645312: <i>Hard Target Void Sensing Fuze</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CDR (JCTD event; feeds 1st Delta CDR)	4	2010	4	2010
Order & Build Test Hardware	1	2011	4	2011
Delta CDR I	2	2011	2	2011
MS B/EMD Award	4	2010	4	2010
Delta CDR II	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604796F: <i>Alternative Fuels</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	30.283	73.020	24.064	0.000	24.064	0.000	0.000	0.000	0.000	Continuing	Continuing
645287: <i>Assured Fuels</i>	30.283	73.020	24.064	0.000	24.064	0.000	0.000	0.000	0.000	Continuing	Continuing

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 being evaluated and certified 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. Initiative supports USAF assured fuels effort to decrease US dependence on foreign oil and secure 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	54.217	89.020	0.000	0.000	0.000
Current President's Budget	30.283	73.020	24.064	0.000	24.064
Total Adjustments	-23.934	-16.000	24.064	0.000	24.064
• Congressional General Reductions		-20.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		4.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-23.934	0.000	24.064	0.000	24.064

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0604796F: *Alternative Fuels*

Change Summary Explanation

FY 2009 adjustments for OMNIBUS and higher Air Force priorities
FY 2010 - Congressional Reduction of \$20M

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604796F: <i>Alternative Fuels</i>	PROJECT 645287: <i>Assured Fuels</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645287: <i>Assured Fuels</i>	30.283	73.020	24.064	0.000	24.064	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 being evaluated and certified 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. Initiative supports USAF assured fuels effort to decrease US dependence on foreign oil and secure 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: Certify AF weapon systems (including appropriate support equipment and base-level fuel delivery and storage infrastructure) to operate using any number of alternative fuel stocks.	30.283	73.020	24.064	0.000	24.064
<p><i>FY 2009 Accomplishments:</i></p> <p>In FY2009 - Effort includes laboratory, infrastructure and flight test support for certification activities for approximately 7 USAF platforms using a 50/50 fuel blend comprised of JP-8 and Fischer-Tropsch (FT) derived synthetic fuel. Dedicated testing of 2 augmented engines using the FT blend will be accomplished using test facilities at Arnold Engineering and Development Center (AEDC). Additionally, development of requirements and procurement of sufficient quantities of Hydro-treated Renewable Jet (HRJ) bio-mass derived fuels will also be accomplished in preparation for USAF fleet-</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604796F: <i>Alternative Fuels</i>	PROJECT 645287: <i>Assured Fuels</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (14527): <i>PE0702806F, Civ Pay - O&M</i>	1.838	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604796F: <i>Alternative Fuels</i>				PROJECT 645287: <i>Assured Fuels</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
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 ...	Various/ Various	77th AESW AF	29.422	71.195		22.600		0.000		22.600	Continuing	Continuing	0.000
Determine compatibility/operability of materials, valves, fuel pumps, Automated Tank Gauging (ATG), distribution pipelines, Fuels Mobility Support Equipment (FMSE) and other applicable storage stab...	Various/ Various	AFPET TBD	0.459	1.377		1.002		0.000		1.002	Continuing	Continuing	0.000
Subtotal			29.881	72.572		23.602		0.000		23.602			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604796F: <i>Alternative Fuels</i>	PROJECT 645287: <i>Assured Fuels</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management and support costs associated with the Alternative Fuels effort to include travel and supplies	Various/ Various	TBD TBD	0.402	0.448		0.462		0.000		0.462	Continuing	Continuing	0.000
Subtotal			0.402	0.448		0.462		0.000		0.462			0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.283	73.020	24.064	0.000	24.064			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

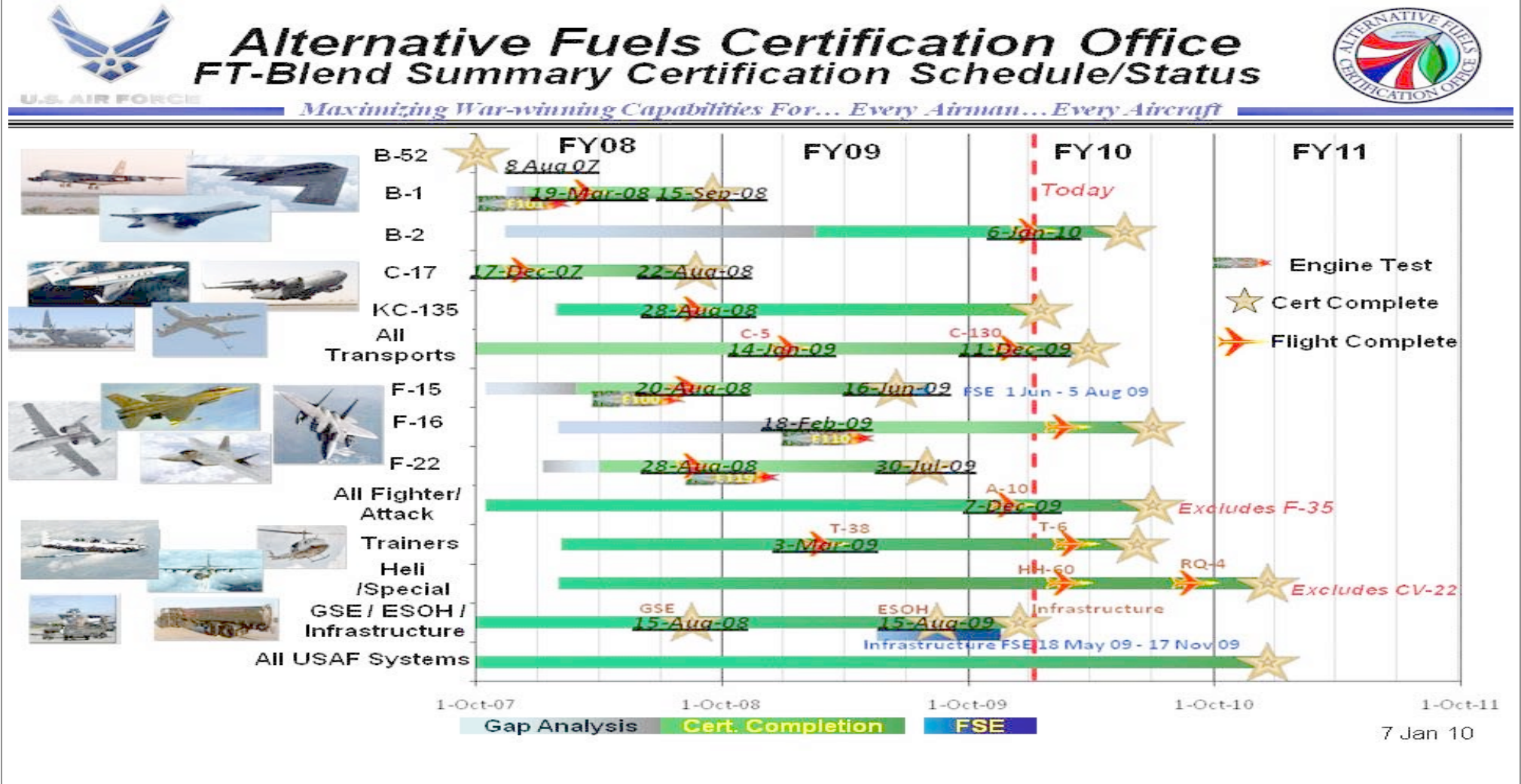
3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0604796F: Alternative Fuels

PROJECT

645287: Assured Fuels



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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0604796F: Alternative Fuels	PROJECT 645287: Assured Fuels

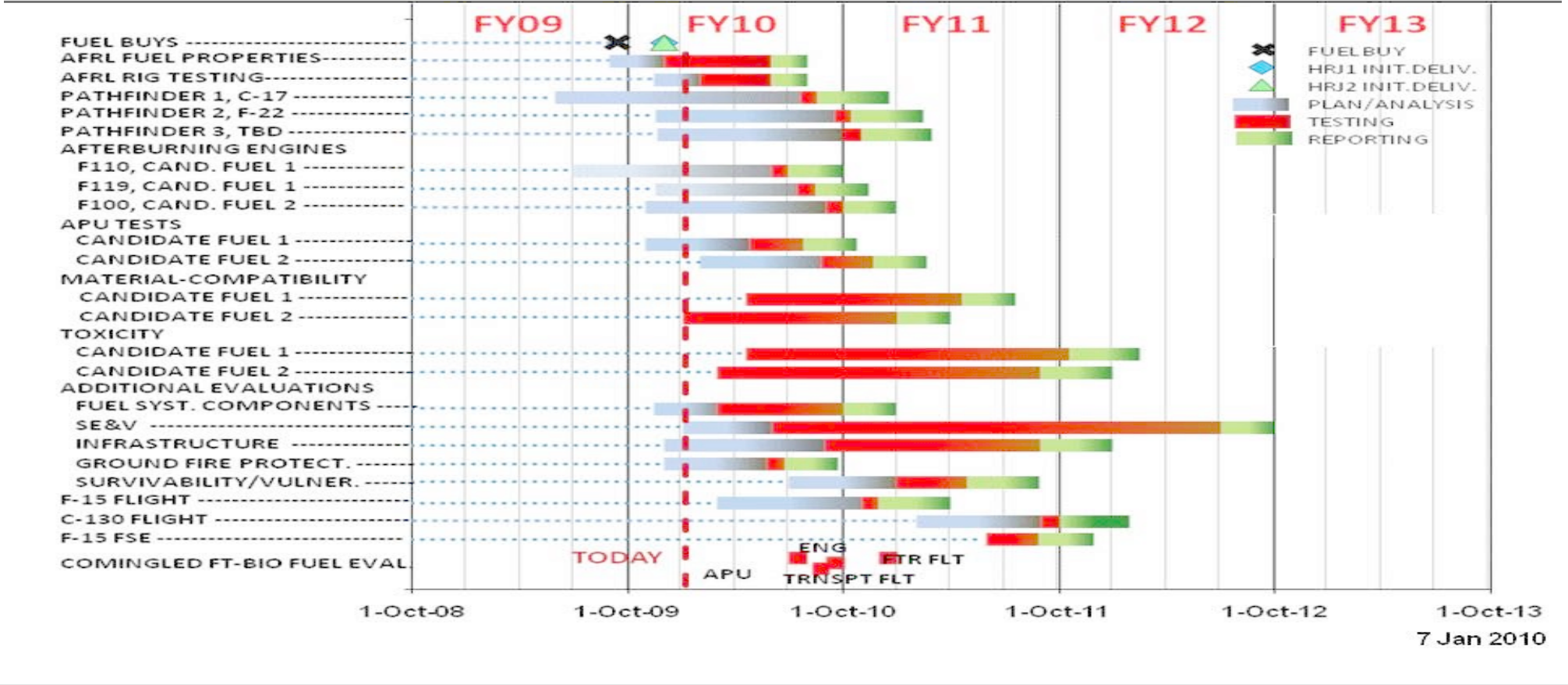


Alternative Fuels Certification Office

Preliminary Hydro-processed Renewable Jet (HRJ) Certification Schedule



U.S. AIR FORCE Maximizing War-winning Capabilities For... Every Airman... Every Aircraft



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0604796F: *Alternative Fuels*

PROJECT

645287: *Assured Fuels*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Certification Efforts	1	2009	4	2011
Flight Tests	1	2009	4	2011
Engine Tests	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	9.610	43.158	0.085	0.000	0.085	0.000	0.000	0.000	0.000	Continuing	Continuing
642214: <i>Optionally Unmanned Development</i>	9.610	43.158	0.085	0.000	0.085	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification

(U) A. Mission Description and Budget Item Justification

This program develops single channel Precision GPS (PGPS) system to support Automated Aerial Refueling (AAR) for future manned and unmanned air systems (UAS)

The FY10 funding will support the development of the single channel PGPS and close out of the Automated Aerial Refueling Phase II Program. This funding supports open loop flight demonstration of real-time PGPS performance.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	9.862	43.158	0.000	0.000	0.000
Current President's Budget	9.610	43.158	0.085	0.000	0.085
Total Adjustments	-0.252	0.000	0.085	0.000	0.085
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.252	0.000	0.085	0.000	0.085

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 though FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
642214: <i>Optionally Unmanned Development</i>	9.610	43.158	0.085	0.000	0.085	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	0		

A. Mission Description and Budget Item Justification

(U) A. Mission Description and Budget Item Justification

This program develops single channel Precision GPS (PGPS) system to support Automated Aerial Refueling (AAR) for future manned and unmanned air systems (UAS)

The FY10 funding will support the development of the single channel PGPS and close out of the Automated Aerial Refueling Phase II Program. This funding supports open loop flight demonstration of real-time PGPS performance.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development of flight control and precision navigation (PGPS) systems for initial capability of automated air-to-air refueling	9.610	43.158	0.085	0.000	0.085

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R-1 Line Item #55

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Develop flight control and precision navigation (PGPS) systems for initial capability of automated air-to-air refueling and the integration and testing of automated air-to-air refueling flight controls and precision navigation initial capability</p> <p><i>FY 2010 Plans:</i> 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. Continue development of the single channel PGPS and begin close out of the Automated Aerial Refueling Phase II Program. This funding supports open loop flight demonstration of real-time PGPS performance.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Finishes close-out of Automated Aerial Refueling Program.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	9.610	43.158	0.085	0.000	0.085

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (14752): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>				PROJECT 642214: <i>Optionally Unmanned Development</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision GPS Development	C/CPFF	Northrop Grumman Woodland Hills, CA	4.000	9.500		0.000		0.000		0.000	0.000	13.500	0.000
Tactical Targeting Network Technology (TTNT)	C/CPFF	Rockwell Collins Cedar Rapids IA	0.100	0.200		0.000		0.000		0.000	0.000	0.300	0.000
Phase II System Development and Demonstration	C/CPFF	Boeing St Louis, MO	3.900	18.260		0.000		0.000		0.000	0.000	22.160	0.000
Subtotal			8.000	27.960		0.000		0.000		0.000	0.000	35.960	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision GPS Testing	TBD/TBD	Calspan Buffalo, NY	0.100	2.000		0.000		0.000		0.000	0.000	2.100	0.000
Tanker Modification Development	TM	Rockwell Collins Oklahoma City, OK	0.300	1.500		0.000		0.000		0.000	0.000	1.800	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Refueling Receiver Development	C/CPFF	Calspan Buffalo, NY	0.200	4.000		0.000		0.000		0.000	0.000	4.200	0.000
VISTA F-16 Development	C/CPFF	Lockheed Martin Ft Worth, TX	0.000	1.000	Dec 2009	0.000		0.000		0.000	0.000	1.000	0.000
Flight Test	Various/ Various	Various Various	0.350	4.198		0.000		0.000		0.000	0.000	4.548	0.000
Subtotal			0.950	12.698		0.000		0.000		0.000	0.000	13.648	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	Various/ Various	Various Various	0.660	2.500		0.085		0.000		0.085	0.000	3.245	0.000
Subtotal			0.660	2.500		0.085		0.000		0.085	0.000	3.245	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.610	43.158	0.085	0.000	0.085	0.000	52.853	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

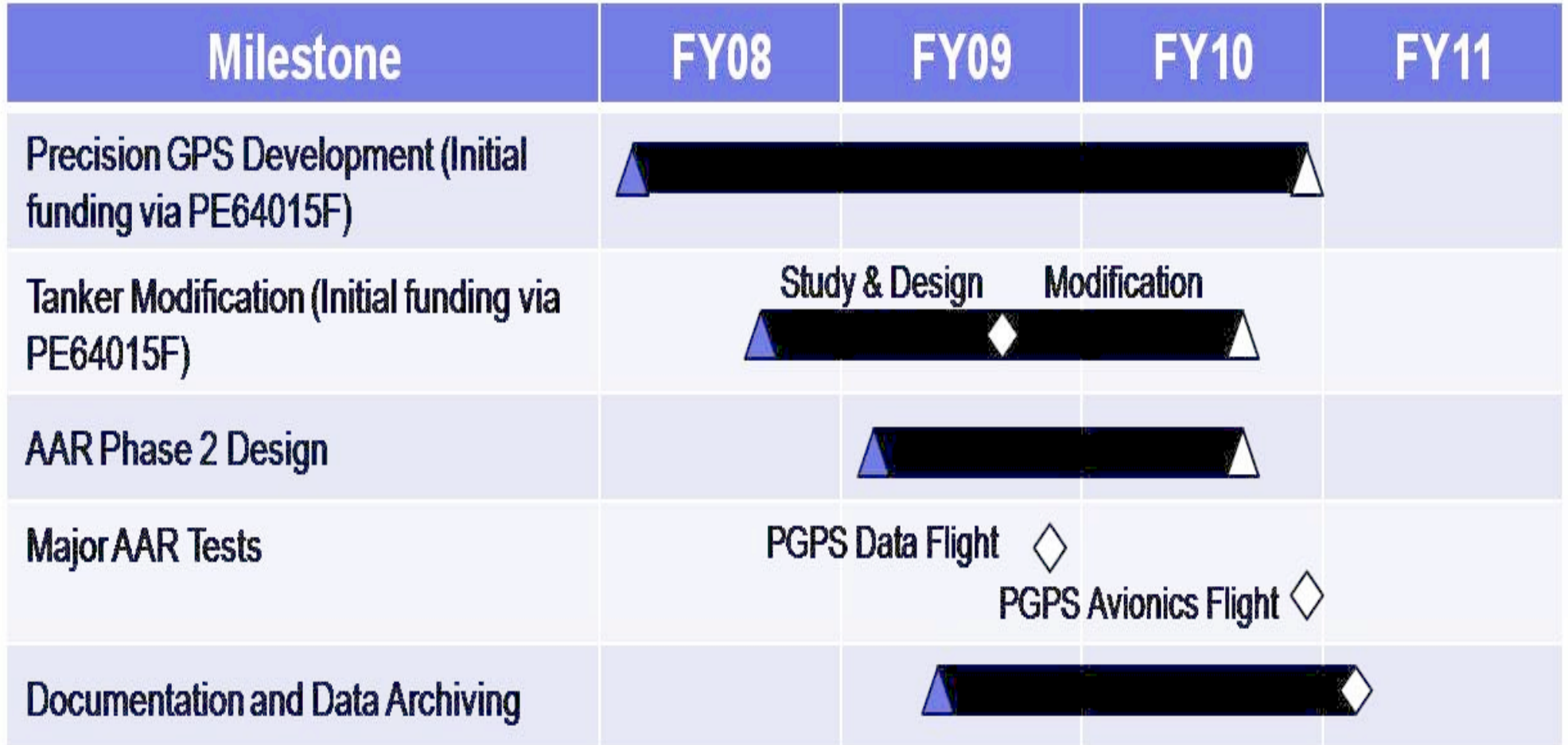
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0604830F: *Automated Air-to-Air Refueling*

PROJECT

642214: *Optionally Unmanned Development*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604830F: <i>Automated Air-to-Air Refueling</i>	PROJECT 642214: <i>Optionally Unmanned Development</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Precision GPS Development (Initial funding via PE64015F)	1	2009	4	2010
Tanker Modification (Initial funding via PE64015F)	1	2009	3	2010
AAR Phase 2 Design	1	2009	3	2010
PGPS Data Flight Test	4	2009	4	2009
PGPS Avionics Flight Test	4	2010	4	2010
Documentation and Data Archiving	2	2009	1	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	228.540	124.308	93.978	0.000	93.978	88.019	78.103	54.382	125.611	Continuing	Continuing
64A015: <i>ORS COMMON SERVICES</i>	12.749	10.815	19.450	0.000	19.450	69.958	66.306	33.776	10.075	Continuing	Continuing
64A020: <i>AF-funded ORSSats</i>	215.791	113.493	74.528	0.000	74.528	18.061	11.797	20.606	115.536	Continuing	Continuing

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) will provide reconnaissance and surveillance capabilities focused on directly supporting theater warfighting requirements. These capabilities will satisfy an urgent and compelling need validated by the Commander, USSTRATCOM. This project will directly support USCENTCOM and Overseas Contingency Operations (OCO).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>
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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. A focus for these ORS efforts will be the Rapid Response Space Works.

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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	196.561	112.861	0.000	0.000	0.000
Current President's Budget	228.540	124.308	93.978	0.000	93.978
Total Adjustments	31.979	11.447	93.978	0.000	93.978
• Congressional General Reductions		-0.903			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		12.350			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	31.979	0.000	93.978	0.000	93.978

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 64A020: *AF-funded ORSSats*

Congressional Add: *work with the Hawaii Space Flight Lab and Sandia National Lab on the Low Earth Orbit Nanosatellite Integrated Defense Autonomouns Systems (LEONIDAS) program.*

	<u>FY 2009</u>	<u>FY 2010</u>
	5.000	4.750

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2009	FY 2010
Congressional Add: <i>Work in conjunction with Third Generation Infrared Surveillance system to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP).</i>	75.000	0.000
Congressional Add: <i>Ballistic Missile Technology</i>	2.400	0.000
Congressional Add: <i>Micro-Satellite Serial Manufacturing to include Academic Outreach Educational program</i>	0.800	1.200
Congressional Add: <i>Florida National Guard Missile Range Safety Technology</i>	1.600	0.000
Congressional Add: <i>Rapid Small Satellite Development Test Facility</i>	0.000	1.600
Congressional Add: <i>Space Sensor Data Link Technology</i>	0.000	4.800
Congressional Add Subtotals for Project: 64A020	84.800	12.350
Congressional Add Totals for all Projects	84.800	12.350

Change Summary Explanation

FY2009: There were a +\$28.1M Omnibus and +\$10.0M below threshold reprogramming increases to maintain the accelerated ORS-1 schedule. Chip Scale Atomic Clock Congressional Add (\$2.347M) was moved to correct PE. -\$3.774M SBIR transfer.

FY2010: Congressional increases of \$1.2M for Micro-Satellite Serial Manufacturing, \$4.75M for Low-Earth Orbit Nanosatellite Integrated Defense Autonomous Systems, \$1.6M for Rapid Small Satellite Test Facilities, and \$4.8M for Space Sensor Data Link Technology. FFRDC -\$0.903M. The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>				PROJECT 64A015: <i>ORS COMMON SERVICES</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A015: <i>ORS COMMON SERVICES</i>	12.749	10.815	19.450	0.000	19.450	69.958	66.306	33.776	10.075	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform concepts and solutions for warfighter urgent needs. Perform modeling, simulations, and analyses for various alternative concepts, and develop conceptual requirements. <i>FY 2009 Accomplishments:</i> In FY 2009: conclude the Rapid Deployable Space (RDS) Capabilities Based Analysis (CBA). Completed the ground system architecture for surveillance and reconnaissance. <i>FY 2010 Plans:</i> In FY 2010: Perform the kick-off study for USSTRATCOM Urgent Need #4--Missile Warning. Obtain final DoD approval for the RDS CBA. Complete the ground system architecture for communications.	12.749	10.815	19.450	0.000	19.450

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A015: <i>ORS COMMON SERVICES</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Complete the first RF modular payload design study. Complete the TacSat-3 Military Utility Analysis (MUA) and continue the TacSat-4 MUA. Perform the signals intelligence mission design study. <i>FY 2011 Base Plans:</i> In FY 2011: Perform kick off studies for urgent needs. Integrate the findings from the RDS CBA. Complete the ground systems architecture for space situational awareness. Continue the TacSat-4 MUA. Conclude the protected communications mission design study. Continue the RF modular mission kit development. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable					
Accomplishments/Planned Programs Subtotals	12.749	10.815	19.450	0.000	19.450

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (15138): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Competitively award contracts through ORS Office or partner organizations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A015: <i>ORS COMMON SERVICES</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RF Modular payload Mission Kit Enabler Project	TBD/TBD	TBD TBD	0.000	0.000		9.000	Oct 2010	0.000		9.000	0.000	9.000	0.000
Subtotal			0.000	0.000		9.000		0.000		9.000	0.000	9.000	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Perform modeling, simulation, analysis and assess alternative concepts/requirements & program support	Various/ Various	Various Various	12.749	10.815	Oct 2009	10.450	Oct 2010	0.000		10.450	Continuing	Continuing	Continuing
Subtotal			12.749	10.815		10.450		0.000		10.450			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A015: <i>ORS COMMON SERVICES</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.749	10.815	19.450	0.000	19.450			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

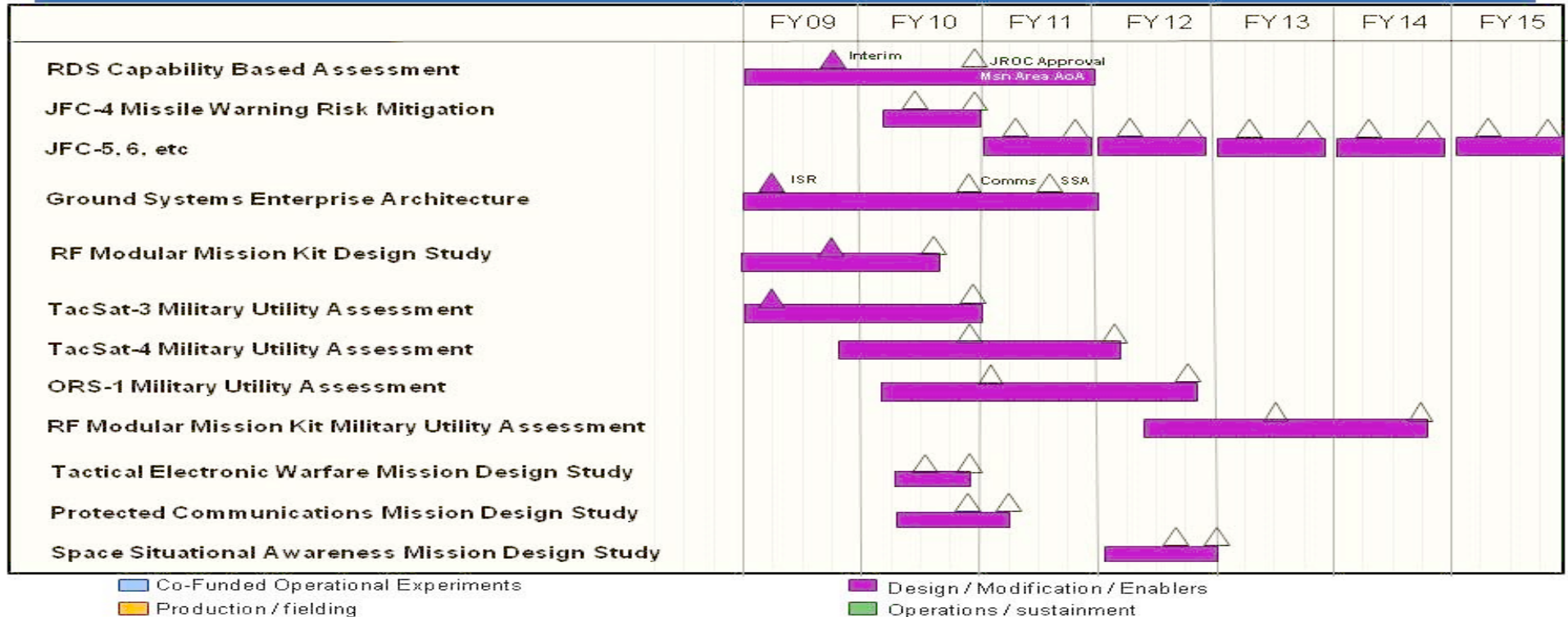
PE 0604857F: *Operationally Responsive Space*

PROJECT

64A015: *ORS COMMON SERVICES*



Operationally Responsive Space BPAC A015 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A015: <i>ORS COMMON SERVICES</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Rapidly Deployable Space (RDS) Capability Based Assessment	1	2009	4	2011
JFC-4 Missile Warning Risk Mitigation	1	2010	4	2010
Additional JFC urgent need analyses	1	2011	4	2011
Ground Systems Enterprise Architecture for surveillance/reconnaissance, communications, and space situational awareness	1	2009	4	2011
RF Modular Mission Kit Design Study	1	2009	3	2010
TacSat-3 military utility assessment	1	2009	4	2010
TacSat-4 military utility assessment	4	2009	4	2011
ORS-1 military utility assessment	1	2010	4	2011
Tactical Electronic Warfare Mission Design Study	2	2010	4	2010
Protected Communications Mission Design Study	2	2010	1	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A020: <i>AF-funded ORSSats</i>	215.791	113.493	74.528	0.000	74.528	18.061	11.797	20.606	115.536	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

AF-funded Operationally Responsive Space projects are optimized for prioritized theater use and/or surge, augmentation and replenishment of traditional space capabilities. The ORS Concept of Operations (CONOPS) drives 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 to continue maturing ORS enabling elements including the Radio Frequency (RF) Modular Payload mission kit (this mission kit will enable Synthetic Aperture Radar (SAR), Communications, and Tactical Electronic Warfare (EW) capabilities), complete funding for TacSat-4 support, 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 the RF Modular Payload mission kit 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 Response Space Works, a modular space vehicle (MSV), 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 Mission Kit Enabler Projects include satellite vehicle(s), launch, integration, operational experimentation, and interim transitions from ORS derived solutions to operational capabilities. Each mission kit also includes enabler investments to improve the responsiveness and lower the cost of designing, fabricating, launching, and operating ORS space capabilities. These mission kits culminate in on-orbit capabilities ready for operational experimentation and, when desired, transition to enduring operations.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
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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

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Perform cross-cutting activities that support all three tiers of ORS activities.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: successfully completed the Joint Reconnaissance Program (JRP) demonstration providing valuable insight in command and control, processing, and dissemination architecture. Awarded contract for the development of smaller crypto package for smallsats and nanosats. Initiated development of enabling missions: Space Common Data Link, Virtual Mission Operations Center, ORS enterprise architecture, and joint satellite operations capability.</p> <p><i>FY 2010 Plans:</i> In FY 2010: provide the TacSat-4 launch and support on-orbit operations. Plan the development of the first enabler mission kit launch demonstration and continue responsive launch and range enablers. Develop the requirements, concepts, and solutions for USSTRATCOM's urgent need #4 for missile warning. Collaborate with the National Reconnaissance Office on a signals intelligence payload and other efforts. Complete the Space Common Data Link and continue command & control, data processing, and dissemination enablers.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: provide TacSat-4 on-orbit flight support and performance analysis. Deliver and flight test the small space crypto package.</p>	30.691	26.343	5.228	0.000	5.228

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>		PROJECT 64A020: <i>AF-funded ORSSats</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: initiated ORS-1, the electro-optical satellite to satisfy USCENTCOM's urgent need for in-theater ISR. Prioritized ORS technology needs and integration into Air Force planning. Developed initial enabler roadmaps in areas of launch and range, command and control, processing, and dissemination, bus, and payload architecture. Initiated science and technology demonstrations; provided conduit for new capability and validated initial ORS capabilities.</p> <p><i>FY 2010 Plans:</i> In FY 2010: complete assembly, integration, and test of ORS-1 in preparation for early FY2011 launch. Complete version one of enabler roadmaps (launch and range, command and control, processing, and dissemination, bus, and payload). Design innovation cell for rapid transition of innovations in science and technology.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: launch ORS-1 to support USCENTCOM urgent need. Conduct enabler demonstration mission for innovation cell (conduit for enabling science and technology capabilities and improvements to architecture).</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>								
Accomplishments/Planned Programs Subtotals				130.991	101.143	74.528	0.000	74.528
				FY 2009	FY 2010			
Congressional Add: work with the Hawaii Space Flight Lab and Sandia National Lab on the Low Earth Orbit Nanosatellite Integrated Defense Autonomouns Systems (LEONIDAS) program.				5.000	4.750			

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R-1 Line Item #56

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
<p><i>FY 2009 Accomplishments:</i> In FY 2009: held University of HI's LEO-1 PDR and Super Strypi launch vehicle PDR. Obtained agreement with Pacific Missile Range Facility (PMRF) to launch Super Strypi at Kokole Point.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Holding System Requirements Review for HawaiiSat-1, CDR for Super Strypi, and begin construction of launch pad structure at PMRF.</p>		
<p>Congressional Add: Work in conjunction with Third Generation Infrared Surveillance system to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Worked on CHIRP payload development, on-orbit testing, and algorithm development.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>	75.000	0.000
<p>Congressional Add: Ballistic Missile Technology</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Performed analyses of unique, critical strategic design, development skills, and capabilities required to support current and future Sea Launch Ballistic Missile (SLBM) and Intercontinental Ballistic Missile (ICBM) guidance systems requirements for rapid launch campaigns.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>	2.400	0.000
	0.800	1.200

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
Congressional Add: Micro-Satellite Serial Manufacturing to include Academic Outreach Educational program <i>FY 2009 Accomplishments:</i> In FY 2009: Produced CDR-level spacecraft design in support of the Department of Homeland Security; on pace to be completed by late FY10 with CubeSat demonstration. <i>FY 2010 Plans:</i> In FY 2010: Continue CubeSat demonstration		
Congressional Add: Florida National Guard Missile Range Safety Technology <i>FY 2009 Accomplishments:</i> In FY 2009: Conducted Force Development Evaluation (FDE) at the Eastern Range and fixed resulting Deficiency Reports. Continued BMRST development, improvements, and fielding. <i>FY 2010 Plans:</i> In FY 2010: N/A	1.600	0.000
Congressional Add: Rapid Small Satellite Development Test Facility <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Initiate the rapid small satellite development test facility	0.000	1.600
Congressional Add: Space Sensor Data Link Technology	0.000	4.800

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2009 Accomplishments:</i> In FY 2009: N/A		
<i>FY 2010 Plans:</i> In FY 2010: Develop space sensor data link technology		
Congressional Adds Subtotals	84.800	12.350

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (15646): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Expediently award contracts through ORS Office or partner organizations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>				PROJECT 64A020: <i>AF-funded ORSSats</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ORS-1 (JFC need #3)	SS/CPFF	Goodrich Danbury CT	85.091	31.900	Oct 2009	15.700	Oct 2010	0.000		15.700	Continuing	Continuing	Continuing
MSV RF modular mission kit	Various/ Various	Various Various	6.400	26.543	Apr 2010	35.328	Oct 2010	0.000		35.328	Continuing	Continuing	Continuing
Sys Eng, Launch & range, C ² , TPED enablers	Various	Various Various	9.100	18.400	Oct 2009	6.800	Oct 2010	0.000		6.800	Continuing	Continuing	Continuing
JFC needs (#1 & #2)	MIPR	AFRL Sandia Kirtland AFB NM	0.800	1.200	Oct 2009	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Rapid Response Space Works	TBD/TBD	NASA Ames	0.000	7.000	Nov 2009	5.800	Oct 2010	0.000		5.800	Continuing	Continuing	Continuing
Tier 1 operational capabilities, development, and integration	Various/ Various	Various Various	4.600	2.600	Oct 2009	2.600	Oct 2010	0.000		2.600	Continuing	Continuing	Continuing
Innovation Cell & TacSat Planning	Various/ Various	AFRL and NRL TBD	0.000	3.000	Dec 2009	3.000	Oct 2010	0.000		3.000	Continuing	Continuing	Continuing
Micro-satellite serial manufacturing	MIPR	AFRL Kirtland AFB, NM	0.800	1.200	Feb 2010	0.000		0.000		0.000	0.000	2.000	0.776
Chip Scale Atomic Clock	MIPR	AFMC Wright-Patterson AFB, OH	2.400	0.000		0.000		0.000		0.000	0.000	2.400	2.327
FLANG Missile Range Safety Technology	MIPR	FLANG Patrick AFB, FL	1.600	0.000		0.000		0.000		0.000	0.000	1.600	1.522
Ballistic Missile Technology	Allot	SMC	2.400	0.000		0.000		0.000		0.000	0.000	2.400	2.327

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Los Angeles AFB, CA											
CHIRP	Allot	SMC Los Angeles AFB, CA	75.000	0.000		0.000		0.000		0.000	0.000	75.000	75.000
LEONIDAS	SS/TBD	U of Hawaii Honolulu, HI	5.000	4.750	Feb 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Rapid small satellite development test facilities	TBD/TBD	TBD TBD	0.000	1.600	Mar 2010	0.000		0.000		0.000	0.000	1.600	1.600
Space sensor data link technology	TBD/TBD	TBD TBD	0.000	4.800	Mar 2010	0.000		0.000		0.000	0.000	4.800	4.800
Subtotal			193.191	102.993		69.528		0.000		69.528			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ORS Sat / TacSat launch vehicles, range	C/FPI	Orbital Chandler, AZ	22.600	10.500	Oct 2009	5.000	Oct 2010	0.000		5.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
operations, and related launch support													
Subtotal			22.600	10.500		5.000		0.000		5.000			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	215.791	113.493		74.528		0.000		74.528			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

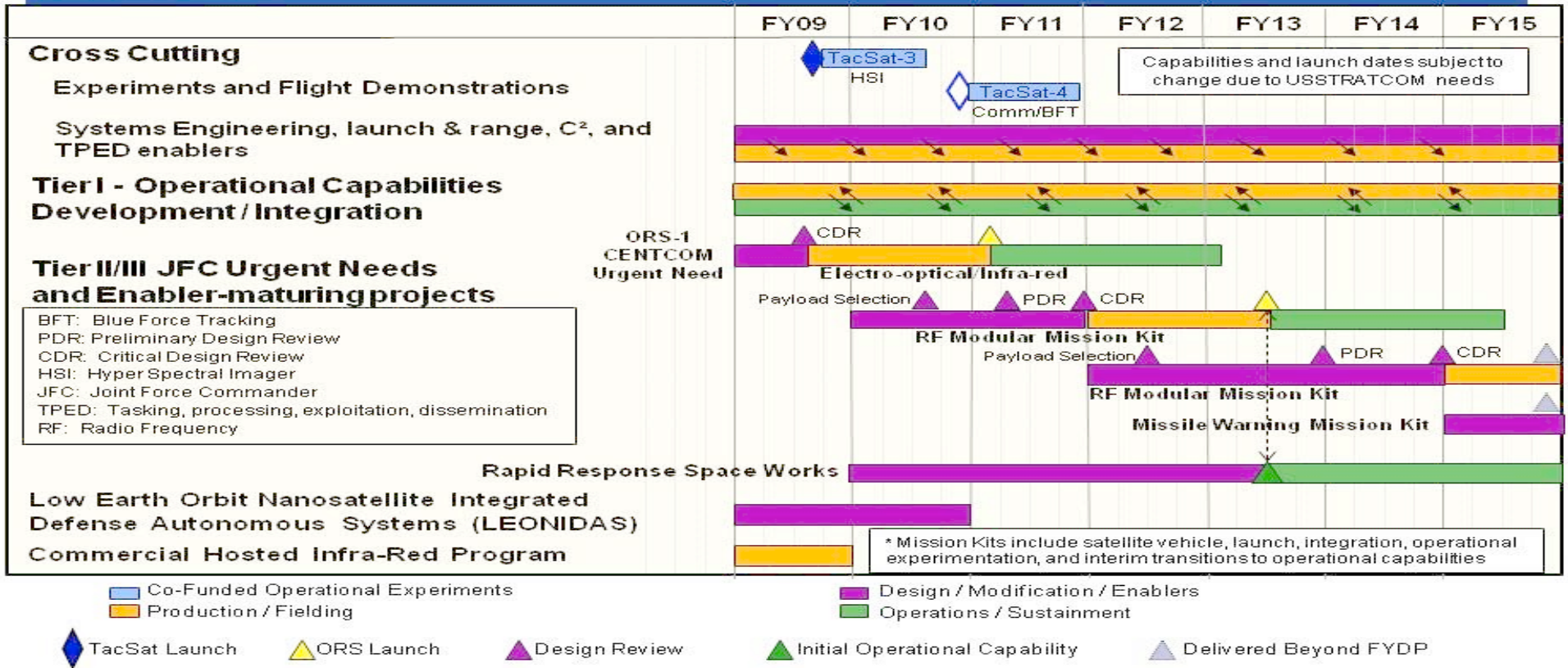
PE 0604857F: Operationally Responsive Space

PROJECT

64A020: AF-funded ORSSats



Operationally Responsive Space BPAC A020 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604857F: <i>Operationally Responsive Space</i>	PROJECT 64A020: <i>AF-funded ORSSats</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
TacSat-3 launch and ops	3	2009	3	2010
TacSat-4 launch and ops	4	2010	4	2011
ORS-1 development	1	2009	3	2009
ORS-1 production/fielding	3	2009	1	2011
ORS-1 launch and operations	1	2011	4	2011
Modular space vehicle--RF modular payload mission kit development	1	2010	4	2011
Rapid Response Space Works	1	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	9.611	12.260	0.000	12.260	2.782	0.000	0.000	0.000	Continuing	Continuing
645350: <i>Transition Prioritization</i>	0.000	9.611	12.260	0.000	12.260	2.782	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification

The Technology Transition Program (TTP) 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." TTP 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"). TTP 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 AF 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 national industrial base resources, engineering design teams, and maintains the intellectual capital of government and industry.

TTP is specifically designed to deal with technology transition opportunities throughout the fiscal year as they arise, resulting in a prioritized distribution of TTP funding over the course of the entire execution year. Although analogous to major investment programs, the TTP process allows the AF flexibility to transition innovative concepts and initiatives to the warfighter annually in a manner that coincides with the development of the President's Budget. Candidate projects will receive TTP approval and funds based on identified and demonstrated operational impact, cost savings, project development, production feasibility, lifecycle costs, project risk and cost of delay. The TTP 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, 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, since it involves system specific efforts that help expedite technology transition from the laboratory to operational use.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	9.611	0.000	0.000	0.000
Current President's Budget	0.000	9.611	12.260	0.000	12.260
Total Adjustments	0.000	0.000	12.260	0.000	12.260
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	12.260	0.000	12.260

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. A detailed explanation of changes between the two budget positions is not provided because it cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
645350: <i>Transition Prioritization</i>	0.000	9.611	12.260	0.000	12.260	2.782	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Technology Transition Program (TTP) 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." TTP 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"). TTP 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 AF 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 national industrial base resources, engineering design teams, and maintains the intellectual capital of government and industry.

TTP is specifically designed to deal with technology transition opportunities throughout the fiscal year as they arise, resulting in a prioritized distribution of TTP funding over the course of the entire execution year. Although analogous to major investment programs, the TTP process allows the AF flexibility to transition innovative concepts and initiatives to the warfighter annually in a manner that coincides with the development of the President's Budget. Candidate projects will receive TTP approval and funds based on identified and demonstrated operational impact, cost savings, project development, production feasibility, lifecycle costs, project risk and cost of delay. The TTP 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, 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, since it involves system specific efforts that help expedite technology transition from the laboratory to operational use.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: SAE-approved technology transition project execution to facilitate long-term acquisition planning and budget development.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Approved by the AF SAE to support the demonstration and transition of an advanced optical self-protection system for protection of aircraft from guided projectiles; a multi-intelligence correlation, visualization and analysis software tool for rapid integration of multi-source data into a scalable analysis environment supporting combat zone command and control facilities; a no or low collateral damage counter-electronics capability; a satellite communications capability for simultaneous multiple satellite links and advanced antenna control; a command and control facility decision support software tool to aid the planning of ISR support to operations, including dynamic tasking and re-tasking capabilities for emerging operational requirements; and an integrated performance, readiness, test, and training assessment system combining live and simulated aircraft, ground assets, and command and control nodes, allowing operations beyond the limited geographical boundaries of physical training ranges in accordance with the capabilities of modern weapons systems.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Pending the approval of the AF SAE, will support the demonstration and transition of technologies supporting persistent wide area air and maritime surveillance to enable defense against threats in the interior of and in the approaches to North America; will complete supporting the demonstration and transition of an advanced optical self-protection system for protection of aircraft from guided projectiles; a multi-intelligence correlation, visualization and analysis software tool for rapid integration of multi-source data into a scalable analysis environment supporting combat zone command and control facilities; a no or low collateral damage counter-electronics capability; a satellite communications capability for simultaneous multiple satellite links and advanced antenna control;</p>		0.000	9.611	12.260	0.000	12.260

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and an integrated performance, readiness, test, and training assessment system combining live and simulated aircraft, ground assets, and command and control nodes, allowing operations beyond the limited geographical boundaries of physical training ranges in accordance with the capabilities of modern weapons systems. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.000	9.611	12.260	0.000	12.260

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (16145): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

TTP enables a more effective and prioritized transition of technologies to the warfighter. It allows more accurate cost estimating and more 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 TTP 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 TTP process nominates projects directly to the AF SAE for final approval.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Continuing	TBD/TBD	TBD TBD	0.000	9.611		12.260		0.000		12.260	0.000	21.871	0.000
Subtotal			0.000	9.611		12.260		0.000		12.260	0.000	21.871	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TBD - Pending Contract Award	TBD/TBD	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TBD - Pending Contract Award	TBD/TBD	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TBD - Pending Contract Award	TBD/TBD	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract		
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost					
Project Cost Totals		0.000		9.611		12.260		0.000		12.260	0.000	21.871	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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R-1 Line Item #57

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>

Technology Transition Program – PE 0604858F

Fiscal Year	FY08				FY09				FY10				FY11				FY12				FY13				FY14				FY15							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
FY08 Technology Transition Project Selection and Prioritization																																				
FY08 Project Funding Award																																				
FY08 Project Progress Review																																				
FY11 Technology Transition Project Selection and Prioritization																																				
FY11 Project Funding Award																																				
FY11 Project Progress Review																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604858F: <i>Technology Transition Program.</i>	PROJECT 645350: <i>Transition Prioritization</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FY10 Project Funding Award	1	2010	1	2010
Project Progress Review	2	2010	2	2010
Project Progress Review (1)	4	2010	4	2010
FY11 Technology Transition Project Selection and Prioritization	1	2010	4	2010
FY11 Project Funding Award	1	2011	1	2011
Project Progress Review (2)	2	2011	2	2011
Project Progress Review (3)	4	2011	4	2011
FY12 Technology Transition Project Selection and Prioritization	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	287.532	386.611	325.505	0.000	325.505	405.984	321.260	220.014	137.202	Continuing	Continuing
644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>	287.532	386.611	325.505	0.000	325.505	405.984	321.260	220.014	137.202	63.935	3,210.512

Note

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.

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. Apportionment of DoD and DOC funds is accomplished at the program level, rather than to specific activities. EELV funds for launching NPOESS satellites are included in computing the DoD share. 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 exhibit describes the Air Force's portion of the RDT&E funds used for NPOESS. These RDT&E funds will be used for the development and acquisition of three NPOESS sensors (Visible Infrared Imager Radiometer Suite (VIIRS), Cross-track Infrared Sounder (CrIS), and the Ozone Mapping/Profiler Suite (OMPS)) for the NPOESS Preparatory Project (NPP) and the sensors for the first two NPOESS satellites (C-1 and C-2). RDT&E funds also include spacecraft (C-1 and C-2), ground system, algorithm development, and the use of the NPOESS McMurdo communication system to provide routing of mission data for the DMSP mission. On 4 Mar 2009, the NPOESS System Program Director notified the NPOESS Tri-agency Executive Committee (EXCOM) the NPOESS program first satellite launch availability and Initial Operational Capability (IOC) dates deviated from the schedule threshold in the approved Acquisition Program Baseline (APB) dated 11 Dec 2008. On 3 Apr 2009, the Milestone Decision Authority (MDA) was notified.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>
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The Authorization Conference report prohibits the Air Force from spending more than 50 percent of the funds available for NPOESS until a management and funding strategy is submitted. The Air Force is also prohibited from spending more than 75 percent of the funds available until the implementation plan is submitted to the relevant congressional committees

The DoD Appropriations Act directs not more than 50 percent of the funds made available to the Department of Defense for the NPOESS program shall be obligated or expended until the Under Secretary of Defense (Acquisition, Technology and Logistics) certifies in writing to the congressional defense committees the NPOESS program is being executed in support of the requirements, timelines and acquisition policies needed to meet Department of Defense missions.

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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	287.532	396.641	0.000	0.000	0.000
Current President's Budget	287.532	386.611	325.505	0.000	325.505
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• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-2.380	325.505	0.000	325.505

Change Summary Explanation

FY11: The FY2010 President's Budget submittal did not reflect FY2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>				PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>	287.532	386.611	325.505	0.000	325.505	405.984	321.260	220.014	137.202	63.935	3,210.512
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

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.

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This exhibit describes the Air Force's portion of the RDT&E funds used for NPOESS. These RDT&E funds will be used for the development and acquisition of three NPOESS sensors (Visible Infrared Imager Radiometer Suite (VIIRS), Cross-track Infrared Sounder (CrIS), and the Ozone Mapping/Profiler Suite (OMPS)) for the NPOESS Preparatory Project (NPP) and the sensors for the first two NPOESS satellites (C-1 and C-2). RDT&E funds also include spacecraft (C-1 and C-2), ground system, algorithm development, and the use of the NPOESS McMurdo communication system to provide routing of mission data for the DMSP mission. On 4 Mar 2009, the NPOESS System Program Director notified the NPOESS Tri-agency Executive Committee (EXCOM) the NPOESS program first satellite launch availability and Initial Operational Capability (IOC) dates deviated from the schedule threshold in the approved Acquisition Program Baseline (APB) dated 11 Dec 2008. On 3 Apr 2009, the Milestone Decision Authority (MDA) was notified.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>
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The Authorization Conference report prohibits the Air Force from spending more than 50 percent of the funds available for NPOESS until a management and funding strategy is submitted. The Air Force is also prohibited from spending more than 75 percent of the funds available until the implementation plan is submitted to the relevant congressional committees

The DoD Appropriations Act directs not more than 50 percent of the funds made available to the Department of Defense for the NPOESS program shall be obligated or expended until the Under Secretary of Defense (Acquisition, Technology and Logistics) certifies in writing to the congressional defense committees the NPOESS program is being executed in support of the requirements, timelines and acquisition policies needed to meet Department of Defense missions.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Major Thrust: Next generation environmental monitoring system development with 4-times improvement in operational data delivery time and a 10-time improvement in data volume/forecast accuracy.</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continued system Acquisition and Operations (A&O) effort including ground and space system development, design and fabrication for risk reduction missions and routing of mission data for the DMSP mission. Completed prime contractor Critical Design Review (CDR), and spacecraft critical design audit. Delivered the Ozone Mapping and Profiler Suite (OMPS) sensor. Started Command and Data Handling (C&DH) integration and completed the Interface Data Processing Segment (IDPS) to Operations and Support (O&S) transition.</p> <p><i>FY 2010 Plans:</i> In FY2010: Continued system A&O effort including ground and space system development, design and fabrication for risk reduction missions and routing of mission data for the DMSP mission. Deliver the Visible/Infrared Imager Radiometer Suite (VIIRS) and the Cross-track Infrared Sounder (CrIS) sensors for the NPOESS Preparatory Project (NPP). Begin the Manufacturing of the C-1 structure. Conduct the Microwave Imager Sounder (MIS) preliminary design review, IDPS critical design walkthrough and complete C&DH integration.</p>	287.532	386.611	325.505	0.000	325.505

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>

B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY2011: Continued system A&O with sensor and satellite development for operational NPOESS satellites (C-1 and C-2) with the first launch in late 2014. Preparation for operation of NPP risk reduction mission and maturation of NPOESS ground systems for two NPOESS satellites. Continues routing of mission data for the DMSP mission.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable</p>					
Accomplishments/Planned Programs Subtotals	287.532	386.611	325.505	0.000	325.505

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (118): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE Not Provided (130): <i>NOAA PAC, Polar Convergence*</i>	313.411	382.200	515.800	0.000	515.800	383.900	413.800	501.700	458.919	0.000	0.000
• PE 0603434F: <i>NPOESS RDT&E</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
• PE 0305178F: <i>NPOESS RDT&E</i>	287.532	386.611	325.505	0.000	325.505	405.984	321.260	220.014	137.202	0.000	0.000
• PE 0305178F (1): <i>NPOESS MPAF</i>	0.000	3.889	26.308	0.000	26.308	84.799	118.180	118.436	271.509	0.000	0.000
• PE 0305953F**: <i>EELV MPAF</i>	0.000	0.000	0.000	0.000	0.000	0.000	93.600	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	46.928	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (190): <i>Other operations and sustainment funding***</i>											

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. Additionally, the Nunn-McCurdy certifying official, USD (AT&L), approved the plan to incrementally fund production satellites C-3 and C-4. On 4 Mar 2009, the NPOESS System Program Director notified the NPOESS Tri-agency Executive Committee (EXCOM) the NPOESS program first satellite launch availability and Initial Operational Capability (IOC) dates deviated from the schedule threshold in the approved Acquisition Program Baseline (APB) dated 11 Dec 2008. On 3 Apr 2009, the Milestone Decision Authority (MDA) was notified.

The Authorization Conference report prohibits the Air Force from spending more than 50 percent of the funds available for NPOESS until a management and funding strategy is submitted. The Air Force is also prohibited from spending more than 75 percent of the funds available until the implementation plan is submitted to the relevant congressional committees

The DoD Appropriations Act directs not more than 50 percent of the funds made available to the Department of Defense for the NPOESS program shall be obligated or expended until the Under Secretary of Defense (Acquisition, Technology and Logistics) certifies in writing to the congressional defense committees the NPOESS program is being executed in support of the requirements, timelines and acquisition policies needed to meet Department of Defense missions.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Northrop Grumman (A&O)	C/CPAF	System development Redondo Beach, CA	1,503.737	344.736	Oct 2009	248.447	Oct 2010	0.000		248.447	Continuing	Continuing	0.000
GFE Sensor Development	MIPR	Sensor Development Laurel, MD & Wahsington, DC	24.656	39.875	Dec 2009	73.439	Dec 2010	0.000		73.439	Continuing	Continuing	0.000
Controlled Cryptographic Items	MIPR	Crypto items Lackland AFB	1.410	0.000		0.000		0.000		0.000	0.000	1.410	0.000
Government Led Studies	MIPR	Various Various	7.249	0.000		0.000		0.000		0.000	0.000	7.249	0.000
Launch Mission Integration Studies	Allot	Launch integration studies El Segundo, CA	6.433	1.000	Mar 2010	1.237	Mar 2011	0.000		1.237	Continuing	Continuing	0.000
Small Business Innovative Reseach	MIPR	SBIR Kirtland AFB, New Mexico	40.830	0.000		0.000		0.000		0.000	0.000	40.830	0.000
Subtotal			1,584.315	385.611		323.123		0.000		323.123			0.000

Remarks
FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Program Office (IPO) Support	Various/ Various	Support El Segundo, CA	5.038	1.000	Oct 2009	2.382	Oct 2010	0.000		2.382	Continuing	Continuing	0.000
Subtotal			5.038	1.000		2.382		0.000		2.382			0.000

Remarks
FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,589.353	386.611		325.505		0.000		325.505			0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0305178F: National Polar-Orbiting Op Env Satellite

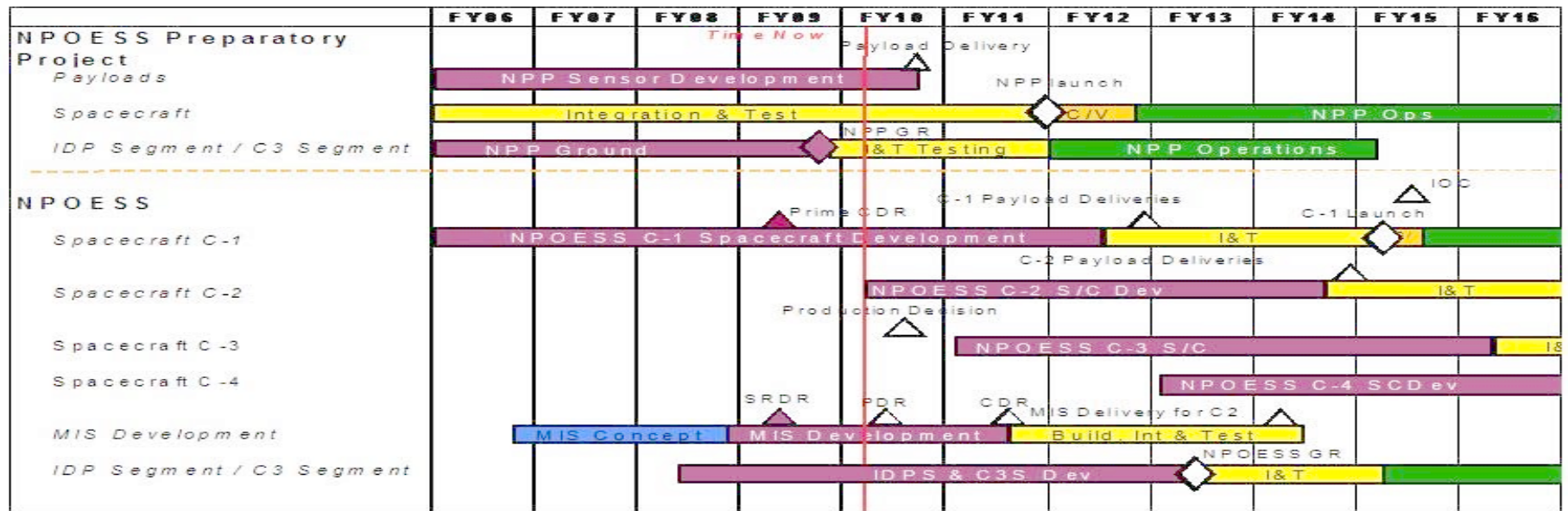
PROJECT

644056: National Polar-orbiting Operational Env. Sat. Syst.



NPOESS Proposed Threshold Schedule*

(as of December 2009)



*The schedule supports the NPOESS program's proposed threshold launch dates

- Concept Activities
- Calibration/Validation
- Design/Development
- Operations/Sustainment
- Integration/ Test
- Key Events

C3: Command, Control, Communications C/V: Calibration/Validation CDR: Critical Design Review GR: Ground Readiness
I&T: Integration & Test IDP: Interface Data Processing IOC: Initial Operational Capability FOC: Full Operational Capability

NOTE: The program schedule is dependent upon approval of an execution year (FY10) Above Threshold Reprogramming of \$86M.

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0305178F: <i>National Polar-Orbiting Op Env Satellite</i>	PROJECT 644056: <i>National Polar-orbiting Operational Env. Sat. Syst.</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
NPOESS Prime System Critical Design Review (CDR)	3	2009	3	2009
NPP Interface Data Processing Segment (IDPS) to Operations and Support Transition	4	2009	4	2009
Spacecraft Critical Design Audit	2	2009	2	2009
Ozone Mapping and Profiler Suite (OMPS) delivery	1	2009	1	2009
Command and Data Handling (C&DH) Integration	3	2009	3	2010
Cross-track Infrared Sounder (CrIS) for NPP	3	2010	3	2010
Visible Infrared Imager Radiometer Suite (VIIRS) for NPP	2	2010	2	2010
NPOESS C-1 Structure Manufacturing	3	2010	4	2011
Start of Electrical Engineering Model Testbed (EEMTB)	2	2011	2	2011
Microwave Imager Sounder (MIS) CDR	3	2011	3	2011
NPP Launch	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	17.475	31.072	18.171	0.000	18.171	2.269	2.428	0.000	0.000	Continuing	Continuing
65A023: <i>Satellite Broadcast Management Transition</i>	17.475	31.072	18.171	0.000	18.171	2.269	2.428	0.000	0.000	0.000	84.773

Note

Funding for the GBS ACAT I program (Project 4887, Global Broadcast Service) in PE 0603840F completed in FY08.

A. Mission Description and Budget Item Justification

Global Broadcast Service provides DoD with an efficient, high data rate broadcast capability from distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals. This Program Element funds the broadcast transmit activities associated with the GBS architecture. 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. 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 FY09-12, to address commercial-off-the-shelf (COTS) obsolescence issues, 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 DECC transition contract was awarded on 15 May 09. 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.

In FY11, this effort continues to fund systems transmission security, information assurance, and the transition/upgrade of the SBM systems to the DISA DECC architecture.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	18.709	31.124	0.000	0.000	0.000
Current President's Budget	17.475	31.072	18.171	0.000	18.171
Total Adjustments	-1.234	-0.052	18.171	0.000	18.171
• Congressional General Reductions		-0.052			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.234	0.000	18.171	0.000	18.171

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A023: <i>Satellite Broadcast Management Transition</i>	17.475	31.072	18.171	0.000	18.171	2.269	2.428	0.000	0.000	0.000	84.773
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop a robust satellite broadcast management architecture and implement systems transmission security (TRANSEC).	17.475	31.072	18.171	0.000	18.171

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY2009: Awarded the SBM DECC development contract to transition the broadcast management functions to the DISA DECC.</p> <p><i>FY 2010 Plans:</i> In FY2010: Continue SBM DECC development to include the Final Design Review.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continue SBM DECC development to transition the broadcast management functions to the DISA DECC. Modify the Air Force-owned Transportable Satellite Broadcast Managers (TSBM) to insure compatibility with the new SBM DECC architecture and meet TRANSEC requirements.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	17.475	31.072	18.171	0.000	18.171

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0303600F: <i>GBS Transmit Strings, OPAF</i>	0.000	1.672	1.661	0.000	1.661	0.000	0.000	0.000	0.000	0.000	30.097
• PE 0303601F: <i>GBS Receive Suites/TIPs, OPAF</i>	2.100	7.683	21.516	0.000	21.516	16.417	0.420	0.000	0.000	0.000	127.036
	0.000	3.536	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.536

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0303601F (1): <i>MILSATCOM Terminals, GBS Receive Suites, RDT&E</i>											

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DECC Transition (Lockheed Martin Information Systems and Global Services)	C/CPFF	Lockheed Martin Information Systems and Global Services Gaithersburg, MD	7.561	22.749	Oct 2009	7.072	Oct 2010	0.000		7.072	Continuing	Continuing	0.000
TSBM Upgrade	TBD/TBD	TBD TBD	0.000	0.000		3.300	Nov 2010	0.000		3.300	0.000	3.300	0.000
Phase 2 Government System Integration	Various/ Various	Various Various	13.650	5.028	Oct 2009	5.208	Nov 2010	0.000		5.208	Continuing	Continuing	0.000
Subtotal			21.211	27.777		15.580		0.000		15.580			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support (Various)	Various/ Various	Various Various	7.169	2.259	Nov 2009	2.250	Nov 2010	0.000		2.250	Continuing	Continuing	0.000
Subtotal			7.169	2.259		2.250		0.000		2.250			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation (Various)	Various/ Various	Various Various	1.040	1.036	Nov 2009	0.341	Nov 2010	0.000		0.341	Continuing	Continuing	0.000
Subtotal			1.040	1.036		0.341		0.000		0.341			0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.420	31.072		18.171		0.000		18.171			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

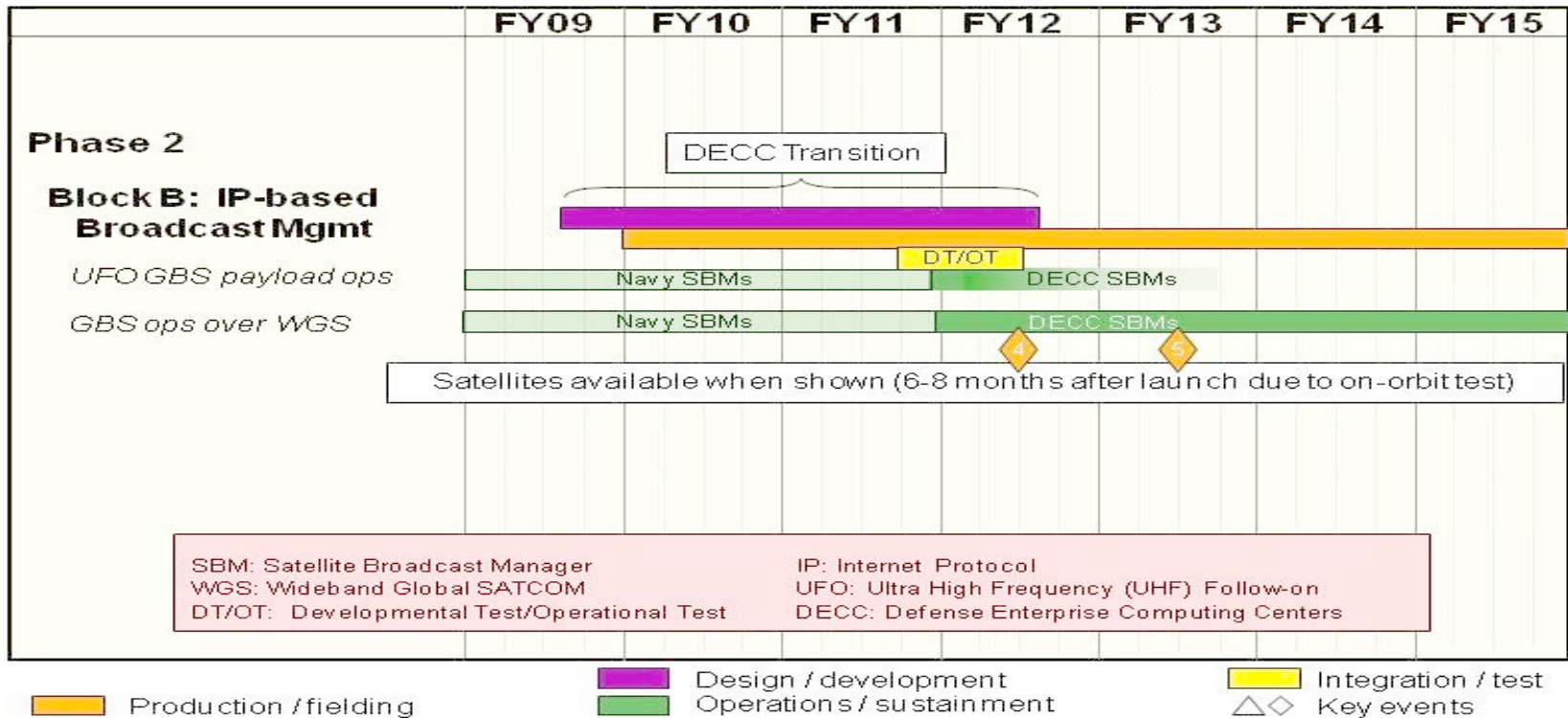
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0603840F: *Global Broadcast Service (GBS)*

PROJECT

65A023: *Satellite Broadcast Management Transition*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0603840F: <i>Global Broadcast Service (GBS)</i>	PROJECT 65A023: <i>Satellite Broadcast Management Transition</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
DECC Transition Contract Award	3	2009	3	2009
Final Design Review	1	2010	1	2010
Systems Acceptance Test	2	2011	2	2011
TSBM Upgrade Contract Award	2	2011	2	2011
Naval Computer and Telecommunications Area Master Station (NCTAMS)-hosted SBMs transition to DECC	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	19.845	41.860	60.545	0.000	60.545	140.045	188.429	200.364	154.195	Continuing	Continuing
654236: <i>Engineering Analysis</i>	4.484	17.650	14.700	0.000	14.700	29.555	37.522	49.253	62.183	Continuing	Continuing
654807: <i>Nuclear Weapons & CP Technologies</i>	6.300	6.470	6.533	0.000	6.533	6.631	6.734	6.837	6.937	Continuing	Continuing
655708: <i>Nuclear Weapons Support</i>	9.061	17.740	39.312	0.000	39.312	103.859	144.173	144.274	85.075	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>
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(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 weapons and/or weapon systems to meet evolving combating WMD mission requirements.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	20.011	37.860	0.000	0.000	0.000
Current President's Budget	19.845	41.860	60.545	0.000	60.545
Total Adjustments	-0.166	4.000	60.545	0.000	60.545
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		4.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.166	0.000	60.545	0.000	60.545

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 654236: *Engineering Analysis*

Congressional Add: *Nuclear Enterprise Surety Tracking Initiative*

Congressional Add Subtotals for Project: 654236

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	0.000	4.000
	0.000	4.000
	0.000	4.000

Change Summary Explanation

FY2010 Congressional add for Nuclear Enterprise Tracking system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604222F: *Nuclear Weapons Support*

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654236: <i>Engineering Analysis</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654236: <i>Engineering Analysis</i>	4.484	17.650	14.700	0.000	14.700	29.555	37.522	49.253	62.183	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform technical analysis in support of life extension and modernization programs for weapons in the Air Force stockpile. <i>FY 2009 Accomplishments:</i> In FY 2009: Worked with national laboratories to recode legacy software so that it will operate on modern computing systems. Also, refined requirements for new codes and developed operational prototypes. <i>FY 2010 Plans:</i> In FY 2010: Continue work with national laboratories to recode legacy software so that it will operate on modern computing systems. Finalize requirements for new codes and update source term information.	1.914	1.912	1.896	0.000	1.896

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>		PROJECT 654236: <i>Engineering Analysis</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continue research and develop unique technologies and capabilities for defeating WMDs while minimizing collateral effects and ensuring high reliability for overall mission success. Further the development, integration, and testing of hardware and software of advanced concepts supporting AFNWC Special Access Programs. Continue GPS-Denied navigation to further explore flight applications and technology for GPS-Denied environments.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>								
Accomplishments/Planned Programs Subtotals				4.484	13.650	14.700	0.000	14.700
				FY 2009	FY 2010			
<p>Congressional Add: Nuclear Enterprise Surety Tracking Initiative</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Begin development of a secure, electronic system to track the location and status of nuclear warheads and bombs, and critical nuclear components. Includes civilian payroll for government civilian employees associated with this program.</p>				0.000	4.000			
Congressional Adds Subtotals				0.000	4.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654236: <i>Engineering Analysis</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (5405): <i>0101213F, Minuteman Squadrons, Project 5915, Joint Warhead Modernization) Joint Warhead AFA Sustainm</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654236: <i>Engineering Analysis</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Life extension/modernization programs	Various/ Various	Various Various	1.914	1.912	Mar 2010	1.896	Feb 2011	0.000		1.896	Continuing	Continuing	Continuing
Subtotal			1.914	1.912		1.896		0.000		1.896			

Remarks
*ITT Systems, Albuquerque, NM; Los Alamos National Labs, Los Alamos, NM; SAIC, Arlington, VA; ANSER, Arlington, VA

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Pre-acquisition technical, engineering and management support	MIPR	SNL Albuquerque NM DOE: Albuquerque, NM	2.570	2.439	Jan 2010	2.371	Jan 2011	0.000		2.371	Continuing	Continuing	Continuing
Joint Warhead AFA Sustainment	TBD/TBD	TBD TBD	8.800	8.703	Feb 2010	9.891	Feb 2011	0.000		9.891	164.800	192.194	Continuing
Subtotal			11.370	11.142		12.262		0.000		12.262			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>				PROJECT 654236: <i>Engineering Analysis</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SAP/SCI Security	MIPR	SNL Albuquerque NM: DOE: Albuquerque, NM	0.000	0.175	Feb 2010	0.042		0.000		0.042	0.217	0.434	0.217
Nuclear Enterprise Surety Tracking Initiative	TBD/TBD	TBD TBD	0.000	4.000	Feb 2010	0.000		0.000		0.000	0.000	4.000	0.000
GPS-Denied Technology	MIPR	SNL Albuquerque, NM	0.000	0.421	Feb 2010	0.500	Jan 2011	0.000		0.500	0.000	0.921	0.000
Subtotal			0.000	4.596		0.542		0.000		0.542	0.217	5.355	0.217

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.284	17.650	14.700	0.000	14.700			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

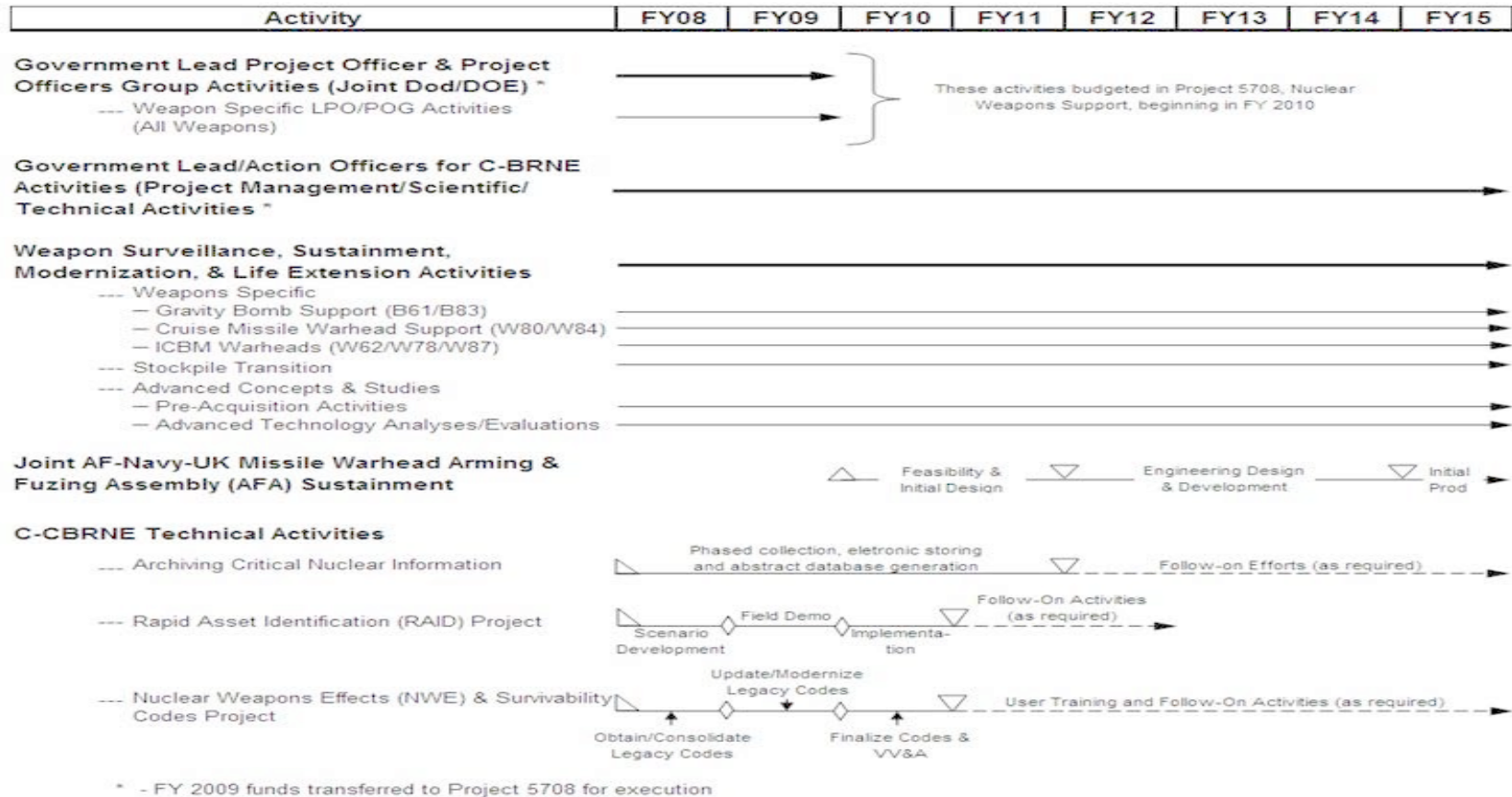
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604222F: *Nuclear Weapons Support*

PROJECT

654236: *Engineering Analysis*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654236: <i>Engineering Analysis</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
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. Beginn	1	2011	4	2011
Annual Warhead Assessments (B61/B83, W80/W84, & W78/W87)	3	2009	4	2011
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 executi	1	2010	4	2011
Weapon/Warhead Studies & Analysis	1	2010	4	2011
-- Reliable Replacement Warhead (RRW) Studies & Analysis	1	2010	4	2011
-- Joint Warhead Fuze Sustainment (with Navy) - Feasibility & Initial Design Studies	1	2010	4	2011
-- Advanced ICBM Arming/Fuzing Studies (jointly with Navy & UK MoD)	1	2009	4	2011
-- Future Stockpile Studies	1	2009	4	2011
-- Nuclear Roadmap/CONOPS Development	1	2009	4	2011
-- Minuteman III/ICBM	2	2010	4	2011
--- Minuteman III Safety Enhanced Reentry Vehicle Support	1	2009	4	2011
--- Mk12A/Mk21 Refurbishment Program Support	1	2009	4	2011
--- W78/W87 Nuclear Surety Program	1	2009	4	2011
--- ICBM Flight Test Study	1	2010	4	2011
-- Gravity Weapons	1	2010	4	2011
--- B61 Modernization Studies	1	2009	2	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654236: <i>Engineering Analysis</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
--- Gravity Weapon Flight Test Program Support (B61/B83)	1	2009	4	2011
-- Cruise Missile	2	2010	4	2011
--- Cruise Missile Warhead Modernization Studies	1	2009	4	2011
--- Cruise Missile Flight Test Program Support	3	2009	4	2011
C-CBRNE/Counterproliferation Support	2	2010	4	2011
-- Computer Code Development/Support	1	2009	4	2011
-- Advanced/Innovative Technology Evaluations	1	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654807: <i>Nuclear Weapons & CP Technologies</i>	6.300	6.470	6.533	0.000	6.533	6.631	6.734	6.837	6.937	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Studies and assessments that evaluate adversarial threats against potential US system vulnerabilities. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A	0.000	1.200	1.100	0.000	1.100

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Develop a formal process for warfighter requirements collection, analysis, and evaluation. Provide technical and scientific analyses to AFNWC's new/advanced requirements studies. Interact with the warfighters (combatant commands, services, international partners) to collect and integrate requirements with emerging capabilities and technologies. Identify and evaluate emerging capabilities and technologies. Provide technical and scientific research in support of AFNWC/XR's evaluation, analysis, and application of technology to meet warfighter requirements. Provide subject matter expertise during AFNWC/XR's transition of technologies to acquisition agencies. Provide technical support for all AFNWC Special Access Programs (SAPs)</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Refine process for warfighter requirements collection, analysis, and evaluation. Continue to provide technical and scientific analyses to AFNWC's new/advanced requirements studies. Interact with the warfighters (combatant commands, services, international partners) to collect and integrate requirements with emerging capabilities and technologies. Further investigate, identify and evaluate emerging capabilities and technologies. Continue to provide technical and scientific research in support of AFNWC/XR's evaluation, analysis, and application of technology to meet warfighter requirements. Provide subject matter expertise during AFNWC/XR's transition of technologies to acquisition agencies. Continue to provide technical support for all AFNWC Special Access Programs.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable.</p>					
<p>MAJOR THRUST: Perform engineering analysis across CBRNE pillars for countering weapons of mass destruction with emphasis on asymmetric threats and other difficult to attack targets.</p>	6.300	5.270	5.433	0.000	5.433

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Continued to develop and maintain the Empirical Lethality Model (ELM) and SERPENT C-CBRNE modeling codes. Continued to populate missing data needed to operate the codes and to develop methodologies for verification of historical information.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continue to develop and maintain the ELM and SERPENT C-CBRNE modeling codes. Focus on completing data requirements on several categories of information present in the ELM mode.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: In addition to continue work on ELM and SERPENT, activities will focus hard on incorporating user community requirements and validation of the models in support of the new AFNWC STIC.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	6.300	6.470	6.533	0.000	6.533

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (5762): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Special Access Programs Analysis and Evaluation	SS/Various	Various Various	0.000	1.200	Jan 2010	1.100	Dec 2010	0.000		1.100	Continuing	Continuing	Continuing
Engineering analysis	C/CPAF	Various Various	6.300	5.270		5.433		0.000		5.433	0.000	17.003	0.000
Subtotal			6.300	6.470		6.533		0.000		6.533			

Remarks

Operational Test & Evaluation: *ESC/MIT Lincoln Labs, Boston, MA; AFRL, Albuquerque, NM; ITT/AES, Albuquerque, NM, ASC/END, Wright-Patterson AFB, OH
 Development Test & Evaluation: ELM, SERPENT C-CBRNE modeling codes;
 *ASC, Wright-Patterson AFB, OH; AAC, Eglin AFB, FL; DTRA, Ft Belvoir VA; White Sands Missile Range, Alamogordo, NM

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals		6.300	6.470			6.533		0.000		6.533	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

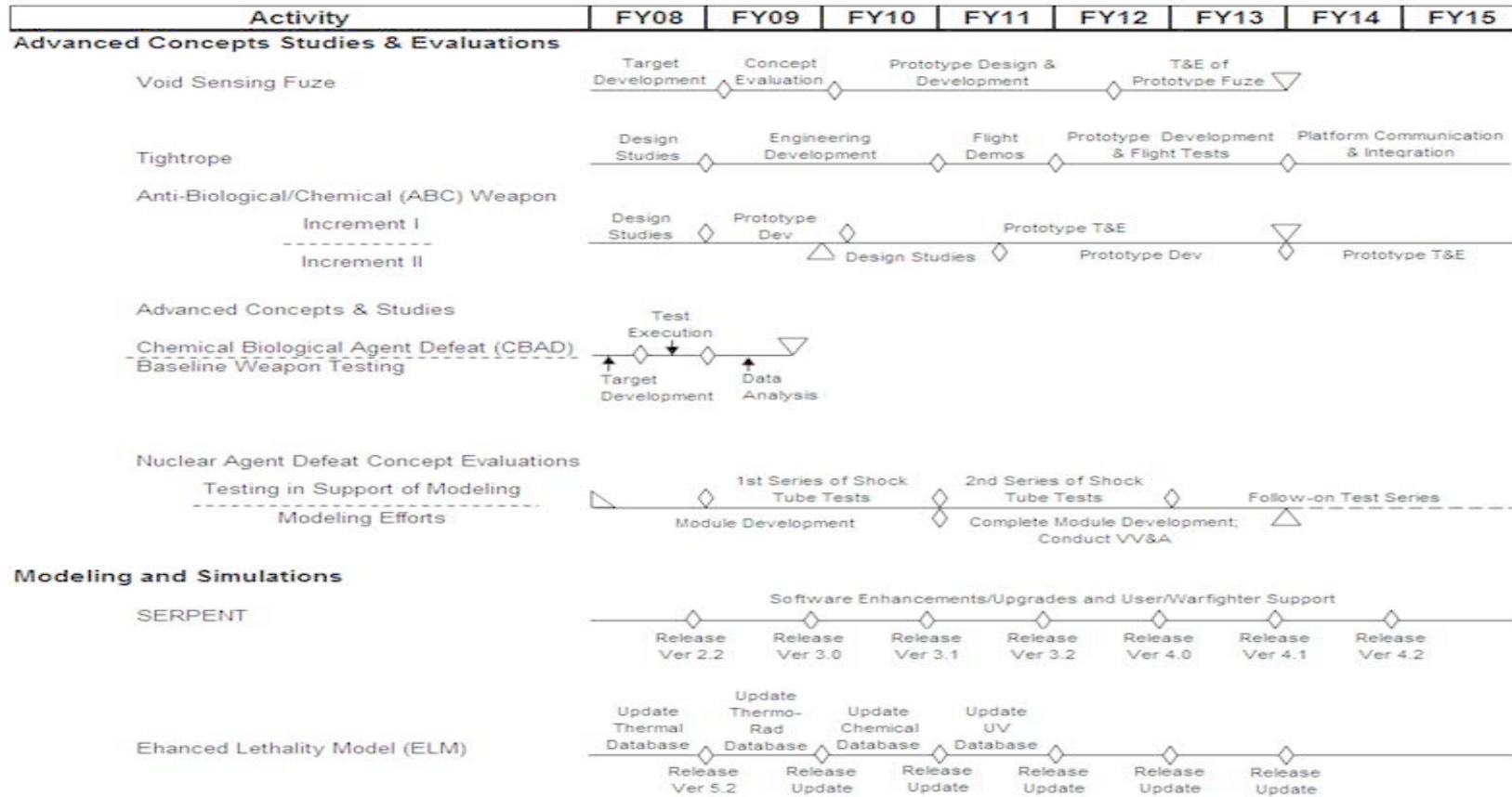
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604222F: *Nuclear Weapons Support*

PROJECT

654807: *Nuclear Weapons & CP Technologies*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Advanced Modeling & Simulation in Support of CBRNE Consequence Management	1	2009	4	2011
Effects Modeling Tools	2	2010	4	2011
--Joint VV&A	1	2009	4	2011
--Joint Accredited Version Release	1	2009	4	2011
--Issues Updates	1	2009	4	2011
Chemical Biological (CB) Agent Neutralization Calculator - Issue Updates	2	2009	3	2011
Nuclear Weapons Effects/Vulnerability Prediction Tools Against Chemical/Biological Targets - Continue Development	1	2009	4	2011
Enhanced Cruise Missile (ECM)	2	2010	4	2011
--Develop Nuclear Weapons Requirements Documents	1	2009	4	2011
--Accomplish Phase 6.2 Study	1	2009	3	2010
--Phase 2 Study	1	2009	2	2011
Agent Defeat Weapon (ADW)	1	2010	4	2011
--Develop Requirements and Acquisition Documentation	1	2010	4	2011
--Develop Baseline Legacy Weapon Test Database	1	2009	4	2011
Land Based Strategic Deterrent	1	2011	4	2011
--Follow On Development Efforts	1	2009	4	2011
--ICBM Future Warhead Concepts Study	1	2009	4	2011
Nuclear Weapons Effects/Special Nuclear Study and Analyses	1	2009	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 654807: <i>Nuclear Weapons & CP Technologies</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
Advanced Weapon Concepts Studies and Analyses	1	2010	4	2011
--Chemical/Biological Testing and Characterization	1	2009	4	2011
--Advanced Weapon Guidance, Navigation, & Control for Special Weapon Applications	1	2009	4	2011
--Fuze Development & Support for Agent Defeat Weapon Applications	1	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655708: <i>Nuclear Weapons Support</i>	9.061	17.740	39.312	0.000	39.312	103.859	144.173	144.274	85.075	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2009, funding appropriated for government civilian pay in Project 4236, Engineering Analysis, this Program, was transferred to this Project for execution.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Accomplish nuclear weapon safety, reliability, mission analysis, compatibility studies; support AF nuclear weapon stockpile activities.	1.644	2.587	4.224	0.000	4.224

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>		PROJECT 655708: <i>Nuclear Weapons Support</i>							
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continue contractor support of C-CBRNE intelligence; specifically, to identify orders of battle and provide mapping and data on sites of interest.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A</p>											
Accomplishments/Planned Programs Subtotals				9.061	17.740	39.312	0.000	39.312			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0708070F: <i>Nuclear College funded in AFCANS I</i>	0.857	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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) contacts awarded as a result of open competition.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
In-house Studies/ Analysis & Other Government Activities (Government Civilian Personnel)	TBD/TBD	AF Nuclear Weapons Center (AFNWC) Kirtland AFB, NM	32.581	7.492	Oct 2009	8.208	Oct 2010	0.000		8.208	Continuing	Continuing	Continuing
Studies, Analyses, & Evaluations	Various/ Various	Various Various	5.840	2.503	Feb 2010	4.728	Jan 2011	0.000		4.728	Continuing	Continuing	Continuing
B61 Life Extension Program (LEP) Options Project	TBD/TBD	TBD TBD	0.000	5.000	Feb 2010	20.000	Jan 2011	0.000		20.000	Continuing	Continuing	Continuing
Engineering & Technical Services	C/CPAF	Sverdrup Albuquerque, NM	8.367	1.787	Jan 2010	5.105	Jan 2011	0.000		5.105	Continuing	Continuing	Continuing
Subtotal			46.788	16.782		38.041		0.000		38.041			

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management & Professional Support Services	C/CPAF	MacAulay Brown Albuquerque, NM	3.155	0.434	Jan 2010	0.474	Jan 2011	0.000		0.474	Continuing	Continuing	Continuing
Subtotal			3.155	0.434		0.474		0.000		0.474			

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
In-House Programmatic/ Financial Management (Government Civilian Personnel)	TBD/TBD	AFNWC Kirtland AFB, NM	4.640	0.524	Oct 2010	0.797	Oct 2011	0.000		0.797	Continuing	Continuing	Continuing
TAMS	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			4.640	0.524		0.797		0.000		0.797			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>
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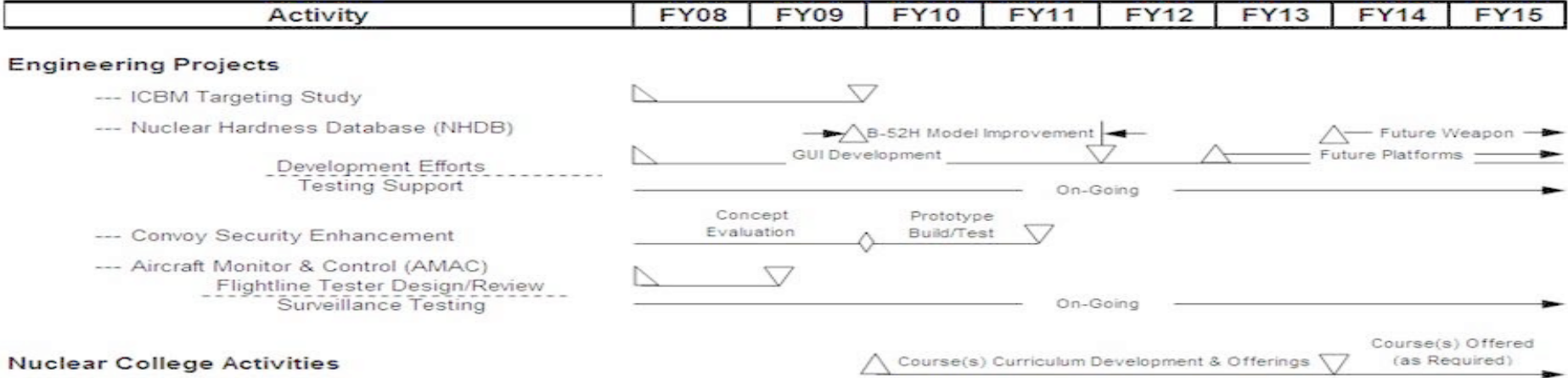
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.583	17.740	39.312	0.000	39.312			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>



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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

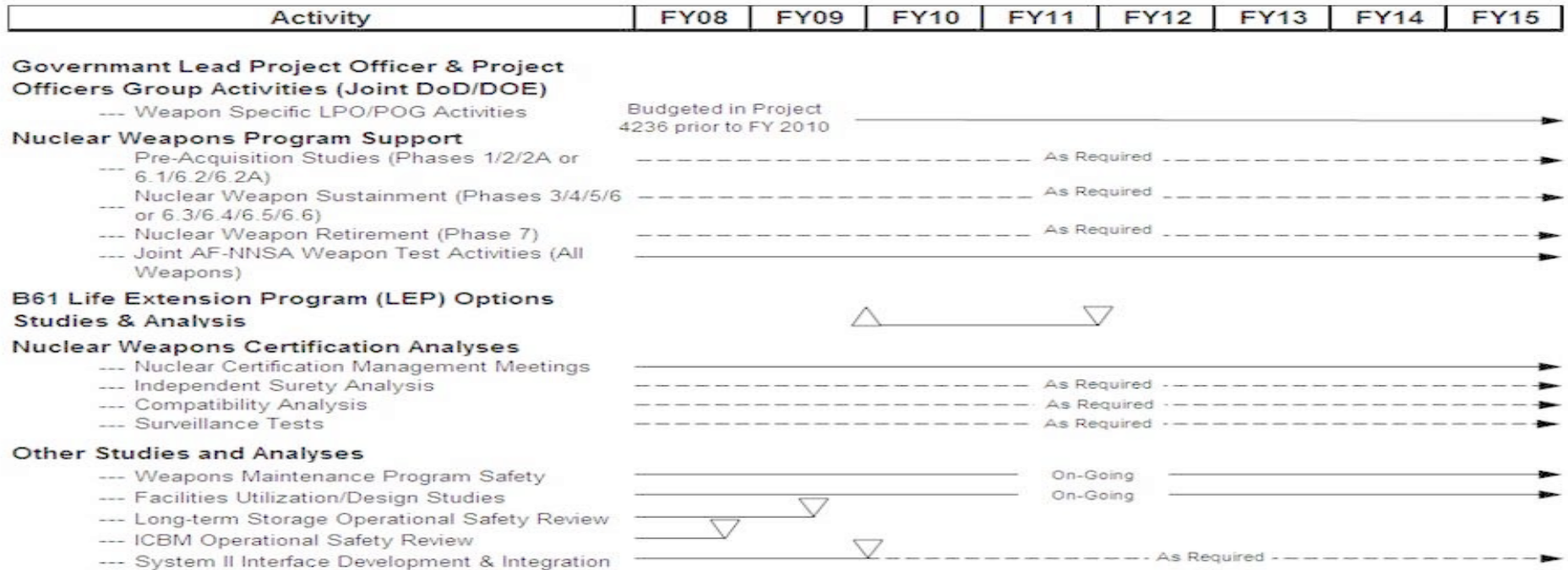
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604222F: *Nuclear Weapons Support*

PROJECT

655708: *Nuclear Weapons Support*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Weapon System Project Officers Group (POG) Activities	1	2009	4	2011
--Nuclear Certification Management Meetings	2	2009	4	2011
--Independent Surety Analysis	1	2009	4	2011
--Compatibility Analysis	1	2009	4	2011
--Surveillance Tests	1	2009	4	2011
--Aircraft Monitor & Control (AMAC) Tests	2	2009	2	2011
--Land Based Strategic Nuclear Deterrence Analysis	1	2009	4	2011
--Intercontinental Ballistic Missile (ICBM) Security Mod Program	1	2009	4	2011
--ICBM Crypto Upgrade Program	1	2010	4	2011
--Joint Strike Fighter (JSF) Integration Certification	1	2009	4	2011
--JSF Weapons Support Equipment Certification	1	2009	4	2011
Data Base Development & Management	1	2009	4	2011
Tech Order (TO) Development & Management	1	2009	4	2011
--JSF TO Development	1	2009	4	2011
--ICBM Operational Safety Review	1	2010	4	2011
--Long Term Storage Operational Safety Review	1	2009	2	2011
--Weapons Maintenance Program Safety	1	2009	4	2011
--Facilities Utilization/Design Studies	1	2009	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604222F: <i>Nuclear Weapons Support</i>	PROJECT 655708: <i>Nuclear Weapons Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
---Pre Acquisition Concept Studies (Phase 6.1/6.2/6.2A)	1	2009	4	2011
--Nuclear Weapon Sustainment Activities (Phase 6/6.6)	1	2009	4	2011
--Nuclear Weapon Retirement Activities (Phase 7)	2	2009	4	2011
--System II Interface Development and Integration (in conjunction with the DOE national laboratories)	1	2009	4	2011
B61 LEP Option Studies	1	2010	4	2011
Information Technology Activities	1	2009	4	2011
Nuclear College Activities	1	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	158.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
654596: <i>Conventional Mission Upgrades</i>	158.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

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.

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 Upgrade (VSDU) to replace unsupportable pilot displays, Radar Reliability and Maintainability 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). Program includes Congressional Add funding for 16-Carry Adapter Weapons Initiative and the Smart Bomb Rack Upgrade (BRU).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>
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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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	142.643	0.000	0.000	0.000	0.000
Current President's Budget	158.081	0.000	0.000	0.000	0.000
Total Adjustments	15.438	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	15.438	0.000	0.000	0.000	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 654596: *Conventional Mission Upgrades*

Congressional Add: *16-Carry Adapter*

Congressional Add: *In FY2009: Smart BRU provides electrical connection to/fires the MK-107 Impulse Cartridges. End connectors frequently get damaged during weapons loading and repair requires the rack to be disassemb...*

Congressional Add Subtotals for Project: 654596

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	4.160	0.000
	1.560	0.000
	5.720	0.000
	5.720	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604226F: *B-1B*

Change Summary Explanation

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>				PROJECT 654596: <i>Conventional Mission Upgrades</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654596: <i>Conventional Mission Upgrades</i>	158.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Upgrade (VSDU) to replace unsupportable pilot displays, Radar Reliability and Maintainability 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). Program includes Congressional Add funding for 16-Carry Adapter Weapons Initiative and the Smart Bomb Rack Upgrade (BRU).

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>	PROJECT 654596: <i>Conventional Mission Upgrades</i>
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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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: B-1B bomber system design & development efforts to avert/alleviate grounding of aircraft due to diminishing manufacturing source (DMS) issues impacting the fleet's onboard computer.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: The B-1 was fully into development efforts involving FIDL, VSD, Radar RMIP, CITS and INS. From almost the beginning of FY09 funding issues were evident. FIDL, VSD and CITS all breached their APBs. CITS was a known breach due to managing it alongside FIDL and VSD. The decision to package FIDL, VSD and CITS was made as early as 2006 in order to minimize the overall production costs, specifically installation costs. FIDL costs rose and the schedule moved to the right significantly. The new FIDL APB had to be approved by SAF/AQ. CITS did complete a new APB; however, VSD did not. FIDL completed Phase I flight test and is postured for Phase II. Radar and INS both continued to use the BAC 1-11 to reduce risk and prepare for MS C. VSD faced continued schedule adjustments and related cost growth. During third and fourth quarter the B-1 3600 funding position became such that a work slowdown was initiated with the prime contractor which lasted through the end of the FY. Programs felt the impact of that slowdown in various ways. Due to major support from ASC and SAF, prior year funds were provided to help alleviate the impacts of the slowdown. The B-1 entered FY10 in a much better position that was thought to be possible due to extended fiscal support from multiple agencies.</p> <p><i>FY 2010 Plans:</i> In FY2010: Not Applicable</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Not Applicable</p>	152.361	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>		PROJECT 654596: <i>Conventional Mission Upgrades</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.								
Accomplishments/Planned Programs Subtotals				152.361	0.000	0.000	0.000	0.000
				FY 2009	FY 2010			
Congressional Add: 16-Carry Adapter <i>FY 2009 Accomplishments:</i> In FY2009: The 16-Carry Adapter enhances the B-1 weapons carriage load out on the Conventional Multi-Purpose Rotary Launcher (MPRL) with a 16 weapon carriage capability of GBU-38/B and/or MK 82 Low Drag General Purpose (LDGP) weapons. This demonstration effort provides for the hardware development, testing and technical data requirements necessary for safe weapon separation of the GBU-38/B and/or MK82 LDGP weapons. Minimal software architecture development will also be accomplished. Program baseline is complete; contract was awarded in fourth quarter, FY2009. <i>FY 2010 Plans:</i> In FY2010: Not Applicable				4.160	0.000			
Congressional Add: In FY2009: Smart BRU provides electrical connection to/fires the MK-107 Impulse Cartridges. End connectors frequently get damaged during weapons loading and repair requires the rack to be disassemb... <i>FY 2009 Accomplishments:</i> In FY2010: Not Applicable				1.560	0.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>	PROJECT 654596: <i>Conventional Mission Upgrades</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2010 Plans:</i> In FY2011: Not Applicable		
Congressional Adds Subtotals	5.720	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0101126F: <i>B-1B, Aircraft Procurement BP11, Mods</i>	29.887	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101126F (1): <i>B-1B, Aircraft Procurement BP16, Initial Spares</i>	2.515	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101126F (2): <i>B-1B, Aircraft Procurement BP12, Common Support Equipment</i>	2.649	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207446F: <i>Bomber TDL Core</i>	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>				PROJECT 654596: <i>Conventional Mission Upgrades</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(U) Central Integrated Test System (CITS)	SS/CPIF	Boeing Long Beach, CA	43.011	0.000		0.000		0.000		0.000	0.000	43.011	0.000
(U) Vertical Situation Display Upgrade (VSDU)	SS/CPFF	Boeing Long Beach CA	72.122	0.000		0.000		0.000		0.000	0.000	72.122	0.000
(U) Radar Reliability and Maintainability Improvement Program (RMIP)	SS/CPIF	Boeing Long Beach, CA	150.867	0.000		0.000		0.000		0.000	0.000	150.867	0.000
(U) Inertial Navigation System (INS) upgrade	SS/CPIF	Boeing Long Beach, CA	34.369	0.000		0.000		0.000		0.000	0.000	34.369	0.000
(U) Fully Integrated Data Link (FIDL)	SS/CPIF	Boeing Long Beach, CA	93.556	0.000		0.000		0.000		0.000	0.000	93.556	0.000
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)	SS/CPFF	561st Robins AFB, GA	44.735	0.000		0.000		0.000		0.000	0.000	44.735	0.000
(U) Threat Situational Awareness System (TSAS)	SS/CPFF	Boeing Long Beach, CA	33.701	0.000		0.000		0.000		0.000	0.000	33.701	0.000
(U) Laptop Controlled Targeting Pod (LCTP)	SS/CPFF	Boeing Long Beach, CA	4.157	0.000		0.000		0.000		0.000	0.000	4.157	0.000
(U) 16-Carry (Congressional Add (CA))	SS/CPIF	Boeing Long Beach, CA	12.960	0.000		0.000		0.000		0.000	0.000	12.960	0.000
(U) Smart Bomb Rack Unit (BRU) (CA)	TBD/TBD	TBD TBD	1.560	0.000		0.000		0.000		0.000	0.000	1.560	0.000
Subtotal			491.038	0.000		0.000		0.000		0.000	0.000	491.038	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>				PROJECT 654596: <i>Conventional Mission Upgrades</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(U) Advisory & Assistance Support (A&AS)	Various/ Various	Various Various	10.865	0.000		0.000		0.000		0.000	0.000	10.865	0.000
(U) Studies & Analyses / Modeling & Simulation	C/FPI	Rockwell Collins Sterling VA	1.296	0.000		0.000		0.000		0.000	0.000	1.296	0.000
Subtotal			12.161	0.000		0.000		0.000		0.000	0.000	12.161	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force							DATE: February 2010						
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>				PROJECT 654596: <i>Conventional Mission Upgrades</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
(U) Air Force Flight Test Center (AFFTC)	PO	AFFTC Edwards AFB, CA	70.986	0.000		0.000		0.000		0.000	0.000	70.986	0.000	
Subtotal			70.986	0.000		0.000		0.000		0.000	0.000	70.986	0.000	

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	574.185	0.000	0.000	0.000	0.000	0.000	574.185	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604226F: *B-1B*

PROJECT

654596: *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-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604226F: <i>B-1B</i>	PROJECT 654596: <i>Conventional Mission Upgrades</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Central Integrated Test System (CITS) - program start FY2004	1	2009	4	2009
Central Integrated Test System (CITS) - program completion FY2010	1	2009	4	2009
Vertical Situational Display Upgrade (VSDU) - program start FY2006	1	2009	4	2009
Vertical Situational Display Upgrade (VSDU) - program completion FY2012	1	2009	4	2009
Radar Reliability & Maintainability Improvement Program (RMIP) - program start FY2006	1	2009	4	2009
Radar Reliability & Maintainability Improvement Program (RMIP) - program completion FY2011	1	2009	4	2009
Inertial Navigation System (INS) - program start FY2007	1	2009	4	2009
Inertial Navigation System (INS) - program completion FY2011	1	2009	4	2009
Fully Integrated Data Link (FIDL) - program start FY2004	1	2009	4	2009
Fully Integrated Data Link (FIDL) - program completion FY2011	1	2009	4	2009
Preprocessor Avionics Control Unit (PACU) software migration - program start FY2004	1	2009	4	2009
Preprocessor Avionics Control Unit (PACU) software migration - program completion FY2011	1	2009	4	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	11.801	10.862	8.066	0.000	8.066	8.410	11.089	11.067	13.225	Continuing	Continuing
654102: <i>Joint Primary Aircraft Training System (JPATS)</i>	8.216	9.281	3.724	0.000	3.724	2.316	3.846	2.338	3.790	Continuing	Continuing
654376: <i>T-38 Avionics Upgrade Program (AUP)</i>	3.585	1.581	1.149	0.000	1.149	1.165	1.175	1.149	1.125	Continuing	Continuing
655340: <i>Advanced Trainer Replacement T-X</i>	0.000	0.000	3.193	0.000	3.193	4.929	6.068	7.580	8.310	Continuing	Continuing

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. The Advanced Trainer Replacement (T-X) program is a FY2011 new start to begin preliminary activity for the replacement of the T-38 trainer aircraft used in the advanced fighter/bomber SUPT track.

JPATS T-6 FY2009 - FY2015 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. FY2011, FY2013 and FY2015 include funding to upgrade software and threat libraries for the Simulator for Electronic Combat Technology (SECT), a generic electronic warfare simulator used to train student Combat Systems Officers (CSO). Although in the same project, SECT is unrelated to the JPATS program.

T-38 FY2009 - FY2015 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. FY2009 included development funding for improved T-38 brakes, which has been cancelled.

Advanced Trainer Replacement FY2011 - FY2015 funding will be used to complete Material Solution Analysis and begin competitive prototyping activities.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	13.426	6.227	0.000	0.000	0.000
Current President's Budget	11.801	10.862	8.066	0.000	8.066
Total Adjustments	-1.625	4.635	8.066	0.000	8.066
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.625	4.635	8.066	0.000	8.066

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 654102: *Joint Primary Aircraft Training System (JPATS)*

Congressional Add: *AT-6 capability demonstration for the Air National Guard*

Congressional Add Subtotals for Project: 654102

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	6.000	7.000
	6.000	7.000
	6.000	7.000

Change Summary Explanation

FY2009 includes a Below Threshold Reprogramming to transfer funding for the cancelled T-38 Improved Brake System Program (IBSP) to other Air Force programs.

FY2010 includes Congressional reduction to remove funding for the T-38 IBSP and a Congressional add for an AT-6 capability demonstration for the Air National Guard (ANG).

FY2011 includes funding for the Advanced Trainer Replacement (T-X) project.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654102: <i>Joint Primary Aircraft Training System (JPATS)</i>	8.216	9.281	3.724	0.000	3.724	2.316	3.846	2.338	3.790	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

FY2009 includes a Congressional increase to develop, integrate and demonstrate Intelligence, Surveillance, and Reconnaissance (ISR) capabilities for the Air National Guard (ANG) using the AT-6 platform.

FY2009-FY2015 JPATS funding will be used to develop and test upgrades and enhancements to program hardware and software components.

FY2011, FY2013 and FY2015 include funding to upgrade software and threat libraries for the Simulator for Electronic Combat Technology (SECT), a generic electronic warfare simulator used to train student Combat Systems Officers (CSO). Although in the same project, SECT is unrelated to the JPATS program.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: JPATS studies & development efforts.	2.216	2.281	2.284	0.000	2.284

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>		PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: JPATS studies and development activities such as parachute surveillance study, aircraft weight study, Power Management Unit software upgrade, Aircrew Life Support System integration, and Aircrew Training Device visual system development study</p> <p><i>FY 2010 Plans:</i> In FY 2010: JPATS studies and development activities such as parachute surveillance study, aircraft weight study, Power Management Unit software upgrade, Aircrew Life Support System integration, and Aircrew Training Device visual system development study</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: JPATS studies and development activities such as parachute surveillance study, aircraft weight study, Power Management Unit software upgrade, Aircrew Life Support System integration, and Aircrew Training Device visual system development study</p> <p><i>FY 2011 OCO Plans:</i> FY 2011 (OCO): N/A</p>								
<p>MAJOR THRUST: Simulator for Electronic Combat Technology (SECT)</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Update threat database definitions and threat library</p>				0.000	0.000	1.440	0.000	1.440

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 (OCO): N/A					
Accomplishments/Planned Programs Subtotals	2.216	2.281	3.724	0.000	3.724

	FY 2009	FY 2010
Congressional Add: AT-6 capability demonstration for the Air National Guard <i>FY 2009 Accomplishments:</i> In FY 2009: Demonstrate an Intelligence, Surveillance and Reconnaissance (ISR) capability in a light attack aircraft such as the AT-6 <i>FY 2010 Plans:</i> In FY 2010: Demonstrate an ISR capability in a light attack aircraft such as the AT-6	6.000	7.000
Congressional Adds Subtotals	6.000	7.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (7229): <i>Related Activities</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE Not Provided (7241): <i>Aircraft Procurement, Air Force, BA-3</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0804740F: <i>Weapon System</i>	22.852	15.661	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2,452.071
• PE 0804740F (1): <i>Initial Spares</i>	15.954	2.507	0.457	0.000	0.457	0.000	0.000	0.000	0.000	0.000	118.249
• PE 0804740: <i>Modifications</i>	20.697	32.968	24.644	0.000	24.644	31.507	16.348	16.478	16.773	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0804740F (2): <i>Post Production Support</i>	0.000	0.000	9.450	0.000	9.450	0.000	0.000	0.000	0.000	0.000	9.450
• PE 0804741F: <i>Military Construction Air Force</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.200
• PE 0603208N: <i>Training System Aircraft, H1150, JPATS</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.300
• PE 0804745N: <i>Weapon System</i>	287.065	255.450	266.065	0.000	266.065	309.835	302.499	16.387	0.000	0.000	2,130.177
• PE 0804745N (3): <i>Modifications</i>	5.199	4.858	1.854	0.000	1.854	1.555	1.585	1.614	1.643	0.000	0.000
• PE 0804745N (4): <i>Initial Spares</i>	8.612	10.160	10.589	0.000	10.589	7.252	6.150	0.000	0.000	0.000	75.920
• PE 0804745N (5): <i>Military Construction Navy</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	120.763

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.

The SECT upgrade effort is an Engineering Change Proposal (ECP) to the competitively awarded Firm Fixed Price Contractor Logistics Support (CLS) contract.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
JPATS	C/FPI	HBC Wichita KS	227.548	2.281	Dec 2009	2.284	Dec 2010	0.000		2.284	Continuing	Continuing	Continuing	
AT-6B	MIPR	Georgia Technical Research Institute (GTRI) Atlanta GA	8.330	7.000		0.000		0.000		0.000	0.000	15.330	Continuing	
SECT Upgrade	C/FFP	AAI Services Corp Hunt Valley MD	4.088	0.000		1.440	Jan 2011	0.000		1.440	Continuing	Continuing	0.000	
Subtotal			239.966	9.281		3.724		0.000		3.724				

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	239.966	9.281	3.724	0.000	3.724			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

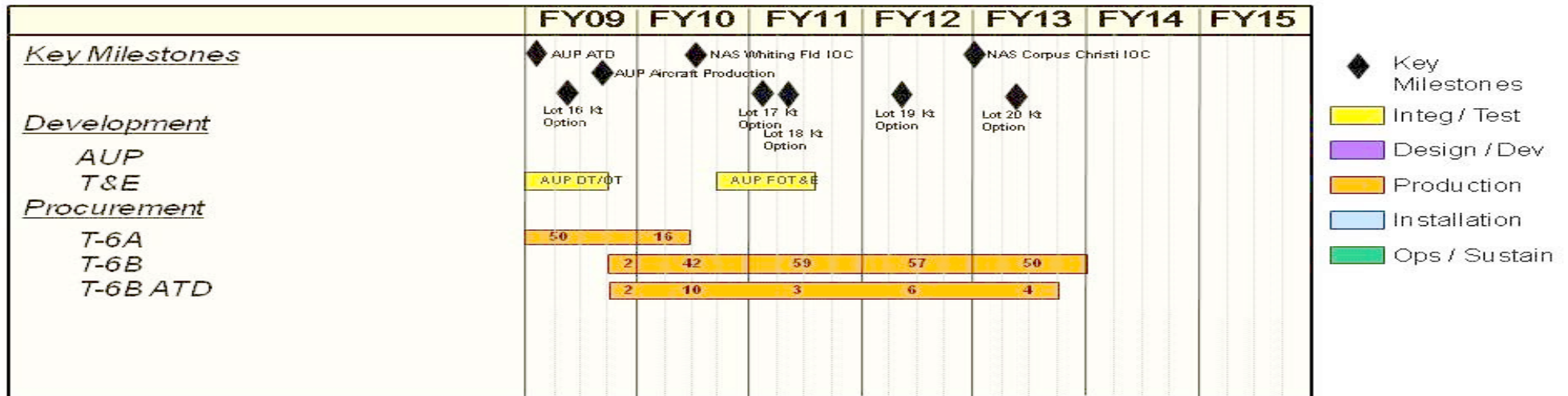
R-1 ITEM NOMENCLATURE

PE 0604233F: *Specialized Undergraduate Pilot Training*

PROJECT

654102: *Joint Primary Aircraft Training System (JPATS)*

JPATS Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654102: <i>Joint Primary Aircraft Training System (JPATS)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue JPATS Universal Water-Activated Release System (UWARS) Development	3	2009	3	2010
Continue JPATS Parachute Surveillance System Development	1	2009	3	2010
JPATS Aircrew Training Device (ATD) Visual System Development	1	2009	2	2009
Continue JPATS Engine Studies	3	2009	4	2009
Initiate JPATS Aviator Life Support System (ALSS) Weight Study	1	2010	2	2010
Initiate JPATS Power Management Unit (PMU) Software Upgrade	3	2011	4	2011
Update SECT Software and Threat Library	2	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>				PROJECT 654376: <i>T-38 Avionics Upgrade Program (AUP)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654376: <i>T-38 Avionics Upgrade Program (AUP)</i>	3.585	1.581	1.149	0.000	1.149	1.165	1.175	1.149	1.125	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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), Heads-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 2009 - FY2015 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 2009 - FY 2010 included development funding for the T-38C Improved Brake System Program (IBSP). This effort has been cancelled. Residual funding will be reprogrammed to other Air Force requirements.

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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654376: <i>T-38 Avionics Upgrade Program (AUP)</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: T-38 Avionics Upgrade Program (AUP) block software upgrades <i>FY 2009 Accomplishments:</i> In FY 2009: Develop and test Block 8 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. <i>FY 2010 Plans:</i> In FY 2010: 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. <i>FY 2011 Base Plans:</i> In FY 2011: Continue development and test of 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. <i>FY 2011 OCO Plans:</i> In FY 2011 (OCO): N/A		1.568	1.581	1.149	0.000	1.149
MAJOR THRUST: T-38 Improved Brake System Program (IBSP) <i>FY 2009 Accomplishments:</i> In FY 2009: The T-38 IBSP was cancelled. Residual funding will be reprogrammed to other Air Force requirements <i>FY 2010 Plans:</i> In FY 2010: N/A		2.017	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654376: <i>T-38 Avionics Upgrade Program (AUP)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY 2011: N/A					
<i>FY 2011 OCO Plans:</i> In FY 2011 (OCO): N/A					
Accomplishments/Planned Programs Subtotals	3.585	1.581	1.149	0.000	1.149

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0804741F: <i>T-38 Improved Brakes</i>	1.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654376: <i>T-38 Avionics Upgrade Program (AUP)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Avionics Upgrade Program (AUP)	C/CPAF	The Boeing Corporation St. Louis MO	1.568	1.581		1.149		0.000		1.149	Continuing	Continuing	Continuing	
Improved Brake System Program (IBSP)	TBD/TBD	TBD TBD	2.017	0.000		0.000		0.000		0.000	0.000	2.017	Continuing	
Subtotal			3.585	1.581		1.149		0.000		1.149				

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.585	1.581	1.149	0.000	1.149			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

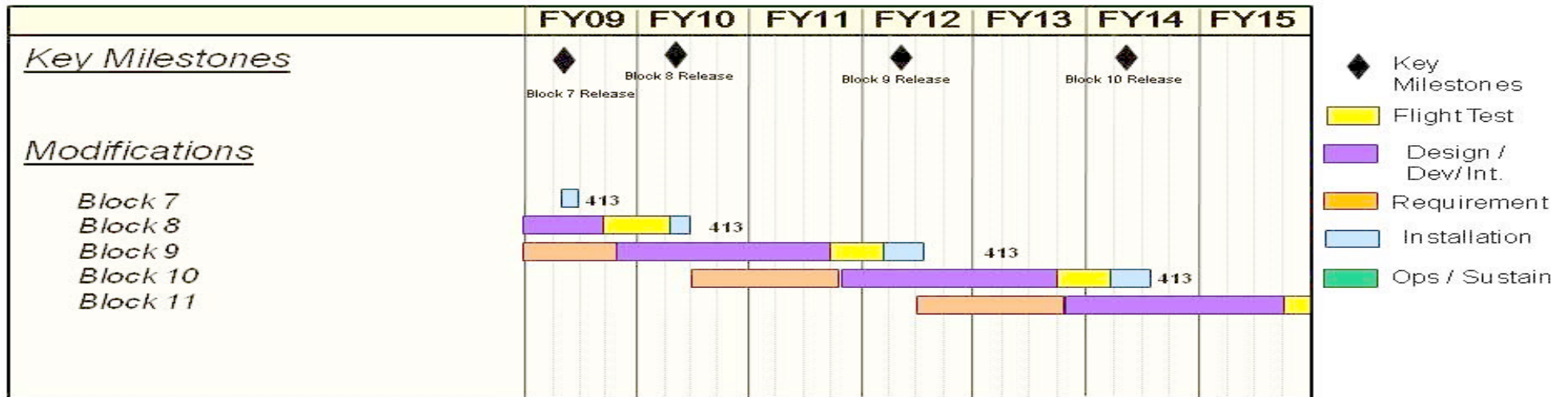
R-1 ITEM NOMENCLATURE

PE 0604233F: *Specialized Undergraduate Pilot Training*

PROJECT

654376: *T-38 Avionics Upgrade Program (AUP)*

T-38 Avionics Upgrade Program (AUP) Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 654376: <i>T-38 Avionics Upgrade Program (AUP)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
AUP Block 7 Retrofit and Release	2	2009	2	2009
AUP Block 8 Implementation	1	2009	3	2009
AUP Block 8 Flight Test	3	2009	2	2010
AUP Block 8 Retrofit and Release	2	2010	2	2010
AUP Block 9 Implementation	4	2009	3	2011
AUP Block 9 Flight Test	3	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>				PROJECT 655340: <i>Advanced Trainer Replacement T-X</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655340: <i>Advanced Trainer Replacement T-X</i>	0.000	0.000	3.193	0.000	3.193	4.929	6.068	7.580	8.310	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Advanced Trainer Replacement, T-X, will replace the USAF T-38 aircraft and associated Ground Based Training System (GBTS) currently used in the fighter/bomber advanced Specialized Undergraduate Pilot Training (SUPT) track as well as in the Introduction to Fighter Fundamentals (IFF) program. The T-38 was first introduced in 1961 and is currently projected to begin phase out by 2017.

This is a new start in FY2011.

FY2011 plans include completion of Material Solution Analysis, Milestone A, and initiation of competitive prototyping activities.

Budget Activity Justification. This project is in Budget Activity 5, System Development and Demonstration (SDD), because it primarily involves the missionization of essentially non-developmental aircraft, equipment, and components.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform preliminary activities to acquire a replacement for the T-38 advanced trainer aircraft and Ground Based Training System <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: N/A	0.000	0.000	3.193	0.000	3.193

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 655340: <i>Advanced Trainer Replacement T-X</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Complete Material Solutions Analysis, Milestone A and initiation of competitive prototyping activities</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 (OCO): N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.193	0.000	3.193

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0804741F: <i>Operations and Maintenance, Air Force</i>	0.000	1.500	1.500	0.000	1.500	1.500	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

A full and open competitive source selection is anticipated with a specific acquisition strategy to be determined.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 655340: <i>Advanced Trainer Replacement T-X</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office	C/TBD	Aeronautical Systems Center (ASC) WPAFB OH	0.000	0.000		3.193		0.000		3.193	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		3.193		0.000		3.193			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	3.193	0.000	3.193			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

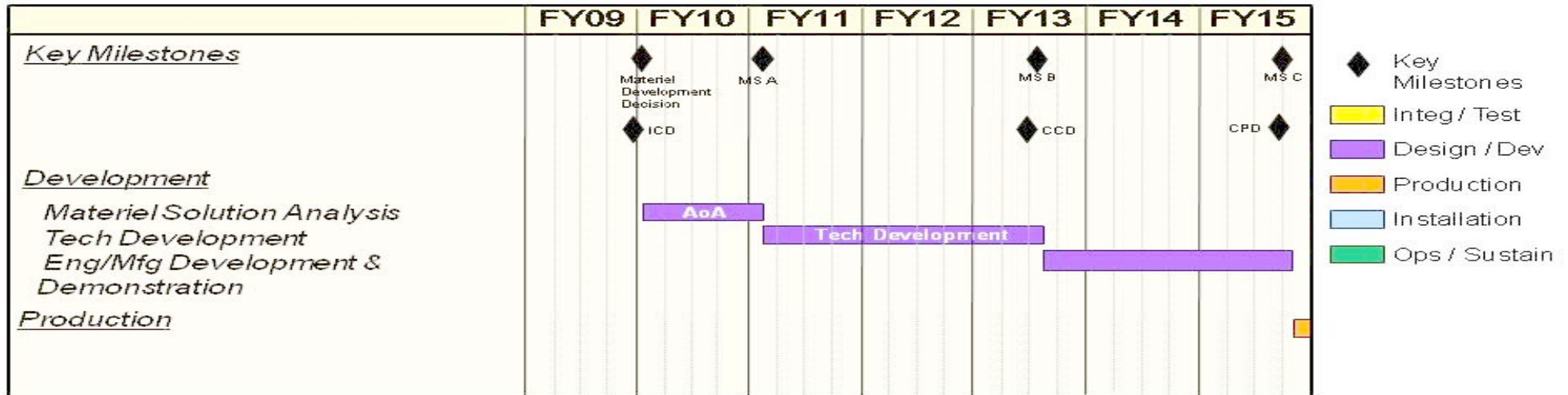
R-1 ITEM NOMENCLATURE

PE 0604233F: Specialized Undergraduate Pilot Training

PROJECT

655340: Advanced Trainer Replacement T-X

Advanced Trainer Replacement (T-X) Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604233F: <i>Specialized Undergraduate Pilot Training</i>	PROJECT 655340: <i>Advanced Trainer Replacement T-X</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Complete Initial Capabilities Document (ICD)	4	2009	4	2009
Material Development Decision	1	2010	1	2010
Complete Analysis of Alternatives	1	2011	1	2011
Complete Material Solution Analysis	1	2011	1	2011
Milestone A	1	2011	1	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	384.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
653843: <i>B-2 Advanced Technology Bomber</i>	384.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

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.

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 ability to operate in anti-access environments allow the B-2 to identify, locate, target, and destroy the highest value enemy targets. The B-2 can accomplish its mission regardless of location, return to base safely, and permit freedom of movement for follow-on forces, including other long range strike platforms. 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.

Avionics upgrades include, but are not limited to, Radar Modernization Program (RMP), Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Mode 5/S Identification Friend or Foe (IFF), Adaptable Communications Suite (ACS), Extremely High Frequency (EHF) SATCOM and Computers, Defensive Management System (DMS), EMP Hardening Testing, and advanced, low detection data links 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. ACS provides UHF SATCOM data for beyond line of sight Link-16 situational awareness and airborne mission transfer. 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. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. The display processing improvement included in the

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	
<p>DMS upgrade will be in harmony with the B-2 display architecture, which is common to all future upgrades requiring a cockpit display. Defensive Management System upgrades and improved displays are essential to ensuring platform survivability and reducing non-mission capable events. These system upgrades will transition from the current analog design to modern digital technology and provide necessary infrastructure which is prerequisite to enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (NTSR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Electro-magnetic pulse (EMP) hardening requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Integrated Strike Warfare (ISW) Airborne Network project will model and simulate combat effects and performance constraints in an environment that can demonstrate, integrate, generate and validate four generic wave form models which will be used on the B-2 platform. Additionally, this project will establish a viable end-to-end distributed modeling and simulation network. Advanced Tactical Data Link (TDL) will identify B-2 CONOPS requirements and integration issues which will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.</p> <p>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 B-2 is the only anti-access penetrating platform capable of carrying the MOP and meets Urgent Operational Needs (UON) requirements. The MOP project will design, develop, integrate, and test hardware, software, and support equipment required for carriage, jettison, and release of both weapons from the B-2. 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, dual fuze control, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDB 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 a display infrastructure that can support the integration of this future weapon. Planned upgrades also include integration of upgrades to currently fielded or inventory weapons and weapons development, such as but not limited to, GBU-28 E/B Selective Availability Anti-Spoofing Module (SAASM) with impact angle control and GBU-28 D/B SAASM with impact angle control, Hard Target Void Sensing Fuse (HTVSF), extended range Joint Air-to-Surface Standoff Missile (JASSM-ER), and JDAM-5000. 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), and integration of new and improved weapon capabilities thus affording maximum strike flexibility. The B-2 weapons system tester and its associated Test Program Sets (TPS) will be continually upgraded for increased reliability and performance to support current and new B-2 weapon suspension and release systems.</p> <p>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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>
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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 man-hours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support maintains the B-2 unique flight test aircraft and as well as obtains, modifies, and operates a flying test bed and developmental hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerates deployment of advanced operational capabilities to the warfighter. Baseline support also 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 core system updates; provides for other B-2 unique government costs, and includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer upgrades, mixed weapon load-outs, Universal Armament Interface (UAI), Global Positioning System (GPS) M-Code receivers upgrades, Joint Precision Approach and Landing System (JPALS) upgrades, Radar Processor Modernization (RPM), Automatic Dependent Surveillance - Broadcast (ADS-B), and Extended Mission Oil Tank.

This program is included in budget activity code 07, Operational System Development.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	364.076	0.000	0.000	0.000	0.000
Current President's Budget	384.190	0.000	0.000	0.000	0.000
Total Adjustments	20.114	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	20.114	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604240F: *B-2 Advanced Technology Bomber*

Change Summary Explanation

FY09: Omnibus adjustment for B-2 integration of Massive Ordnance Penetrator.(MOP), offset by previous reductions for higher Air Force priorities.
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).

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>				PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
653843: <i>B-2 Advanced Technology Bomber</i>	384.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

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.

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 ability to operate in anti-access environments allow the B-2 to identify, locate, target, and destroy the highest value enemy targets. The B-2 can accomplish its mission regardless of location, return to base safely, and permit freedom of movement for follow-on forces, including other long range strike platforms. 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.

Avionics upgrades include, but are not limited to, Radar Modernization Program (RMP), Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Mode 5/S Identification Friend or Foe (IFF), Adaptable Communications Suite (ACS), Extremely High Frequency (EHF) SATCOM and Computers, Defensive Management System (DMS), EMP Hardening Testing, and advanced, low detection data links 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. ACS provides UHF SATCOM data for beyond line of sight Link-16 situational awareness and airborne mission transfer. 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. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. The display processing improvement included in the

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>
<p>DMS upgrade will be in harmony with the B-2 display architecture, which is common to all future upgrades requiring a cockpit display. Defensive Management System upgrades and improved displays are essential to ensuring platform survivability and reducing non-mission capable events. These system upgrades will transition from the current analog design to modern digital technology and provide necessary infrastructure which is prerequisite to enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (NTSR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Electro-magnetic pulse (EMP) hardening requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Integrated Strike Warfare (ISW) Airborne Network project will model and simulate combat effects and performance constraints in an environment that can demonstrate, integrate, generate and validate four generic wave form models which will be used on the B-2 platform. Additionally, this project will establish a viable end-to-end distributed modeling and simulation network. Advanced Tactical Data Link (TDL) will identify B-2 CONOPS requirements and integration issues which will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.</p> <p>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 B-2 is the only anti-access penetrating platform capable of carrying the MOP and meets Urgent Operational Needs (UON) requirements. The MOP project will design, develop, integrate, and test hardware, software, and support equipment required for carriage, jettison, and release of both weapons from the B-2. 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, dual fuze control, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDB 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 a display infrastructure that can support the integration of this future weapon. Planned upgrades also include integration of upgrades to currently fielded or inventory weapons and weapons development, such as but not limited to, GBU-28 E/B Selective Availability Anti-Spoofing Module (SAASM) with impact angle control and GBU-28 D/B SAASM with impact angle control, Hard Target Void Sensing Fuse (HTVSF), extended range Joint Air-to-Surface Standoff Missile (JASSM-ER), and JDAM-5000. 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), and integration of new and improved weapon capabilities thus affording maximum strike flexibility. The B-2 weapons system tester and its associated Test Program Sets (TPS) will be continually upgraded for increased reliability and performance to support current and new B-2 weapon suspension and release systems.</p> <p>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.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>
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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 man-hours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support maintains the B-2 unique flight test aircraft and as well as obtains, modifies, and operates a flying test bed and developmental hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerates deployment of advanced operational capabilities to the warfighter. Baseline support also 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 core system updates; provides for other B-2 unique government costs, and includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer upgrades, mixed weapon load-outs, Universal Armament Interface (UAI), Global Positioning System (GPS) M-Code receivers upgrades, Joint Precision Approach and Landing System (JPALS) upgrades, Radar Processor Modernization (RPM), Automatic Dependent Surveillance - Broadcast (ADS-B), and Extended Mission Oil Tank.

This program is included in budget activity code 07, Operational System Development.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: B-2 baseline support to include developmental flight test aircraft modification and base of operations	14.687	0.000	0.000	0.000	0.000
<p><i>FY 2009 Accomplishments:</i> In FY2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY2010: Not Applicable (transitions to PE11127)</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Development Evaluation (FDE) aircraft, and Increment 2 CAD and SDD. 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. <i>FY 2010 Plans:</i> In FY2010: Not Applicable (transitions to PE11127F) <i>FY 2011 Base Plans:</i> In FY2011: Not Applicable (transitions to PE11127F) <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	384.190	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0101227F: <i>A/C Proc, AF, Modifications/BA05/B-2A/Adv Proc (XX302)</i>	49.665	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101227F (1): <i>A/C Proc, AF, Modifications/BA05/B-2A</i>	278.247	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101227F (2): <i>A/C Prod, AF, Post Prod Support/BA07/ICS (XX50)</i>	36.683	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101227F (3): <i>A/C Proc, AF, A/C Initial Spares/BA06/B-2A</i>	0.830	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0101227F (4): <i>A/C Proc, AF, Depot Activation/BA07/B-2A</i>	38.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0101227F (5): <i>Proc (Other), AF/BA 02,03, 04/B-2A</i>	4.346	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>				PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Vehicle	Various/ Various	Various Various	364.209	0.000		0.000		0.000		0.000	0.000	364.209	0.000
Aircrew Training	Various/ Various	Various Various	0.753	0.000		0.000		0.000		0.000	0.000	0.753	0.000
Mission Planning	Various/ Various	Various Various	1.731	0.000		0.000		0.000		0.000	0.000	1.731	0.000
Engines	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			366.693	0.000		0.000		0.000		0.000	0.000	366.693	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Govt Costs	TBD/TBD	Various Various	9.408	0.000		0.000		0.000		0.000	0.000	9.408	0.000
Subtotal			9.408	0.000		0.000		0.000		0.000	0.000	9.408	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Govt Test	TBD/TBD	Various AFFTC	8.089	0.000		0.000		0.000		0.000	0.000	8.089	0.000
Subtotal			8.089	0.000		0.000		0.000		0.000	0.000	8.089	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cancelled Year Invoices	TBD/TBD	Various Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	384.190	0.000		0.000		0.000		0.000	0.000	384.190	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

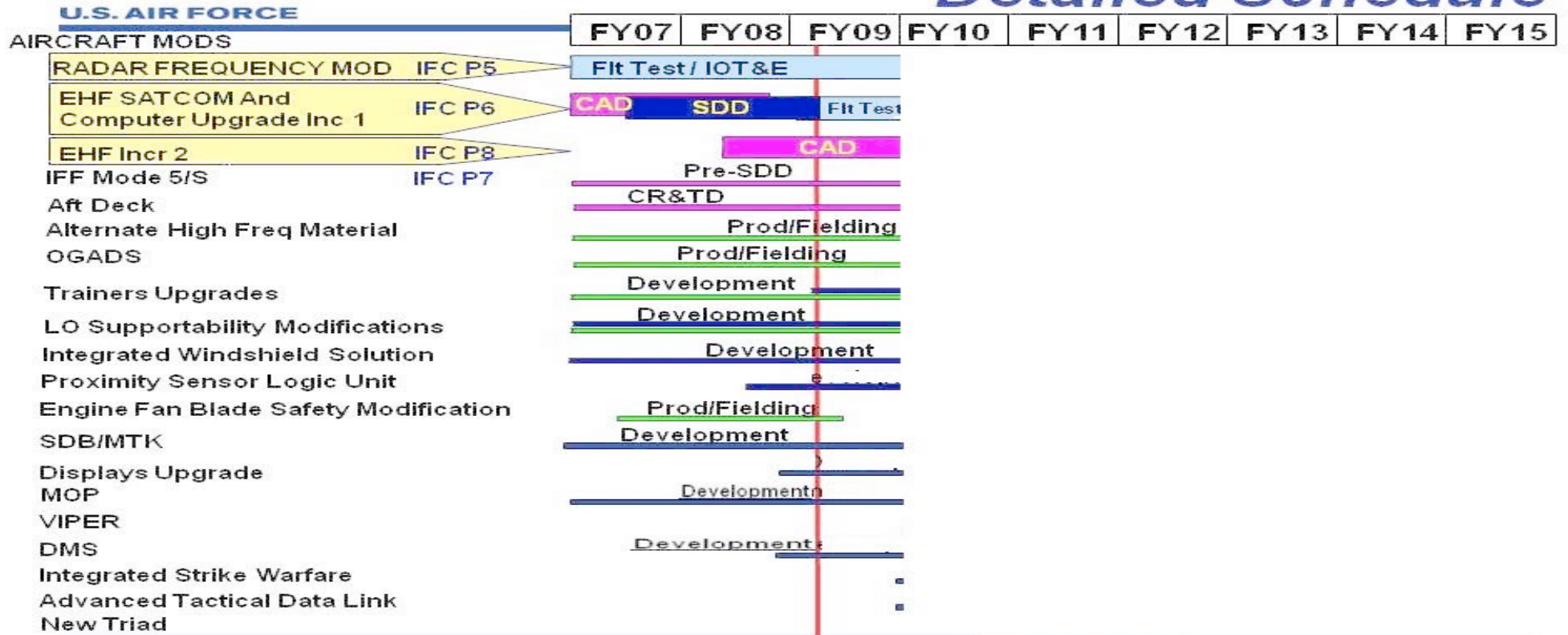
PE 0604240F: B-2 Advanced Technology Bomber

PROJECT

653843: B-2 Advanced Technology Bomber



B-2 Detailed Schedule



✦ Initial Operational Capability

As of: 30 Nov 08

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R-1 Line Item #63

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604240F: <i>B-2 Advanced Technology Bomber</i>	PROJECT 653843: <i>B-2 Advanced Technology Bomber</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
EHF Increment 1 SDD Flight Test Begins	3	2009	4	2009
Proximity Sensor Logic Unit Contract Award	4	2009	4	2009
Defensive Management System Contract Award	4	2009	4	2009
Integrated Strike Warfare Contract Award	4	2009	4	2009
Advanced Tactical Data Link Contract Award	4	2009	4	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			PE 0604270F: <i>EW Development</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	66.321	80.275	89.966	0.000	89.966	25.016	54.748	74.505	89.269	Continuing	Continuing
654832: <i>Precision Location and Identification (PLAID)</i>	5.314	2.458	0.099	0.000	0.099	0.000	0.000	0.000	0.000	Continuing	Continuing
655305: <i>MALD-J</i>	0.000	77.817	89.867	0.000	89.867	25.016	54.748	74.505	89.269	Continuing	Continuing
658462: <i>Miniature Air Launched Decoy</i>	61.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

MALD-J efforts, 655305, were part of 658462, MALD, prior to FY10. No efforts are considered New Starts in FY10/11.

A. Mission Description and Budget Item Justification

This program element (PE) consolidates Air Force funding and management of common electronic warfare (EW) systems from material solutions analysis through engineering and manufacturing development and transition to operational capability. EW is an integral warfighting effect supporting AF Global Strike, Global Persistent Attack and Global Mobility operations as well as Joint-Coalition operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electromagnetic 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 preserve the electromagnetic spectrum for use by friendly forces. EA programs provide self-protection through active and passive measures that deceive threats to air operations using kinetic and non-kinetic means to defeat threats that rely on the electromagnetic spectrum (RF, EO, IR). This program is in budget activity 5 - Engineering and Manufacturing Development of common EW systems to meet user requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	56.342	97.275	0.000	0.000	0.000
Current President's Budget	66.321	80.275	89.966	0.000	89.966
Total Adjustments	9.979	-17.000	89.966	0.000	89.966
• Congressional General Reductions		-17.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	9.979	0.000	89.966	0.000	89.966

Change Summary Explanation

FY09: \$9.2M added for MALD-J (Project 658462)

FY09: \$2.251M added for ALR-69A (Project 654832)

FY10: \$17M Congressional Reduction for MALD-J (Project 655305)

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654832: <i>Precision Location and Identification (PLAID)</i>	5.314	2.458	0.099	0.000	0.099	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop a common digital radar warning receiver for USAF platforms <i>FY 2009 Accomplishments:</i> In FY 2009: Conducted hardware-in-the-loop testing of new software and developmental flight testing against threat simulators	5.314	2.458	0.099	0.000	0.099

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY2010: Continue to conduct hardware-in-the-loop testing of upgraded software; continue developmental flight testing; complete operational testing certification requirements; start initial operational test and evaluation of hardware and software.</p> <p><i>FY 2011 Base Plans:</i> FY 2011: Complete initial operational test and evaluation; complete requirements for the full rate production milestone decision. Commence follow-on test and evaluation of production hardware and software for AFSOC AC-130 aircraft</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	5.314	2.458	0.099	0.000	0.099

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207442F: <i>Common ECM Equipment</i>	10.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0401115F: <i>ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement commenced in FY07</i>	23.711	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>
<ul style="list-style-type: none">- 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)		
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Raytheon CORE SDD + Fee	C/CPAF	Raytheon Goleta CA	95.525	1.290	Oct 2009	0.000		0.000		0.000	0.000	96.815	0.000
Subtotal			95.525	1.290		0.000		0.000		0.000	0.000	96.815	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office	WR	Various Various	9.794	1.000	Dec 2009	0.099	Dec 2010	0.000		0.099	0.000	10.893	0.000
Engineering	Various/ Various	Various Various	2.443	0.168	Nov 2009	0.000		0.000		0.000	0.000	2.611	0.000
Subtotal			12.237	1.168		0.099		0.000		0.099	0.000	13.504	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	15.687	0.000		0.000		0.000		0.000	0.000	15.687	0.000
Group A Support	C/CPFF	Boeing TBD	17.318	0.000		0.000		0.000		0.000	0.000	17.318	0.000
Rapid Replacement of Mission Critical Logistics Electronic Components	TM	Scientific Research Corp Atlanta GA	11.696	0.000		0.000		0.000		0.000	0.000	11.696	0.000
Subtotal			44.701	0.000		0.000		0.000		0.000	0.000	44.701	0.000

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
Project Cost Totals		152.463	2.458			0.099		0.000	0.099	0.000	155.020	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

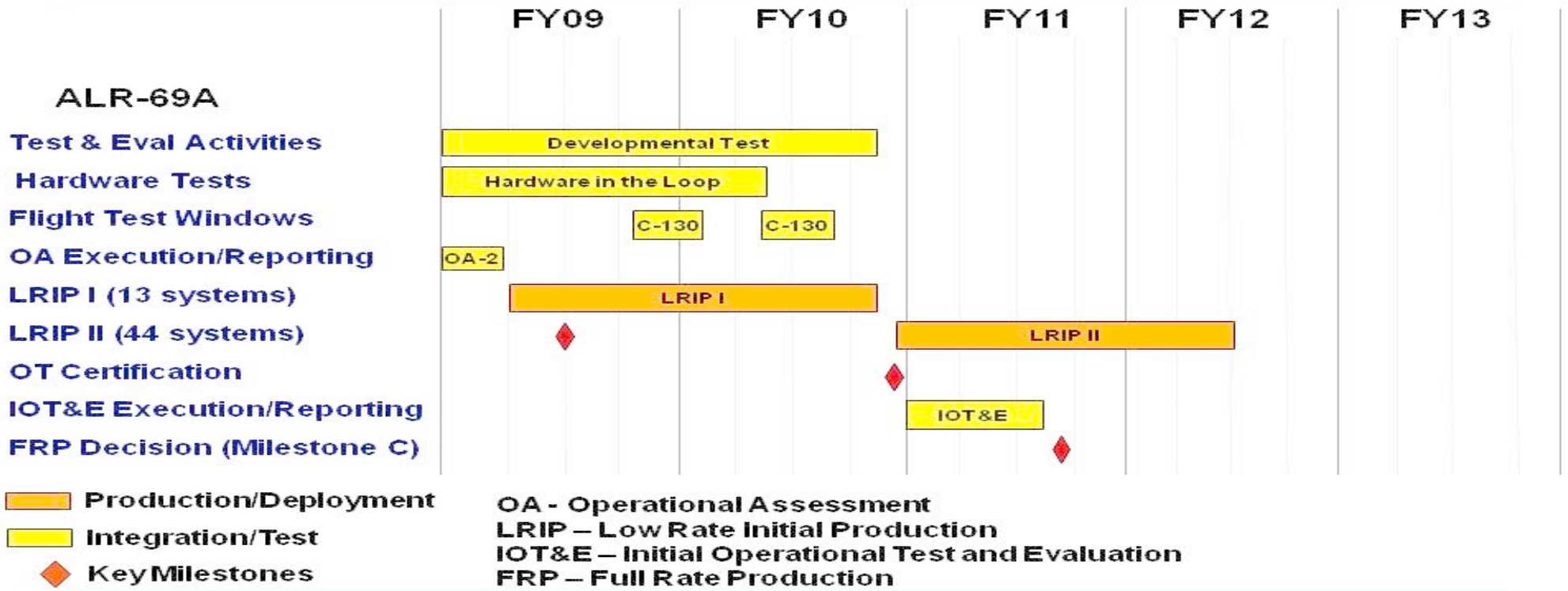
PE 0604270F: *EW Development*

PROJECT

654832: *Precision Location and Identification (PLAID)*



ALR-69A Program Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 654832: <i>Precision Location and Identification (PLAID)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Developmental Testing and Evaluation	1	2009	4	2010
LRIP II Decision	2	2009	2	2009
Initial Operational Test and Evaluation	1	2011	3	2011
Milestone C Decision	3	2011	3	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 655305: <i>MALD-J</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
655305: <i>MALD-J</i>	0.000	77.817	89.867	0.000	89.867	25.016	54.748	74.505	89.269	Continuing	Continuing	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
Note MALD-J efforts were included in Project 658462, Miniature Air Launched Decoy, for FY 2009.												
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 and will be able to operate in both decoy and jammer modes. 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-J will provide stand-in jamming capability for the Airborne Electronic Attack Systems of Systems. It will be launched against a preplanned target and jam specific radars in a stand-in role to degrade or deny the IADS detection of friendly aircraft or munitions. Planned efforts for this program are risk reduction (to include prototyping) and Engineering Manufacturing and Development (EMD) of the jammer configuration and any other direct variant. This will include design, development, test, aircraft integration, and seamless verification.												
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
MAJOR THRUST: MALD-J Risk Reduction will focus on integrating jammer module and payload into the MALD vehicle, requirements & activities, and initial system level hardware and software. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Continue to manufacture and deliver production representative MALD-J payloads with selectivity enhancements incorporated in support of the EMD phase. Implement design, build, and/						0.000	22.000	0.000	0.000	0.000		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 655305: <i>MALD-J</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Future MALD-J concept refinement to characterize the technological feasibility and capability of a future variant utilizing Gallium Nitride (GaN) technology.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Gallium Nitride (GaN) technology used to increase the technical maturity of a power amplifier. Continue payload development and modeling and simulation support. Conduct payload performance and interoperability testing and technical interchange meetings.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue payload development and modeling and simulation support. Conduct payload performance and interoperability testing and technical interchange meetings.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>	0.000	4.000	35.000	0.000	35.000
Accomplishments/Planned Programs Subtotals	0.000	77.817	89.867	0.000	89.867

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

<u>Line Item</u>	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	<u>Cost To Complete</u>	<u>Total Cost</u>
• PE Not Provided (8775): <i>PE0207442F, MALD/MALD-J procurement</i>	56.285	109.202	87.628	0.000	87.628	85.396	90.122	91.951	93.974	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 655305: <i>MALD-J</i>
<p>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 EMD program.</p> <p>E. Performance Metrics</p> <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 655305: <i>MALD-J</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction and EMD	C/CPAF	Raytheon Missile Systems Tucson, AZ	0.000	60.317	Mar 2010	44.033	Nov 2010	0.000		44.033	0.000	104.350	Continuing
Improvement Risk Reduction	C/CPAF	Raytheon Missile Systems Tucson, AZ	0.000	4.000	Mar 2010	33.000	Mar 2011	0.000		33.000	0.000	37.000	0.000
B-52 Aircraft Integration	MIPR	B-52 SPO Various	0.000	1.500	Nov 2009	1.500	Nov 2010	0.000		1.500	0.000	3.000	0.000
F-16 Aircraft Integration	MIPR	F-16 SPO Various	0.000	0.300	Aug 2010	0.500	Aug 2011	0.000		0.500	0.000	0.800	0.000
Subtotal			0.000	66.117		79.033		0.000		79.033	0.000	145.150	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support to AAC/308 ARSW/692 ARSS	Various/ Various	Various Various	0.000	1.718	Dec 2009	0.748	Dec 2010	0.000		0.748	0.000	2.466	0.000
Subtotal			0.000	1.718		0.748		0.000		0.748	0.000	2.466	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 655305: <i>MALD-J</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test Planning	Various/ Various	Various Various	0.000	9.577		9.681		0.000		9.681	0.000	19.258	0.000
Subtotal			0.000	9.577		9.681		0.000		9.681	0.000	19.258	0.000

Remarks
Element includes detailed planning, support data reduction and reports from such testing.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support for AAC/308 ARSW/692 ARSS	Various/ Various	Various Various	0.000	0.405		0.405		0.000		0.405	0.000	0.810	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 655305: <i>MALD-J</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.405		0.405		0.000		0.405	0.000	0.810	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.

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	77.817	89.867	0.000	89.867	0.000	167.684	

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
 BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

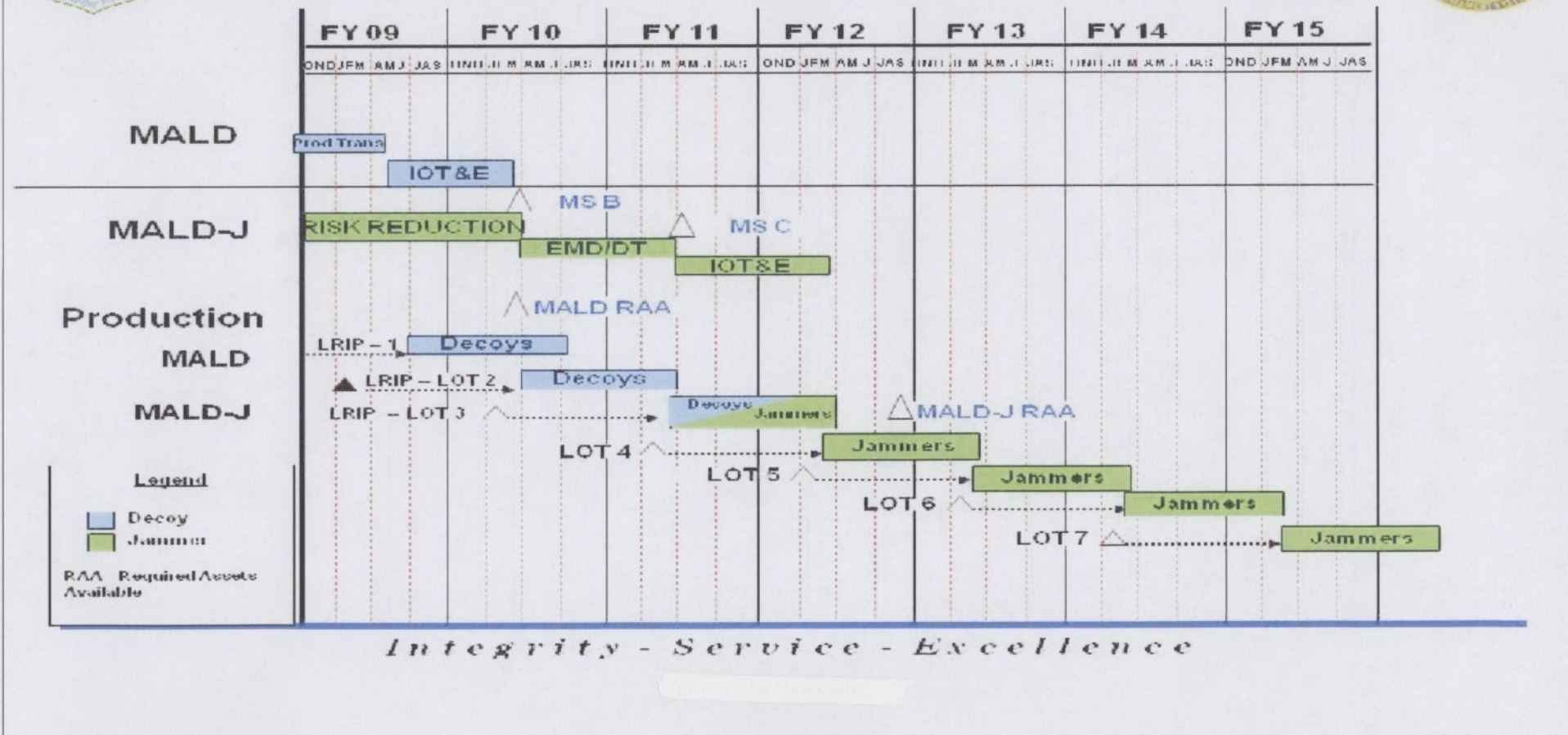
PE 0604270F: EW Development

PROJECT

655305: MALD-J



MALD/MALD-J Integrated Schedule



Integrity - Service - Excellence

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R-1 Line Item #64
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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604270F: *EW Development*

PROJECT

655305: *MALD-J*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
MALD-J Milestone B	2	2010	2	2010
MALD-J IOT&E	3	2011	4	2011
MALD-J Milestone C	3	2011	3	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 658462: <i>Miniature Air Launched Decoy</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
658462: <i>Miniature Air Launched Decoy</i>	61.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note
FY 2009 includes MALD-J efforts. In FY 2010, MALD-J is broken out in Project 655305, MALD-J.

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 Engineering Manufacturing and Development (EMD) of the jammer configuration and any other direct variant. This will include design, development, test, aircraft integration, and seamless verification.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: MALD-J Risk Reduction will focus on Integrating the Jammer Module and Jammer Payload into the MALD vehicle, system-level requirements	47.767	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 658462: <i>Miniature Air Launched Decoy</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Future MALD-J Variant concept refinement to characterize the feasibility and capability of a future variant utilizing Gallium Nitride (GaN) technology. <i>FY 2009 Accomplishments:</i> In FY 2009: Studied the feasibility of integrating GaN power amplifiers and data links into the baseline MALD-J vehicle. Built three payloads for testing. Increasing the technical maturity of a power amplifier based on GaN technology. <i>FY 2010 Plans:</i> In FY 2010: N/A (Covered under project 655305) <i>FY 2011 Base Plans:</i> In FY 2011: N/A (Covered under project 655305) <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		10.625	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		61.007	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>	PROJECT 658462: <i>Miniature Air Launched Decoy</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207442F: <i>MALD/MALD-J procurement</i>	56.285	109.202	87.628	0.000	87.628	85.396	90.122	91.951	93.974	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 658462: <i>Miniature Air Launched Decoy</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MALD / MALD-J RR and EMD	C/CPAF	Raytheon Missile Systems Tucson AZ	267.481	0.000		0.000		0.000		0.000	0.000	267.481	267.481
MALD / MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO Various	14.556	0.000		0.000		0.000		0.000	0.000	14.556	14.556
MALD / MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO Various	1.404	0.000		0.000		0.000		0.000	0.000	1.404	1.404
Improvement Risk Reduction	TBD/TBD	TBD TBD	10.625	0.000		0.000		0.000		0.000	0.000	10.625	10.625
Subtotal			294.066	0.000		0.000		0.000		0.000	0.000	294.066	294.066

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support to AAC/308 ARSW/692 ARSS	Various/ Various	Various Various	12.022	0.000		0.000		0.000		0.000	0.000	12.022	12.022
Subtotal			12.022	0.000		0.000		0.000		0.000	0.000	12.022	12.022

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>				PROJECT 658462: <i>Miniature Air Launched Decoy</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test Planning	Various/ Various	Various Various	36.645	0.000		0.000		0.000		0.000	0.000	36.645	36.645
Subtotal			36.645	0.000		0.000		0.000		0.000	0.000	36.645	36.645

Remarks
Element includes detailed planning, support data reduction and reports from such testing.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AAC/308 ARSW/692 ARSS	Various/ Various	AAC Eglin AFB FL	4.176	0.000		0.000		0.000		0.000	0.000	4.176	4.176
Subtotal			4.176	0.000		0.000		0.000		0.000	0.000	4.176	4.176

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.

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		346.909	0.000	0.000	0.000	0.000	346.909	346.909

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force						DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604270F: <i>EW Development</i>			PROJECT 658462: <i>Miniature Air Launched Decoy</i>		
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

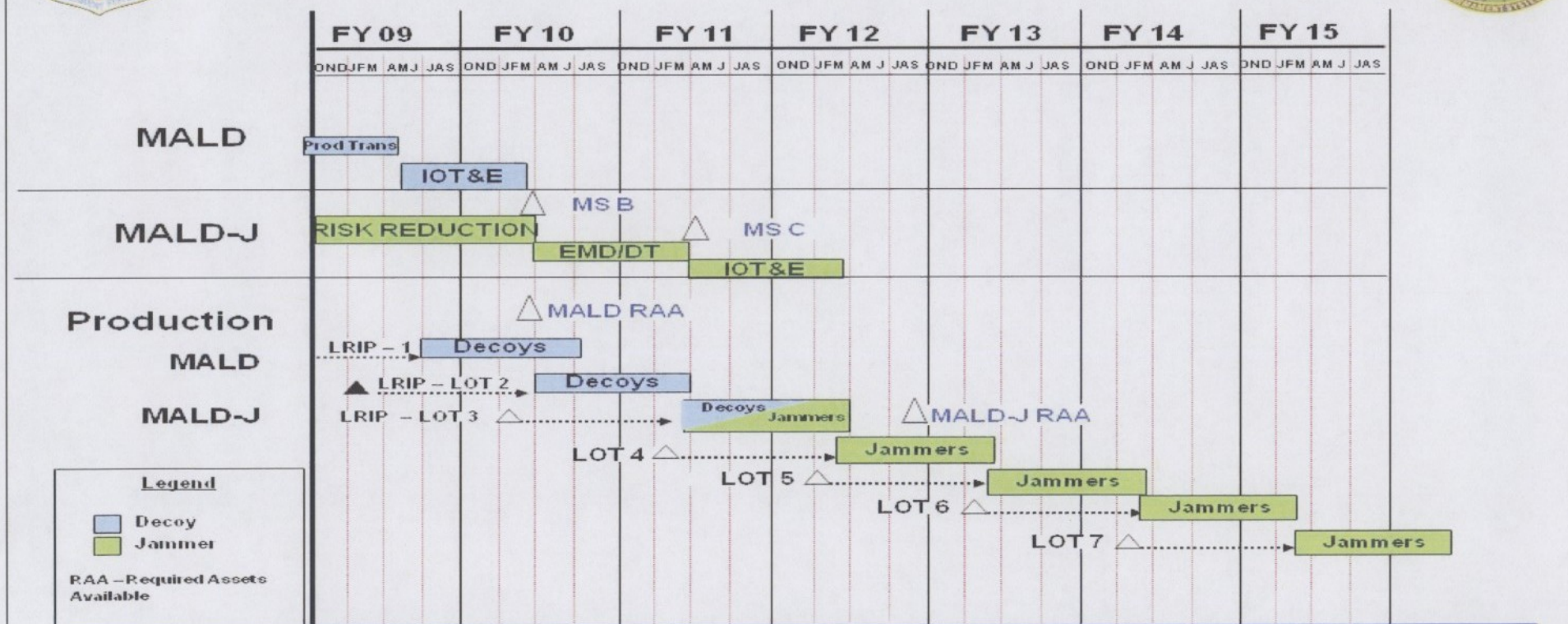
PE 0604270F: EW Development

PROJECT

658462: Miniature Air Launched Decoy



MALD/MALD-J Integrated Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604270F: *EW Development*

PROJECT

658462: *Miniature Air Launched Decoy*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
MALD IOT&E	3	2009	2	2010
MALD RAA	2	2010	2	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.631	0.000	0.631	180.364	107.665	44.952	21.250	Continuing	Continuing
655068: <i>Joint Tactical Radio System (JTRS)</i>	0.000	0.000	0.631	0.000	0.631	180.364	107.665	44.952	21.250	Continuing	Continuing

A. Mission Description and Budget Item Justification

The JTRS Budget Item Justification is found in the Navy's FY 2011 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5). The JTRS development program is a joint program managed through the JTRS JPEO. The funding for the program resides in the Navy budget.

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

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) because it supports development and integration of JTRS solutions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	0.631	0.000	0.631
Total Adjustments	0.000	0.000	0.631	0.000	0.631
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.631	0.000	0.631

Change Summary Explanation

Air Force funding was transferred to the Navy's FY 2010 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5). The JTRS development program is a joint program managed through the JTRS JPEO.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>	PROJECT 655068: <i>Joint Tactical Radio System (JTRS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655068: <i>Joint Tactical Radio System (JTRS)</i>	0.000	0.000	0.631	0.000	0.631	180.364	107.665	44.952	21.250	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The JTRS Budget Item Justification is found in the Navy's FY 2011 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5). The JTRS development program is a joint program managed through the JTRS JPEO. The funding for the program resides in the Navy budget.

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

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) because it supports development and integration of JTRS solutions.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: The JTRS budget justification will be found in the Navy's FY 2011 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5).	0.000	0.000	0.631	0.000	0.631

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>	PROJECT 655068: <i>Joint Tactical Radio System (JTRS)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: For contractor to civilian conversion----The JTRS budget justification will be found in the Navy's FY 2011 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.631	0.000	0.631

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (9491): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Since the JTRS development program is a joint program the acquisition strategy will be determined by the JTRS JPEO.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>	PROJECT 655068: <i>Joint Tactical Radio System (JTRS)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
The JTRS budget justification will be found in the Navy's FY 2011 President's Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5).	TBD/TBD	TBD TBD	0.000	0.000		0.631	Oct 2010	0.000		0.631	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.631		0.000		0.631			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.631	0.000	0.631			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604280F: *JOINT TACTICAL RADIO SYSTEMS (JTRS)*

PROJECT

655068: *Joint Tactical Radio System (JTRS)*



U.S. AIR FORCE

JTRS Development Schedule

- **The JTRS budget justification will be found in the Navy's FY 2011 Budget under Joint Tactical Radio System program (PE0604280N, BA 5) since the JTRS program is a joint program and the funding resides in the Navy's Budget.**

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604280F: <i>JOINT TACTICAL RADIO SYSTEMS (JTRS)</i>	PROJECT 655068: <i>Joint Tactical Radio System (JTRS)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
The JTRS budget justification will be found in the Navy's FY 2011 Budget under Joint Tactical Radio System Program (PE 0604280N, BA 5) since the JTRS program is a joint program and the funding res	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	87.444	102.941	30.000	132.941	67.790	40.507	43.037	34.930	Continuing	Continuing
655050: <i>TDL System Integration</i>	0.000	57.784	58.181	0.000	58.181	39.215	22.550	23.847	22.346	Continuing	Continuing
655262: <i>Family of Gateways</i>	0.000	29.660	44.760	30.000	74.760	28.575	17.957	19.190	12.584	Continuing	Continuing

Note

In FY 2010, Project 655050, TDL System Integration and 655262, Family of Gateways, efforts transferred from Program Element 0207434F Link 16 Support and Sustainment to this Program Element 0604281F Tactical Data Networks Enterprise to more accurately reflect activities executed in this PE.
In FY 2011 funding totals include \$30M requested for Overseas Contingency Operations.

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 facilitating 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. The program also includes Link 16 operational and exercise support, including support of the USAF Network Design Facility.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>
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Gateway systems enable combat forces to exchange information quickly and accurately by bridging disparate airborne, terrestrial, and/or space-based C4ISR networks to interoperate, enhancing operational effects within individual networks. The AF continues to utilize these systems (Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE), Pocket J, and Link 16 Alaska (LAK)) to fill information (voice & data) gaps increasing situational awareness across the DoD. The Program offices continue spiral development on enhancements for theater-wide operational and tactical users and maintain DoD standards for Link 16 and SADL protocols to ensure joint interoperability. Activities include interface definitions, operating procedures and protocols for AOCs, Homeland Defense, COACs, and Air National Guard.

STRATCOM's Distributed Nuclear Command and Control (DNC2) requires a system of systems approach in the development of capabilities for improving the Airborne Network to include air and ground components. STRATCOM's requirement expresses capabilities that are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, data fusion/correlation and command assignments.

This effort provides critical capability for STRATCOM's classified DNC2 capabilities. A subset of this capability will be the development of STRATCOM's Phoenix Architecture that allows distribution of critical data from airborne assets to ground components for analysis, decision making and retasking of critical assets. STRATCOM and Air Combat Command's Multi-Source Battlespace Awareness (MSBA) Enabling Concept is the driving force in satisfying STRATCOM's and ACC future requirements. Funding will be used to develop CONEMPS, Studies, Risk Reduction activities, technology insertion, and associated Modeling and Simulation functions to validate Concepts and deliver classified capabilities over the next few years. Improvements to Gateways (air and ground) functionality will be enhanced that will expand LOS/BLOS, fusion and Multi-Level Security capabilities. This will allow critical data sharing from Low Observable assets and other classified systems to increase mission effectiveness, provide situational awareness, correlate on and off-board sensor data sharing target and threat informal and provide critical information via data link and or other functions to accomplish time critical targeting and other mission update functions. Resulting development efforts will ensure effectiveness and efficiency of the Global Strike CONOPS and Global Persistent Attack CONOPS and will incorporate interoperability and netcentricity across the Enterprise.

The Air Force is leading the effort to develop a materiel solution to satisfy a CENTCOM Joint Urgent Operational Need (JUON) within the time parameters specified by the DEPSECDEF. The Battlefield Airborne Communications Node (BACN) JUON calls for 24/7 operation of the BACN payload to support current operations. BACN provides interoperability between disparate Tactical Data Links (TDLs) by receiving the various signals, bridging and forwarding them via an array of waveforms. This functionality permits single network operations and translation between Link 16 and Situational Awareness Data Link (SADL), as well as beyond line-of-sight (BLOS) connectivity. BACN enhances this capability by connecting to the airborne IP network allowing information exchange. The BACN payload is an airborne data processing and communications system that integrates a suite of commercial off-the-shelf (COTS) processor, storage and information technology (IT) equipment and existing military airborne communications systems. The BACN payload also integrates existing and newly developed applications and services to provide range extension and connectivity for dissimilar communications systems that process, translate, transmit and store critical data for end users (e.g., Combined Air Operations Center, Tactical Air Control Parties, Special Operations forces, and airborne command and control and tactical platforms). A prototype BACN equipped BD-700 has been operating in theater since December 2008 per Deployment Order issued 29 August 2008. The BACN JUON is comprised of the BACN payload integrated onto two BD-700s and two Global Hawk Block 20 air vehicles operating as a system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>
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Common Link Integration Processing (CLIP) is an Air Force 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	88.444	0.000	0.000	0.000
Current President's Budget	0.000	87.444	102.941	30.000	132.941
Total Adjustments	0.000	-1.000	102.941	30.000	132.941
• Congressional General Reductions		-5.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		4.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	102.941	30.000	132.941

Change Summary Explanation

FY 2011 funding totals include \$30M requested for Overseas Contingency Operations.

FY10 Congressional marks include a \$-5.0M cut to PE 0604281F (Tactical Data Networks Enterprise), for "Excess to need". An increase of \$4.0M for "Global UAS Networking and Interoperability System (GUNIS)" was also made to PE 0604281F. GUNIS is a Marine Corps program and the mark to this PE is an error.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655050: <i>TDL System Integration</i>	0.000	57.784	58.181	0.000	58.181	39.215	22.550	23.847	22.346	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2010, Project 655050, TDL System Integration efforts transferred from Program Element 0207434F Link 16 Support and Sustainment to this Program Element 0604281F Tactical Data Networks Enterprise to more accurately reflect activities executed in this PE. Project 655050, TDL System Integration will remain.

FY10 Congressional marks include a \$-5.0M cut to PE 0604281F (Tactical Data Networks Enterprise), for "Excess to need". This reduction should be from Project 655050. An increase of \$4.0M for "Global UAS Networking and Interoperability System (GUNIS)" was also made to PE 0604281F. GUNIS is a Marine Corps program and the mark to this PE is an error.

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>
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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 Data Links (TDLs, Link-16 and Link-11), 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 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: TDN MANAGEMENT AND INITIAL FIELDING <i>FY 2009 Accomplishments:</i> In FY 2009: Efforts were part of PE 0207434F <i>FY 2010 Plans:</i> In FY 2010: Joint Interface Control Officer Support System (JSS) completes 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 &	0.000	9.118	11.581	0.000	11.581

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Joint Interoperability of Tactical Command and Control Systems includes 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. Perform tactical data link roadmap requirements, configuration management, and Air Force Participating Test Unit activities (AFPTU).</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>						
<p>MAJOR THRUST: TACTICAL DATA LINK ACQUISITION MANAGEMENT</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Efforts were part of PE 0207434F</p> <p><i>FY 2010 Plans:</i> In FY 2010: Includes the 640th Electronic Systems Squadron (640th ELSS) program management support, coalition interoperability management, A&AS and MITRE support.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Includes the 640th Electronic Systems Squadron (640th ELSS) program management support, coalition interoperability management, A&AS and MITRE support.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>		0.000	6.559	6.836	0.000	6.836
Accomplishments/Planned Programs Subtotals		0.000	57.784	58.181	0.000	58.181

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0207434F: <i>Link 16 Sup & Sus, (RDT&E)</i>	278.961	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F: <i>Fighter TDL, (RDT&E)</i>	55.069	66.872	85.492	0.000	85.492	169.748	118.655	0.000	0.000	0.000	0.000
• PE 0207446F: <i>Bomber TDL, (RDT&E)</i>	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207448F: <i>C2ISR TDL, (RDT&E)</i>	1.671	1.659	1.584	0.000	1.584	1.608	1.633	1.658	1.682	0.000	0.000
• PE 0401839F: <i>Airlift TDL, (RDT&E)</i>	7.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207434F (1): <i>Link 16 Sup & Sus, (APAF)</i>	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F (2): <i>Fighter TDL, (APAF)</i>	5.788	9.585	0.929	0.000	0.929	7.695	6.925	7.043	12.785	0.000	0.000
• PE 0207446F (3): <i>Bomber TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.339	0.337	0.368	0.972	0.000	0.000
• PE 0207448F (4): <i>C2ISR TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.959	0.912	0.927	1.729	0.000	0.000
• PE 0207434F (5): <i>Link 16 Sup & Sus, (OPAF)</i>	16.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0604281F: <i>TDN Enterprise, (OPAF)</i>	0.000	32.343	21.742	0.000	21.742	9.270	0.337	0.311	0.240	0.000	0.000
• PE 0207434F (6): <i>Link 16 Sup & Sus, (O&M)</i>	131.597	0.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F (7): <i>Fighter TDL, (O&M)</i>	0.208	0.198	0.219	0.000	0.219	0.221	0.257	0.258	0.268	0.000	0.000
• PE 0401839F (8): <i>Airlift TDL, (O&M)</i>	1.574	8.175	7.857	0.000	7.857	3.629	1.634	1.666	2.944	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0604281F (9): <i>TDN</i> <i>Enterprise, (O&M)</i>	0.000	33.727	31.382	0.000	31.382	19.165	17.303	20.026	21.534	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>				PROJECT 655050: <i>TDL System Integration</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TDN Management and Initial Fielding	Various/ Various	Various Various	0.000	10.107	Jan 2010	11.581	Nov 2010	0.000		11.581	0.000	21.688	Continuing
Network Centric Transformation (TTNT, NEW, Link 16 enhancements)	Various/ Various	Various Various	0.000	32.864	Jan 2010	34.479	Dec 2010	0.000		34.479	0.000	67.343	Continuing
TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various/ Various	Various Various	0.000	7.126	Jan 2010	5.285	Dec 2010	0.000		5.285	0.000	12.411	Continuing
TDL Acquisition Management (Coalition Interoperability)	Various/ Various	Various Various	0.000	0.691	Jan 2010	0.704	Nov 2010	0.000		0.704	0.000	1.395	Continuing
Subtotal			0.000	50.788		52.049		0.000		52.049	0.000	102.837	

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various Test Centers	Various/ Various	Various Various	0.000	2.500	Jan 2010	2.500	Dec 2010	0.000		2.500	0.000	5.000	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	2.500		2.500		0.000		2.500	0.000	5.000	

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and Contractor Support	TM	Various Various	0.000	4.496	Jan 2010	3.632	Dec 2010	0.000		3.632	0.000	8.128	Continuing
Subtotal			0.000	4.496		3.632		0.000		3.632	0.000	8.128	

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	57.784		58.181		0.000		58.181	0.000	115.965	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604281F: TACTICAL DATA NETWORKS
ENTERPRISE

PROJECT

655050: TDL System Integration



Tactical Data Networks Enterprise/ Tactical Data Link System Integration

4 December 2009

PE 0604281F BPAC 5050	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<u>TDN Management/Fielding</u>							
Integration/Fielding		Support Services					
<u>Net-Centric Transformation</u>	FY09 and prior TDL System Integration resided in PE 0207434F Project 655050						
Net Enabled Weapons		Test	Small Form Factor Terminal Development				
LINK 16 Enhancements			Risk Reduction Activities, Technology Insertion, Modeling and Simulation				
<u>Interoperability/Config Mgt</u>							
JINTACCS		Management/Certification Testing					
iSMART		Management/Certification Testing					

As of 4 Dec 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 Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655050: <i>TDL System Integration</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
TDL Integration & Fielding Support	1	2010	4	2011
Network Enabled Weapons Development	1	2010	4	2011
Network Enabled Weapons Test & Certification	1	2010	2	2010
LINK 16 Enhancements Development	1	2010	4	2011
JINTACCS Management/Certification Testing	1	2010	4	2011
iSMART Management/Certification Testing	1	2010	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655262: <i>Family of Gateways</i>	0.000	29.660	44.760	30.000	74.760	28.575	17.957	19.190	12.584	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2010, Project 655262, Family of Gateways, efforts transferred from Program Element 0207434F Link 16 Support and Sustainment to this Program Element 0604281F Tactical Data Networks Enterprise to more accurately reflect activities executed in this PE. Project 655262 will remain.
In FY 2011 funding totals include \$30M requested for Overseas Contingency Operations.

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 Air Force is leading the effort to develop a materiel solution to satisfy the CENTCOM Joint Urgent Operational Need (JUON) within the time parameters specified by the DEPSECDEF. The Battlefield Airborne Communications Node (BACN) JUON calls for 24/7 operation of the BACN payload to support current operations. The BACN payload provides interoperability between disparate Tactical Data Links (TDLs) by receiving the various signals, bridging and forwarding them via an array of waveforms. This functionality permits single network operations and translation between Link 16 and Situational Awareness Data Link (SADL), as well as beyond line-of-sight (BLOS) connectivity. BACN enhances this capability by connecting to the airborne IP network allowing information exchange. The BACN payload is an

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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airborne data processing and communications system that integrates a suite of commercial off-the-shelf (COTS) processor, storage and information technology (IT) equipment and existing military airborne communications systems. The BACN payload also integrates existing and newly developed applications and services to provide range extension and connectivity for dissimilar communications systems that process, translate, transmit and store critical data for end users (e.g., Combined Air Operations Center, Tactical Air Control Parties, Special Operations forces, and airborne command and control and tactical platforms). A prototype BACN equipped BD-700 has been operating in theater since December 2008 per Deployment Order issued 29 August 2008. The BACN JUON is comprised of the BACN payload integrated onto two BD-700s and two Global Hawk Block 20 air vehicles operating as a system.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: COMMON LINK INTEGRATION PROCESSING (CLIP)	0.000	16.923	16.113	0.000	16.113
<i>FY 2009 Accomplishments:</i> In FY 2009: CLIP efforts were part of PE 0207434F					
<i>FY 2010 Plans:</i> In FY 2010: CLIP extends development and integration of extensible tactical data link message processing on the B-1 and B-52.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: BACN efforts were part of 0207434F</p> <p><i>FY 2010 Plans:</i> In FY 2010: BACN efforts are part of 0207434F</p> <p><i>FY 2011 Base Plans:</i> In FY 2010: N/A no activity on this effort</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: BACN Pre-Planned Product Improvement (P3I), development, integration and testing of multiple high capacity voice and data links.</p>					
Accomplishments/Planned Programs Subtotals	0.000	29.660	44.760	30.000	74.760

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0207434F: <i>Link 16 Sup & Sus, (RDT&E)</i>	278.961	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F: <i>Fighter TDL, (RDT&E)</i>	55.069	66.872	85.492	0.000	85.492	169.748	118.655	0.000	0.000	0.000	0.000
• PE 0207446F: <i>Bomber TDL, (RDT&E)</i>	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207448F: <i>C2ISR TDL, (RDT&E)</i>	1.671	1.659	1.584	0.000	1.584	1.608	1.633	1.658	1.682	0.000	0.000
• PE 0401839F: <i>Airlift TDL, (RDT&E)</i>	7.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207434F. Link 16 Sup & Sus: (APAF)											
• PE 0207445F (1): <i>Fighter TDL, (APAF)</i>	5.788	9.585	0.929	0.000	0.929	7.695	6.925	7.043	12.785	0.000	0.000
• PE 0207446F (2): <i>Bomber TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.339	0.337	0.368	0.972	0.000	0.000
• PE 0207448F (3): <i>C2ISR TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.959	0.912	0.927	1.729	0.000	0.000
• PE 0207434F (4): <i>Link 16 Sup & Sus, (OPAF)</i>	16.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0604281F: <i>TDN Enterprise, (OPAF)</i>	0.000	32.343	21.742	0.000	21.742	9.270	0.337	0.311	0.240	0.000	0.000
• PE 0207434F (5): <i>Link 16 Sup & Sus, (O&M)</i>	131.597	0.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F (6): <i>Fighter TDL, (O&M)</i>	0.208	0.198	0.219	0.000	0.219	0.221	0.257	0.258	0.268	0.000	0.000
• PE 0401839F (7): <i>Airlift TDL, (O&M)</i>	1.574	8.175	7.857	0.000	7.857	3.629	1.634	1.666	2.944	0.000	0.000
• PE 0604281F (8): <i>TDN Enterprise, (O&M)</i>	0.000	33.727	31.382	0.000	31.382	19.165	17.303	20.026	21.534	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CLIP Software updates, Integration and Testing	Various/ Various	Various Various	0.000	16.547	Feb 2010	16.113	Nov 2010	0.000		16.113	0.000	32.660	Continuing
STRATCOM DNC2	Various/ Various	Various Various	0.000	0.000	Feb 2010	15.880	Dec 2010	0.000		15.880	0.000	15.880	0.000
Other Gateways will continue development, integration, and testing efforts associated with JRE/JTEP, JADSI, Pocket J, LAK, SADL	Various/ Various	Various Various	0.000	9.554	Jan 2010	9.443	Jan 2011	0.000		9.443	0.000	18.997	0.000
BACN Pre-Planned Product Improvement (P3I)	TBD/TBD	ESC Hanscom AFB, MA	0.000	0.000		0.000	Jan 2011	30.000	Dec 2011	30.000	0.000	30.000	0.000
Subtotal			0.000	26.101		41.436		30.000		71.436	0.000	97.537	

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various Test Centers	PO	Various Various	0.000	0.593	Dec 2009	0.719	Dec 2010	0.000		0.719	0.000	1.312	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.593		0.719		0.000		0.719	0.000	1.312	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and Contractor Support	TM	Various Various	0.000	2.966	Dec 2009	2.605	Nov 2010	0.000		2.605	0.000	5.571	0.000
Subtotal			0.000	2.966		2.605		0.000		2.605	0.000	5.571	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	29.660		44.760		30.000		74.760	0.000	104.420	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604281F: TACTICAL DATA NETWORKS
ENTERPRISE

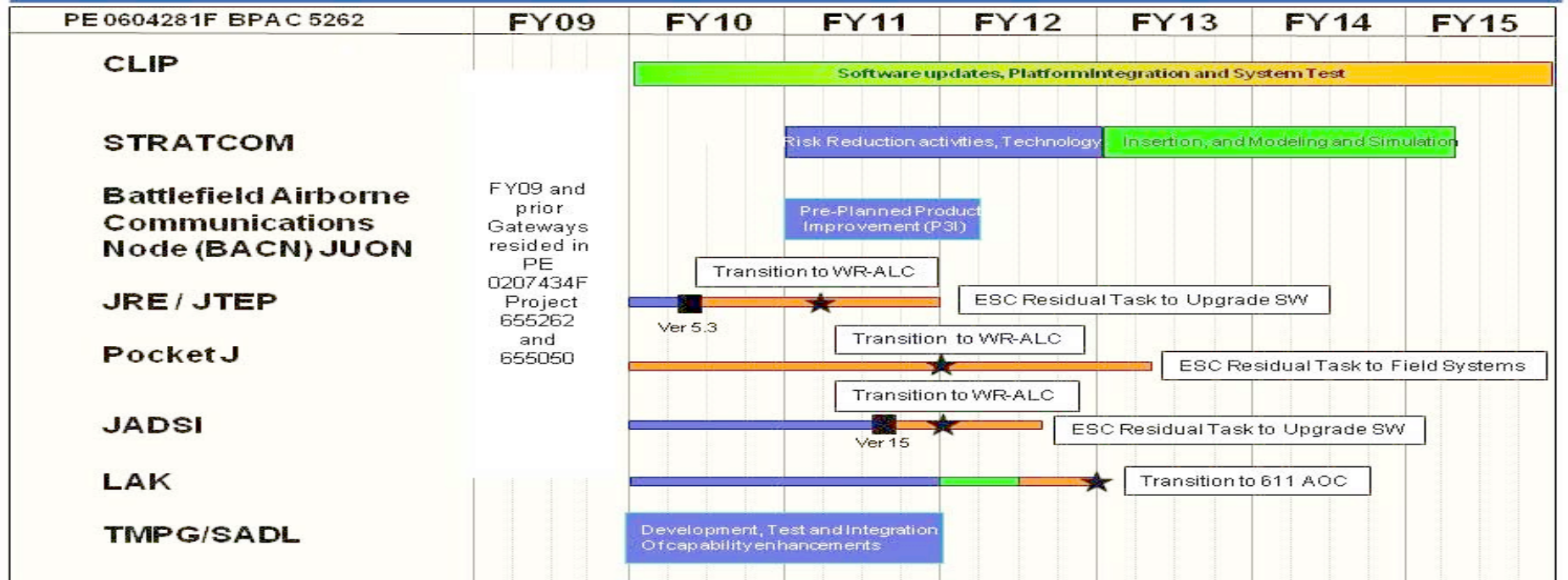
PROJECT

655262: Family of Gateways



Tactical Data Networks Enterprise Family of Gateways Schedules

4 December 2009



As of 4 Dec 09

★ Transition Milestone

▲ Contract Awards

■ Delivery Milestones

Program Phases
■ Development/Demonstration
■ Test
■ Integration/Fielding

Integrity - Service - Excellence

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>TACTICAL DATA NETWORKS</i> <i>ENTERPRISE</i>	PROJECT 655262: <i>Family of Gateways</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CLIP Software updates, Integration and Testing	1	2010	4	2011
STRATCOM DNC 2 Development	1	2011	4	2011
BACN JUON Pre-Planned Product Improvement (P3I)	1	2011	4	2011
JRE/JTEP Development & Test of Ver 5.3	1	2010	2	2010
JRE/JTEP Product Delivery of Ver 5.3	2	2010	2	2010
JRE/JTEP Integration/Fielding of Ver 5.3	2	2010	1	2011
JRE/JTEP ESC Residual Task to Upgrade SW	2	2011	4	2011
Pocket J Integration/Fielding	1	2010	4	2011
JADSI Development	1	2010	3	2011
JADSI Product Delivery	3	2011	3	2011
JADSI Integration/Fielding	3	2011	4	2011
LAK	1	2010	4	2011
TMPG/SADL capability enhancements	1	2010	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.051	0.050	0.050	0.000	0.050	0.051	0.051	0.050	0.050	Continuing	Continuing
655120: <i>Physical Security Equipment - SD/ED</i>	0.051	0.050	0.050	0.000	0.050	0.051	0.051	0.050	0.050	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.052	0.051	0.000	0.000	0.000
Current President's Budget	0.051	0.050	0.050	0.000	0.050
Total Adjustments	-0.001	-0.001	0.050	0.000	0.050
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.001	0.000			
• Other Adjustments	0.000	-0.001	0.050	0.000	0.050

Change Summary Explanation

FY11: The FY 2010 President's Budget submitted did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>				PROJECT 655120: <i>Physical Security Equipment - SD/ED</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655120: <i>Physical Security Equipment - SD/ED</i>	0.051	0.050	0.050	0.000	0.050	0.051	0.051	0.050	0.050	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: ROBOTIC SECURITY SYSTEMS INTEGRATION <i>FY 2009 Accomplishments:</i> In FY09: Continue Robotic Security Systems Integration <i>FY 2010 Plans:</i> In FY10: Continue Robotic Security Systems Integration	0.051	0.050	0.050	0.000	0.050

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>	PROJECT 655120: <i>Physical Security Equipment - SD/ED</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY11: Continue Robotic Security Systems Integration					
<i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.051	0.050	0.050	0.000	0.050

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (10890): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>				PROJECT 655120: <i>Physical Security Equipment - SD/ED</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
PM-FPS (US Army)	MIPR	TBD TBD	0.051	0.050		0.050		0.000		0.050	0.000	0.151	0.000	
Subtotal			0.051	0.050		0.050		0.000		0.050	0.000	0.151	0.000	

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.051	0.050	0.050	0.000	0.050	0.000	0.151	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604287F: <i>Physical Security Equipment</i>	PROJECT 655120: <i>Physical Security Equipment - SD/ED</i>

Exhibit R-4, Schedule Profile																				Date: September 2005																				
BUDGET ACTIVITY System Development and Demonstration (SDD) 05												PE NUMBER AND TITLE PE0604287F Physical Security Equipment								PROJECT NUMBER AND NAME 5120 Physical Security Equipment - SD/ED																				
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conduct Operational test of MDARS																																								
Provide Engineering Support for fielding MDARS																																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604287F: *Physical Security Equipment*

PROJECT

655120: *Physical Security Equipment - SD/ED*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Provide engineering support for fielding the MDARS-E	1	2009	4	2011
Robotic Security Systems Integration	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	122.568	155.415	153.505	0.000	153.505	162.393	128.606	69.545	68.529	Continuing	Continuing
655191: <i>Small Diameter Bomb Increment II</i>	122.568	155.415	153.505	0.000	153.505	162.393	128.606	69.545	68.529	0.000	1,123.629

A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, reduced susceptibility of munitions to countermeasures and provides a migration path to net-centric ops capability. Threshold aircraft are the F-15E (USAF), F-35B (USMC), and F-35C (USN). 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. EMD contract award is scheduled for FY10 following Milestone B, and Required Assets Available (RAA) on the F-15E is planned for not greater than 59 months post contract award. The Navy Initial Operating Capability (IOC) is planned for not greater than 86 months post contract award on the F-35B and the F-35C. While the complete hardware and software for normal attack, Coordinate Attack (CA), and Semi-Active Laser (SAL) attack will be developed and in place, normal attack capability will be verified and released first to accelerate capability to the warfighter. Full capability will be delivered in FY16 after verification of CA and SAL capability. 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 CONOPs.

This program is in Budget Activity 5 - Engineering and Manufacturing Development (EMD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	126.324	153.815	0.000	0.000	0.000
Current President's Budget	122.568	155.415	153.505	0.000	153.505
Total Adjustments	-3.756	1.600	153.505	0.000	153.505
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-3.756	0.000	153.505	0.000	153.505

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>	PROJECT 655191: <i>Small Diameter Bomb Increment II</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655191: <i>Small Diameter Bomb Increment II</i>	122.568	155.415	153.505	0.000	153.505	162.393	128.606	69.545	68.529	0.000	1,123.629
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, reduced susceptibility of munitions to countermeasures and provides a migration path to net-centric ops capability. Threshold aircraft are the F-15E (USAF), F-35B (USMC), and F-35C (USN). Objective aircraft include: F-22A, 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. The Navy Initial Operating Capability (IOC) is scheduled for FY16 on the F-35B and the F-35C. While the complete hardware and software for normal attack, Coordinate Attack (CA), and Semi-Active Laser (SAL) attack will be developed and in place by FY14, only the normal attack capability will be verified and released by FY14. Full capability will be delivered in FY16 after verification of CA and SAL capability. SDB will continue incremental development to pursue network centric interoperability. SDB is a key component of the Air Force's Global Strike Task Force CONOPs.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Conduct Risk Reduction effort to prove out system concepts and models using sub-system prototype demonstrations. <i>FY 2009 Accomplishments:</i> In FY2009: Completed Risk Reduction effort. Two prime contractors competing for continuation into Engineering and Manufacturing Development (EMD) conducted hardware and software-in-the-loop testing and captive carry tests to demonstrate technical maturity Technology Readiness Level 6	94.428	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010																			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>		PROJECT 655191: <i>Small Diameter Bomb Increment II</i>																			
B. Accomplishments/Planned Program (\$ in Millions)																							
<table border="1"> <thead> <tr> <th></th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011 Base</th> <th>FY 2011 OCO</th> <th>FY 2011 Total</th> </tr> </thead> <tbody> <tr> <td>(TRL6) of system components in a relevant environment. Define system concepts, reduce technical risk, and employ competition to control cost prior to freezing designs at Critical Design Review (CDR). <i>FY 2010 Plans:</i> In FY2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY2011: Not Applicable <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MAJOR THRUST: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) <i>FY 2009 Accomplishments:</i> In FY2009: Not Applicable <i>FY 2010 Plans:</i> In FY2010: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) as specified in the government approved SDB II System Performance Specification (SPS) and prepare for production, deployment, and sustainment. Initiate Integrated Systems Design (ISD)" activities leading to a Critical Design Review (CDR) within six months of EMD contract award (expected in May 2010). ISD will verify that the integrated SDB II components deliver the system capability as specified. Related activities include: modeling and verification of system reliability; planning and executing interface activities with the threshold aircraft, BRU-61/A carriage, mission planning systems, weapon data link network, and common munitions built-in-test/reprogramming equipment (CAMBRE); definition of laboratory, ground, and flight test</td> <td align="right">0.000</td> <td align="right">119.034</td> <td align="right">117.040</td> <td align="right">0.000</td> <td align="right">117.040</td> </tr> </tbody> </table>							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	(TRL6) of system components in a relevant environment. Define system concepts, reduce technical risk, and employ competition to control cost prior to freezing designs at Critical Design Review (CDR). <i>FY 2010 Plans:</i> In FY2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY2011: Not Applicable <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						MAJOR THRUST: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) <i>FY 2009 Accomplishments:</i> In FY2009: Not Applicable <i>FY 2010 Plans:</i> In FY2010: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) as specified in the government approved SDB II System Performance Specification (SPS) and prepare for production, deployment, and sustainment. Initiate Integrated Systems Design (ISD)" activities leading to a Critical Design Review (CDR) within six months of EMD contract award (expected in May 2010). ISD will verify that the integrated SDB II components deliver the system capability as specified. Related activities include: modeling and verification of system reliability; planning and executing interface activities with the threshold aircraft, BRU-61/A carriage, mission planning systems, weapon data link network, and common munitions built-in-test/reprogramming equipment (CAMBRE); definition of laboratory, ground, and flight test	0.000	119.034	117.040	0.000	117.040
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total																		
(TRL6) of system components in a relevant environment. Define system concepts, reduce technical risk, and employ competition to control cost prior to freezing designs at Critical Design Review (CDR). <i>FY 2010 Plans:</i> In FY2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY2011: Not Applicable <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.																							
MAJOR THRUST: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) <i>FY 2009 Accomplishments:</i> In FY2009: Not Applicable <i>FY 2010 Plans:</i> In FY2010: Commence EMD to generate a design that delivers the capability described in the SDB II Capability Development Document (CDD) as specified in the government approved SDB II System Performance Specification (SPS) and prepare for production, deployment, and sustainment. Initiate Integrated Systems Design (ISD)" activities leading to a Critical Design Review (CDR) within six months of EMD contract award (expected in May 2010). ISD will verify that the integrated SDB II components deliver the system capability as specified. Related activities include: modeling and verification of system reliability; planning and executing interface activities with the threshold aircraft, BRU-61/A carriage, mission planning systems, weapon data link network, and common munitions built-in-test/reprogramming equipment (CAMBRE); definition of laboratory, ground, and flight test	0.000	119.034	117.040	0.000	117.040																		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>	PROJECT 655191: <i>Small Diameter Bomb Increment II</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>remaining MPACT qualification testing at the assembly level; performed a system level assessment of the BRU-61/A to meet its current performance requirements and capabilities; and demonstrated performance at various pressure altitude/temperature combinations.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Qualify through a series of environmental test exposures at the BRU level; Conduct margin tests to demonstrate design robustness; Demonstrate MPACT can pass the production, Environmental Stress Screening (ESS), and Acceptance Test Procedures (ATP) tests at BRU level; Identify and incorporate required changes as a result of system level performance assessment conducted during initial effort to demonstrate retention of performance level.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Not Applicable</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	122.568	155.415	153.505	0.000	153.505

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207327F: <i>Appn 3020, Missile Procurement, AF</i>	0.000	0.000	0.000	0.000	0.000	0.000	39.408	57.122	74.184	1,583.416	0.000
• PE 0604329N: <i>Appn 3600, RDT&E, Navy</i>	18.918	43.720	44.091	0.000	44.091	74.918	37.598	42.912	39.964	36.500	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.341	898.500	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>	PROJECT 655191: <i>Small Diameter Bomb Increment II</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0204162N: <i>Appn 3020, Missile Procurement, Navy</i>											

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 Engineering and Manufacturing Development (EMD). EMD will be a Fixed Price Incentive Firm Target contract. The DoN is funding the integration of the SDB II on the threshold F-35B and F-35C 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 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 EMD contract.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>				PROJECT 655191: <i>Small Diameter Bomb Increment II</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction Contract 1	C/CPFF	Boing St. Louis MO	156.958	0.000		0.000		0.000		0.000	0.000	156.958	156.958
Risk Reduction Contract 2	C/CPFF	Raytheon Tucson AZ	156.958	0.000		0.000		0.000		0.000	0.000	156.958	156.958
EMD	C/FPI	TBD TBD	0.000	119.035		117.040		0.000		117.040	361.007	597.082	597.082
M-PACT High Pressure Air Generator System	TBD/TBD	TBD TBD	1.600	1.600		0.000		0.000		0.000	0.000	3.200	3.200
Subtotal			315.516	120.635		117.040		0.000		117.040	361.007	914.198	914.198

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-15 SPO	PO	F15 SPO Wright Patt AFB, OH	18.329	10.567		6.733		0.000		6.733	6.034	41.663	41.663
BRU-61/A	PO	Boeing St. Louis, MO	2.603	1.356		0.000		0.000		0.000	0.000	3.959	3.959
Other	Various/ Various	Various Various	19.973	6.618		9.006		0.000		9.006	23.391	58.988	58.988

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>				PROJECT 655191: <i>Small Diameter Bomb Increment II</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			40.905	18.541		15.739		0.000		15.739	29.425	104.610	104.610

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	PO	46TW Eglin AFB, FL	6.437	8.958		9.036		0.000		9.036	10.343	34.774	34.774
46 TW	PO	46TW Eglin AFB, FL	0.000	3.158		9.843		0.000		9.843	22.555	35.556	35.556
Subtotal			6.437	12.116		18.879		0.000		18.879	32.898	70.330	70.330

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>				PROJECT 655191: <i>Small Diameter Bomb Increment II</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TAMS	C/CPAF	Eglin AFB FL	0.190	0.285		0.289		0.000		0.289	0.754	1.518	1.518
TEAS	C/CPAF	Eglin AFB FL	12.028	2.700		0.429		0.000		0.429	0.270	15.427	15.427
PMA	PO	Eglin AFB FL	2.824	1.138		1.129		0.000		1.129	4.719	9.810	9.811
Subtotal			15.042	4.123		1.847		0.000		1.847	5.743	26.755	26.756

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	377.900	155.415		153.505		0.000		153.505	429.073	1,115.893	1,115.894

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604329F: Small Diameter Bomb

PROJECT

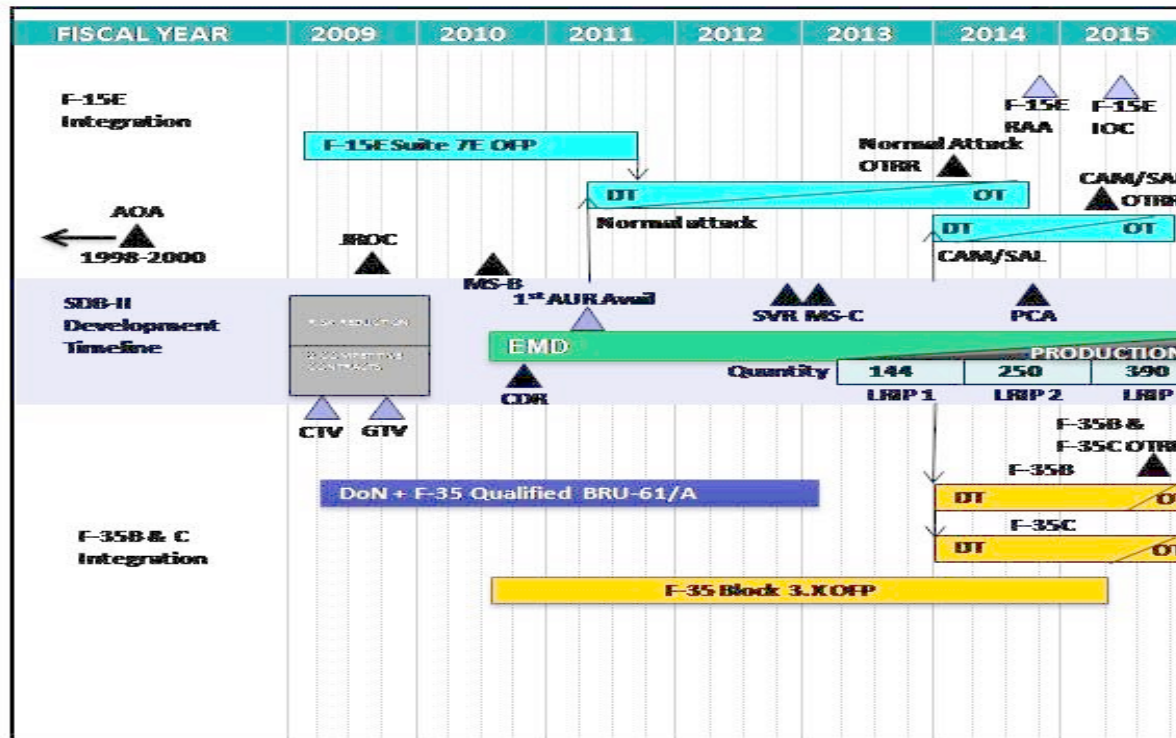
655191: Small Diameter Bomb Increment II



Program Schedule



662nd Armament Systems Squadron



IOC ~ 50 months post contract award
FMC ~ 85 months post contract award

Integrity - Service - Excellence

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604329F: <i>Small Diameter Bomb</i>	PROJECT 655191: <i>Small Diameter Bomb Increment II</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Complete Risk Reduction Phase	1	2009	4	2009
EMD Contract Award	3	2010	3	2010
Developmental Testing (Normal Attack)	2	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	64.318	63.838	40.276	0.000	40.276	34.119	33.161	33.665	34.181	Continuing	Continuing
65A001: <i>Counter Satellite Communications System</i>	28.062	30.699	21.035	0.000	21.035	21.321	20.331	20.641	20.957	Continuing	Continuing
65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>	27.284	25.816	11.875	0.000	11.875	5.339	5.257	5.336	5.419	Continuing	Continuing
65A005: <i>Counterspace C2</i>	8.972	7.323	7.366	0.000	7.366	7.459	7.573	7.688	7.805	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
3600: <i>Research, Development, Test & Evaluation, Air Force</i>	PE 0604421F: <i>Counterspace Systems</i>
BA 5: <i>Development & Demonstration (SDD)</i>	

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	76.147	64.248	0.000	0.000	0.000
Current President's Budget	64.318	63.838	40.276	0.000	40.276
Total Adjustments	-11.829	-0.410	40.276	0.000	40.276
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-11.829	-0.410	40.276	0.000	40.276

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 65A005: *Counterspace C2*

Congressional Add: *Model, conduct "virtual testing," and analyze architectural options for the Rapid Attack Identification Detection and Reporting System.*

Congressional Add Subtotals for Project: 65A005

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	1.499	0.000
	1.499	0.000
	1.499	0.000

Change Summary Explanation

FY 2009: - \$8.9M BTR to a higher priority Air Force program and - \$2.929M for SBIR transfer

FY 2010: - \$0.410M for FFRDC

FY 2011: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A001: <i>Counter Satellite Communications System</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A001: <i>Counter Satellite Communications System</i>	28.062	30.699	21.035	0.000	21.035	21.321	20.331	20.641	20.957	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Counterspace. 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Complete capability upgrades to the Block 10 Counter Communications System (CCS). Includes architecture development and program office support. <i>FY 2009 Accomplishments:</i> In FY 2009: Continued development and integration of advanced capabilities for integration as a plug-in capability to the baseline Block 10 CCS. <i>FY 2010 Plans:</i> In FY 2010: Continuing the development, integration and delivery of the CCS plug-in upgrades.	15.331	13.287	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A001: <i>Counter Satellite Communications System</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Use prototype lessons-learned to develop and integrate the first increment of the CCS P3I.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Complete development and integration and test of Increment 1 of the CCS P3I. Confirm requirements for Increment 2.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	28.062	30.699	21.035	0.000	21.035

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0604421F: <i>Counterspace Systems (OPAF)</i>	8.845	4.000	11.541	5.600	17.141	10.123	10.282	10.444	10.605	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>				PROJECT 65A001: <i>Counter Satellite Communications System</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Architectural Engineering Support	Various/ Various	Various Various	27.738	3.370	Jan 2010	3.454	Jan 2011	0.000		3.454	Continuing	Continuing	Continuing
Block 10 Capability Upgrades	SS/CPAF	Harris Corp Melbourne, FL	9.407	0.500	Jan 2010	0.000		0.000		0.000	0.000	9.907	7.862
Block 10 Capability Upgrades (1)	C/CPAF	General Dynamics Santa Clara, CA	8.394	2.621	Jan 2010	0.000		0.000		0.000	0.000	11.015	11.015
Block 20 Prototype Development & Future Capability Studies	Various/ Various	Various Various	12.957	1.250	Nov 2009	0.000		0.000		0.000	0.000	14.207	13.371
Block 20 Prototype Development & Future Capability Studies (2)	C/CPAF	SI International Colorado Springs, CO	8.801	0.000		0.000		0.000		0.000	0.000	8.801	11.422
Block 10 P3I Development	C/CPAF	Harris Corp Melbourne, FL	0.000	16.162	Feb 2010	11.651	Nov 2010	0.000		11.651	Continuing	Continuing	Continuing
Subtotal			67.297	23.903		15.105		0.000		15.105			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A001: <i>Counter Satellite Communications System</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Program Office Support	Various/ Various	SMC EI Segundo, CA	19.157	6.796	Nov 2009	5.930	Nov 2010	0.000		5.930	Continuing	Continuing	Continuing
Subtotal			19.157	6.796		5.930		0.000		5.930			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CCS Block 10 Test Support	Various/ Various	SMC EI Segundo, CA	2.100	0.000		0.000		0.000		0.000	0.000	2.100	2.567
Subtotal			2.100	0.000		0.000		0.000		0.000	0.000	2.100	2.567

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	88.554	30.699		21.035		0.000		21.035			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

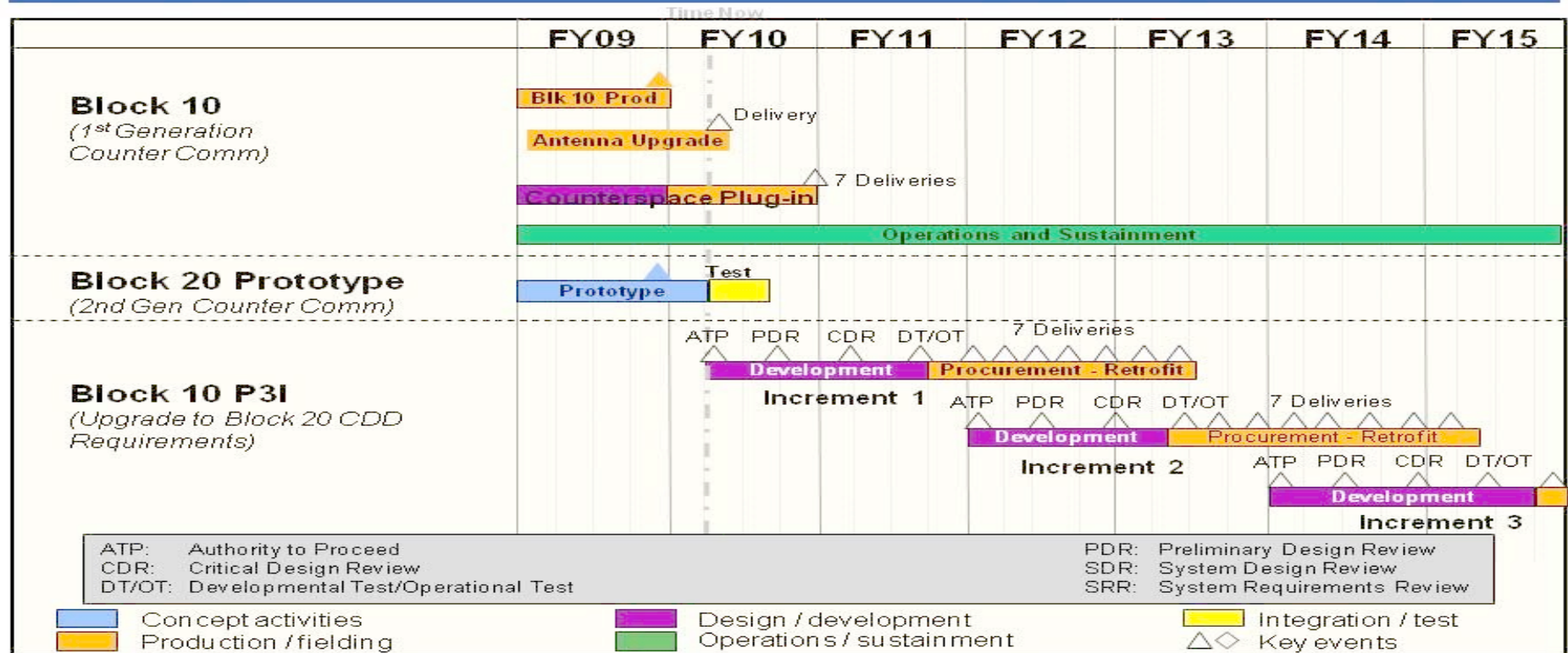
PE 0604421F: Counterspace Systems

PROJECT

65A001: Counter Satellite Communications System



Counterspace Systems CCS Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A001: <i>Counter Satellite Communications System</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Block 10 Production	1	2009	4	2009
Capability Upgrades	1	2009	4	2010
Block 10 Upgrade Deliveries	4	2009	4	2010
Block 20 Prototype Development and Test	1	2009	2	2010
Block 10 P3I Contract Award	2	2010	2	2010
Block 10 P3I Increment 1 Development	2	2010	3	2011
Block 10 P3I Increment 1 DT/OT	3	2011	3	2011
Block 10 P3I Increment 1 Procurement	4	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>	27.284	25.816	11.875	0.000	11.875	5.339	5.257	5.336	5.419	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

RAIDRS Block 20 content and funding were transferred to PE 0305614F, Joint Space Operations Center (JSpOC) Mission Systems effective in FY 2010.

A. Mission Description and Budget Item Justification

The RAIDRS program performs attack detection, geolocation, reporting, characterization and mission impact assessment for US owned, operated or used space systems. RAIDRS capabilities, in support of the National Security Strategy of the United States, are procured and deployed in blocks. The first Block (RB-10) is focused on detecting, characterizing, geolocating and reporting satellite communications (SATCOM) radio frequency interference (RFI) using currently existing Commercial-Off-the-Shelf (COTS) and Government-Off-the-Shelf (GOTS) technology. The event information provided by RB-10 will allow operators to identify possible interference against space capabilities and enable rapid employment of protective responses.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop, integrate, test and field the Rapid Attack Identification Detection and Reporting System (RAIDRS). <i>FY 2009 Accomplishments:</i> In FY 2009: RAIDRS is a counterspace system designed to identify, characterize and locate interference to SATCOM communications capabilities. Includes architecture development, systems	21.138	25.816	11.875	0.000	11.875

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force							DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>			PROJECT 65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>					
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
Accomplishments/Planned Programs Subtotals							27.284	25.816	11.875	0.000	11.875
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604421F: <i>Counterspace Systems (OPAF)</i>	18.889	24.303	14.060	2.600	16.660	11.164	11.647	8.451	8.598	0.000	0.000
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.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>				PROJECT 65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Architecture Development & Systems Engineering	Various/ Various	Various Various	9.943	3.132	Nov 2009	1.448	Oct 2010	0.000		1.448	Continuing	Continuing	Continuing
RAIDRS Block 10 System Development	C/CPAF	Integral Systems Inc Columbia, MD	87.514	18.359	Oct 2009	6.075	Oct 2010	0.000		6.075	Continuing	Continuing	Continuing
RAIDRS Block 20 Requirements Development/Risk Reduction	Various/ Various	Various Various	17.906	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			115.363	21.491		7.523		0.000		7.523			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support for RAIDRS	Various/ Various	SMC El Segundo	17.220	4.250	Oct 2009	4.272	Oct 2010	0.000		4.272	Continuing	Continuing	Continuing
Subtotal			17.220	4.250		4.272		0.000		4.272			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RAIDRS Block 10 Test Support	Various/ Various	Various Various	0.400	0.075	Oct 2009	0.080	Oct 2010	0.000		0.080	Continuing	Continuing	Continuing
Subtotal			0.400	0.075		0.080		0.000		0.080			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	132.983	25.816		11.875		0.000		11.875			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

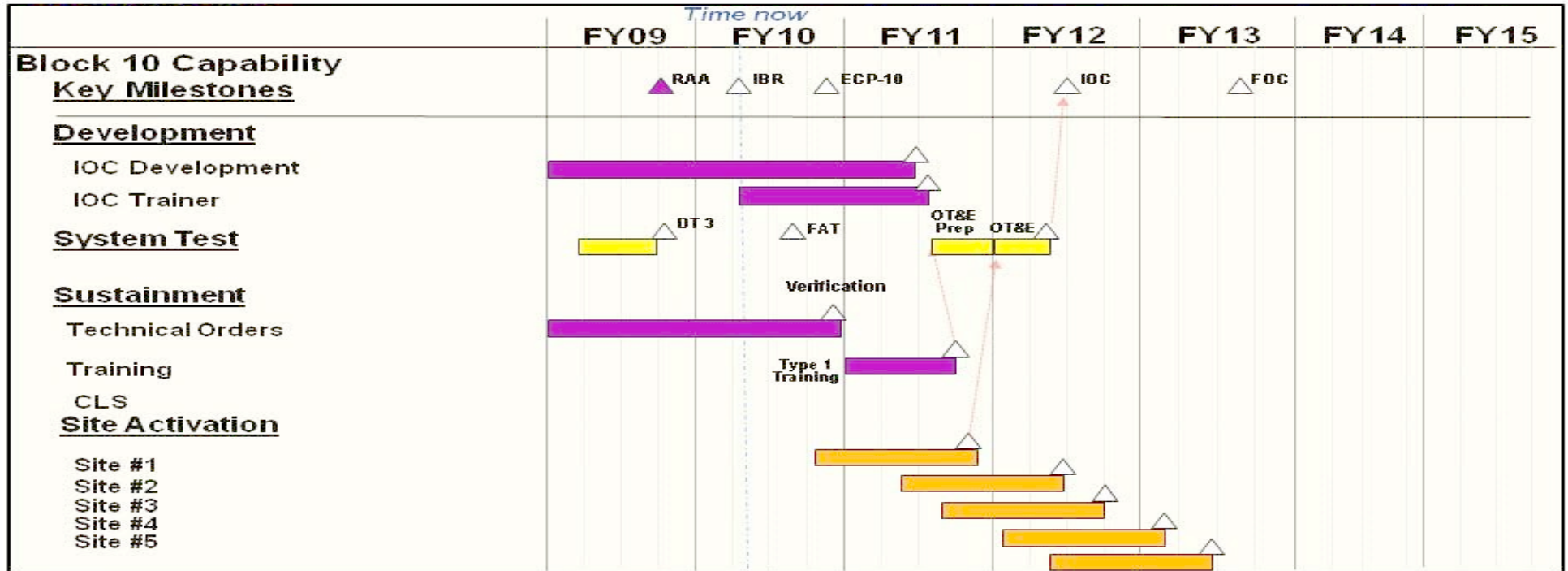
PE 0604421F: Counterspace Systems

PROJECT

65A003: Rapid Identification Detection and Reporting System (RAIDRS)



Counterspace Systems RAIDRS Schedule



■ Concept activities ■ Design/development ■ Integration/test
■ Production/fielding ■ Operations/sustainment △◇ Key events
 DT = Development Test FAT = Factory Acceptance Test FOC = Full Operational Capability IBR = Integrated Baseline Review
 IOC = Initial Operational Capability OT&E = Operational Test & Evaluation RAA = Required Resources Avail

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A003: <i>Rapid Identification Detection and Reporting System (RAIDRS)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
RAIDRS Block 10 Developmental Test 3	2	2009	3	2009
RAIDRS Block 10 Initial Development	1	2009	4	2011
RAIDRS Block 10 Operational Test and Evaluation	3	2011	3	2011
RAIDRS Block 10 Operator Training	3	2011	3	2011
Site #1 Preparation	4	2010	2	2011
Site #1 Activation	2	2011	4	2011
Site #2 Preparation	1	2011	3	2011
Site #2 Activation	3	2011	4	2011
Site #3 Preparation	3	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A005: <i>Counterspace C2</i>	8.972	7.323	7.366	0.000	7.366	7.459	7.573	7.688	7.805	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue development of Counterspace mission planning and command and control capability. Begin tech refresh, JETSS Spiral 2 planning & JETSS Spiral 3. <i>FY 2009 Accomplishments:</i> In FY 2009: Continued development of the Joint Execution and Tasking System for Space (JETSS). <i>FY 2010 Plans:</i> In FY 2010: Completing JETSS Spiral 2 development, testing and delivery to the Joint Space Operations Center (JSpOC). Begin Spiral 3 Development.	7.473	7.323	7.366	0.000	7.366

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continue JETSS Spiral 3 development to include Federated Query, future systems planning and backup servers.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	7.473	7.323	7.366	0.000	7.366

	FY 2009	FY 2010
<p>Congressional Add: Model, conduct "virtual testing," and analyze architectural options for the Rapid Attack Identification Detection and Reporting System.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not applicable.</p>	1.499	0.000
Congressional Adds Subtotals	1.499	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (12331): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All contracts will be awarded using competitive procedures to the maximum extent possible to acquire next generation capabilities through incremental acquisitions.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology Huntsville, AL (Army Contract)	18.367	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Develop Counterspace Planning and C2 System (JETSS)	C/CPAF	General Dynamics Santa Clara, CA	14.189	4.913	Jan 2010	5.007	Jan 2011	0.000		5.007	Continuing	Continuing	Continuing
Subtotal			32.556	4.913		5.007		0.000		5.007			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Counterspace Architecture Development	C/CPFF	Northrup Grumman Mission Systems Redondo Beach, CA	3.247	0.946	Dec 2009	0.959	Dec 2010	0.000		0.959	Continuing	Continuing	Continuing
Subtotal			3.247	0.946		0.959		0.000		0.959			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and Other Technical Support	Various/ Various	SMC El Segundo, CA	3.340	1.464	Oct 2009	1.400	Oct 2010	0.000		1.400	Continuing	Continuing	Continuing
Subtotal			3.340	1.464		1.400		0.000		1.400			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.143	7.323		7.366		0.000		7.366			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

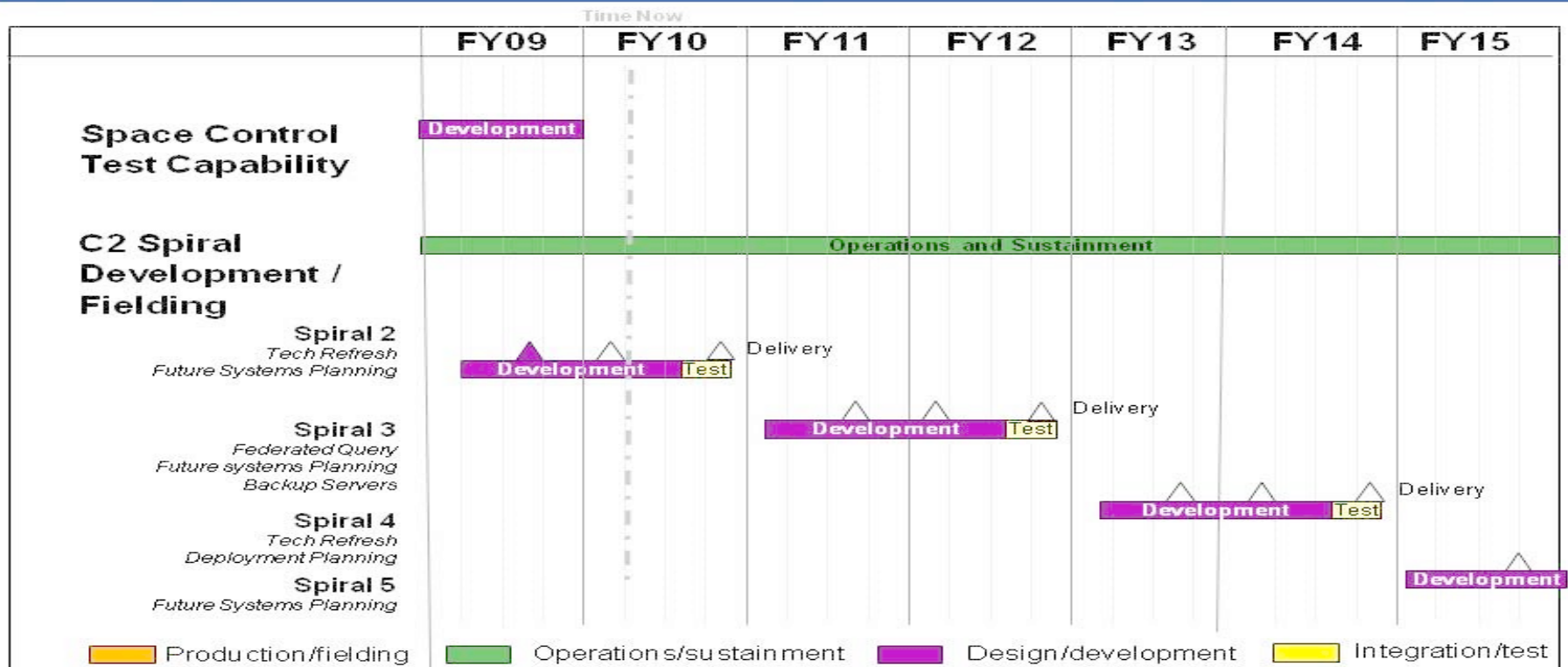
PE 0604421F: Counterspace Systems

PROJECT

65A005: Counterspace C2



Counterspace Systems Counterspace C2 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604421F: <i>Counterspace Systems</i>	PROJECT 65A005: <i>Counterspace C2</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Modeling, "virtual test," analysis	2	2009	4	2009
Develop/test JETSS Spiral #2	2	2009	4	2010
C2 Spiral #2 Delivery	4	2010	4	2010
C2 Spiral #3 Development	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	211.266	238.377	426.525	0.000	426.525	508.259	496.975	495.509	232.199	Continuing	Continuing
65A006: <i>Space-Based Space Surveillance</i>	143.139	144.242	185.915	0.000	185.915	210.011	186.282	127.520	7.337	Continuing	Continuing
65A008: <i>Integrated Space Situation Awareness</i>	42.620	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
65A009: <i>Space Fence</i>	25.507	60.228	164.790	0.000	164.790	242.023	264.949	334.928	204.202	Continuing	Continuing
65A012: <i>Net-centric Sensors and Data Sources</i>	0.000	18.357	24.435	0.000	24.435	10.447	12.982	12.424	7.217	Continuing	Continuing
65A037: <i>Space Surveillance Telescope</i>	0.000	0.000	1.947	0.000	1.947	0.000	0.000	0.000	0.000	Continuing	Continuing
65A038: <i>SSA Environmental Monitoring</i>	0.000	15.550	49.438	0.000	49.438	45.778	32.762	20.637	13.443	Continuing	Continuing

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. An additional companion program element, 0305614F, JSpOC Mission System, processes surveillance of all space objects and activities, maintains detailed reconnaissance of space assets, fuses space data, maintains awareness of cooperative space assets, and allows JFCC-Space to conduct integrated C2 of space forces. 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	215.266	308.134	0.000	0.000	0.000
Current President's Budget	211.266	238.377	426.525	0.000	426.525
Total Adjustments	-4.000	-69.757	426.525	0.000	426.525
• Congressional General Reductions		-68.600			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-4.000	-1.157	426.525	0.000	426.525

Change Summary Explanation

FY09: \$6.0M reprogramming to support increased Space Based Space Surveillance (SBSS) Block 10 program costs due to launch delay.
FY09: \$6.0M BTR to support increased SBSS program costs due to launch delay.
FY09: -\$10.0M BTR to support higher AF priorities.
FY10: -\$36.7M congressional program reduction to SBSS Follow-on
FY10: -\$30.0M congressional program reduction to Space Fence
FY10: -\$6.9M congressional program reduction to SST
FY10: +\$5M congressional program add for HANDS ION
FY10: Air Force requested a technical adjustment to the database transferring \$5M from PE 0604425F to PE 06303438F for HANDS ION
Note: The FY 2010 President's Budget submission did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A006: <i>Space-Based Space Surveillance</i>	143.139	144.242	185.915	0.000	185.915	210.011	186.282	127.520	7.337	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
THRUST AREA: Block 10 design, development, and risk reduction <i>FY 2009 Accomplishments:</i> In FY09: Completion of space vehicle and ground system integration and test (I&T) activities; completion of final system Functional & Physical Configuration Audits (FCA/PCA) <i>FY 2010 Plans:</i> In FY10: Block 10 system available for launch; continuation of necessary contractor support to accomplish on-orbit system check out	35.559	15.712	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>		PROJECT 65A006: <i>Space-Based Space Surveillance</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY11: Technical research, studies, and analyses for future space-based space situational awareness (SSA) sensor technology, risk reduction, and architecture modeling</p> <p><i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A</p>								
<p>THRUST AREA: Program Office and related support activities</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration</p> <p><i>FY 2010 Plans:</i> In FY10: Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration</p> <p><i>FY 2011 Base Plans:</i> In FY11: Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration</p> <p><i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A</p>				20.205	29.079	23.954	0.000	23.954
Accomplishments/Planned Programs Subtotals				143.139	144.242	185.915	0.000	185.915

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (12811): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 Air Force is finalizing its approach to acquire additional SSA capabilities via the SBSS Follow-on, minimizing program risk and capability gap while leveraging existing lessons learned. The Air Force will also begin risk reduction and concept development studies to support long-term mission capability improvements and technology transfer to industry.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 10 design and development	C/CPAF	Northrop Grumman Redondo Beach, CA	41.350	9.020	Nov 2009	0.000		0.000		0.000	0.000	50.370	0.000
Technical risk reduction, mission planning & mission data processing	SS/CPFF	MIT Lincoln Laboratory Lexington, MA	2.209	6.692	Jan 2010	0.000		0.000		0.000	0.000	8.901	0.000
Launch vehicle integration	MIPR	Space and Missile Systems Center Det. Kirtland AFB, NM	25.579	3.720	Nov 2009	0.000		0.000		0.000	0.000	29.299	0.000
Block 10 contractor ops & Interim Contract Support	SS/CPAF	Boeing Huntington Beach, CA	46.210	47.030	Nov 2009	20.500	Nov 2010	0.000		20.500	Continuing	Continuing	0.000
SBSS Follow-on Design & Development	TBD/TBD	TBD	7.586	38.701	Jun 2010	121.461	Nov 2010	0.000		121.461	Continuing	Continuing	0.000
Technology Transfer & Risk Reduction	TBD/TBD	TBD	0.000	10.000	Jan 2010	20.000	Nov 2010	0.000		20.000	Continuing	Continuing	0.000
Subtotal			122.934	115.163		161.961		0.000		161.961			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support, Technical Studies & Analysis, Systems Engineering & Integration	Various	Space and Missile Systems Center Los Angeles AFB, CA	20.205	29.079	Oct 2009	23.954		0.000		23.954	Continuing	Continuing	0.000
Subtotal			20.205	29.079		23.954		0.000		23.954			0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	143.139	144.242	185.915	0.000	185.915			0.000

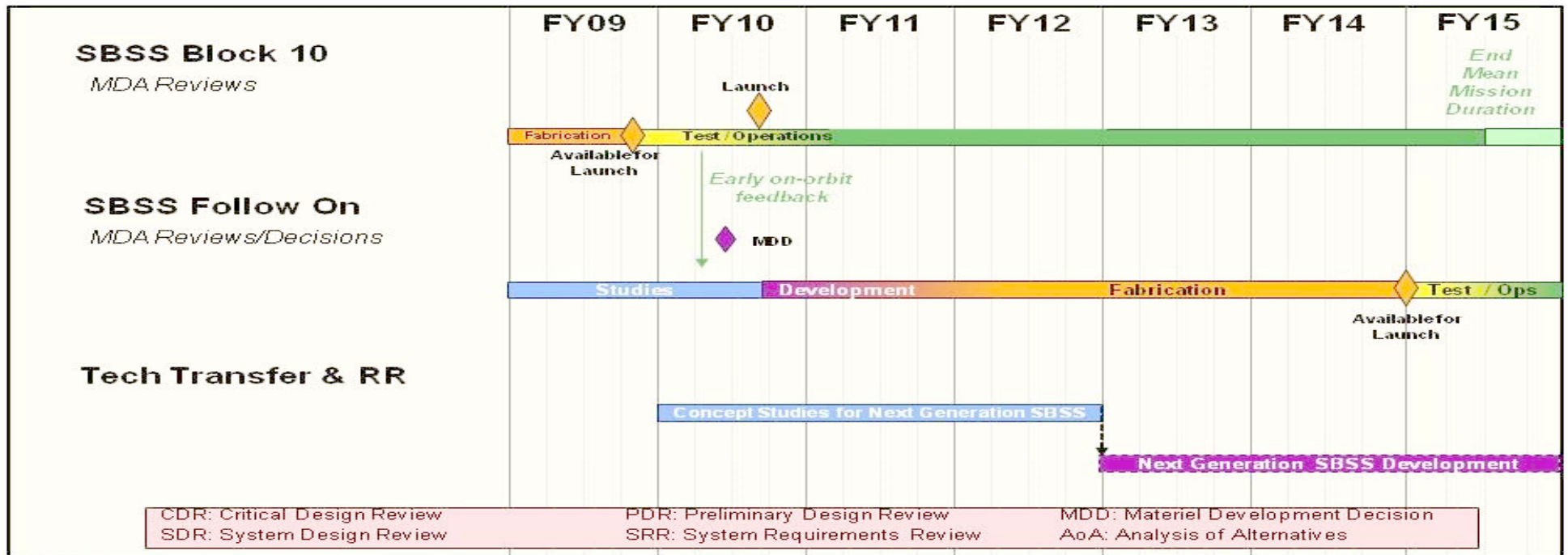
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>



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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A006: <i>Space-Based Space Surveillance</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Block 10 Available for Launch	4	2009	4	2009
SBSS Follow-on Materiel Development Decision (MDD)	2	2010	2	2010
SBSS Follow-on Authority to Proceed	3	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>				PROJECT 65A008: <i>Integrated Space Situation Awareness</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A008: <i>Integrated Space Situation Awareness</i>	42.620	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note 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.											
A. Mission Description and Budget Item Justification In FY10, efforts that were 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 the Net-Centric Sensors and Data Sources project.											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Major Thrust: ISSA Integrator and Test & Evaluation, Surveillance and Reconnaissance, Intelligence Products and Threat Processing, Environment, Capability Integration (includes Blue Force Status),...						42.620	0.000	0.000	0.000	0.000	
<i>FY 2009 Accomplishments:</i> In FY09: Continuation of activities listed above											
<i>FY 2010 Plans:</i> In FY10: N/A											
<i>FY 2011 Base Plans:</i> In FY11: N/A											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A008: <i>Integrated Space Situation Awareness</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A					
Accomplishments/Planned Programs Subtotals	42.620	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 08036790F: <i>Space Mods Space, Other Procurement, Air Force</i>	8.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

In FY10, efforts that were formerly in the ISSA project have transferred to the JSpOC Mission Ssystem (JMS) PE 35614F, except for the ESSA ACTD, which is now executed in the the Net-Centric Sensors and Data Sources project.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A008: <i>Integrated Space Situation Awareness</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ISSA Integrator, T&E	C/CPFF	Various Various	10.177	0.000		0.000		0.000		0.000	0.000	10.177	0.000
Surveillance and Reconnaissance	C/CPAF	Various Various	15.204	0.000		0.000		0.000		0.000	0.000	15.204	0.000
Intelligence Products and Threat Processing	Various	Booz Allen Hamilton Colorado Springs, CO; TBD	3.300	0.000		0.000		0.000		0.000	0.000	3.300	0.000
Environment	Various	Various Various	2.323	0.000		0.000		0.000		0.000	0.000	2.323	0.000
Capability Integration (includes Blue Force Status)	Various	Northrop Grumman, Azusa, CA Boeing, Seal Beach, CA; MIT Lincoln Laboratory...	3.050	0.000		0.000		0.000		0.000	0.000	3.050	0.000
ESSA ACTD	Various	MIT Lincoln Laboratory, Lexington, MA; ITSP, Colora...	1.264	0.000		0.000		0.000		0.000	0.000	1.264	0.000
Subtotal			35.318	0.000		0.000		0.000		0.000	0.000	35.318	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A008: <i>Integrated Space Situation Awareness</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and related support activities, such as, Technical Studies & Analysis, Systems Engineering & Integration	Various	Space and Missile Systems Center Los Angeles AFB, CA	7.302	0.000		0.000		0.000		0.000	0.000	7.302	0.000
Subtotal			7.302	0.000		0.000		0.000		0.000	0.000	7.302	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.620	0.000		0.000		0.000		0.000	0.000	42.620	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

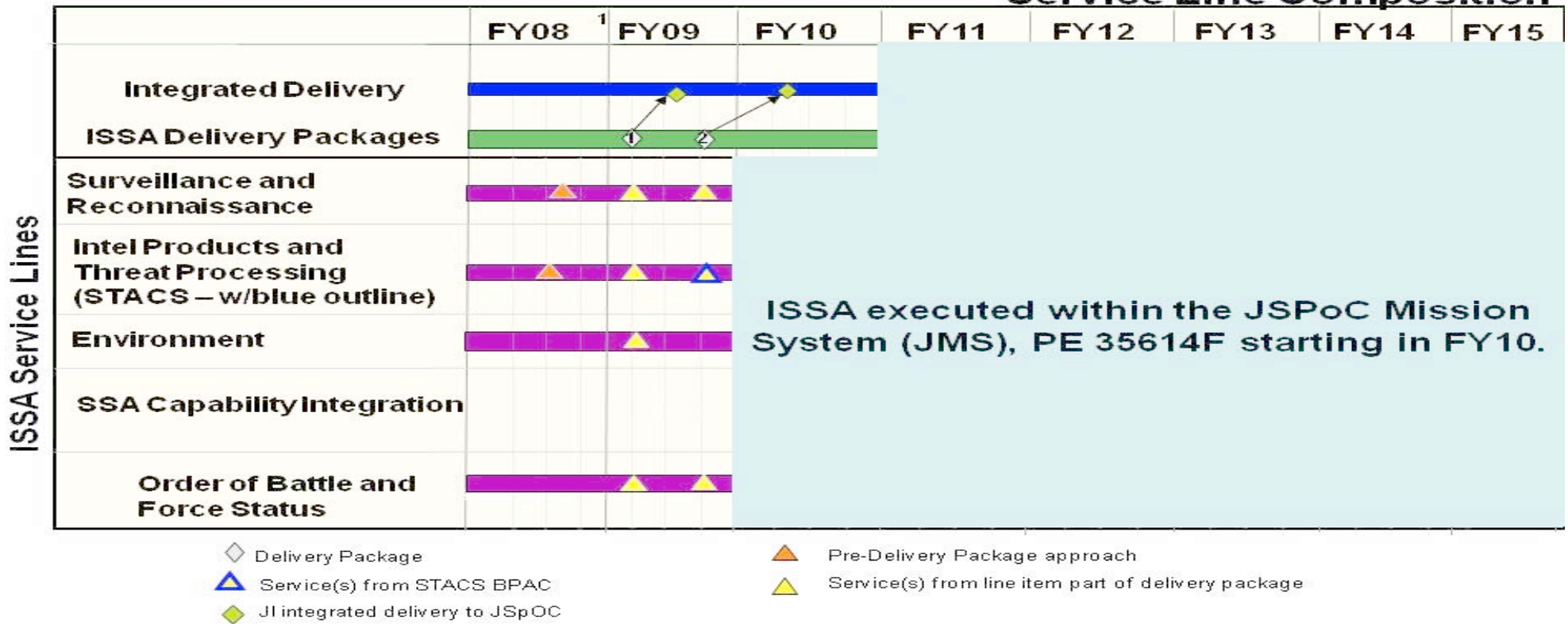
R-1 ITEM NOMENCLATURE

PE 0604425F: *Space Situation Awareness Systems*

PROJECT

65A008: *Integrated Space Situation Awareness*

**ISSA Delivery Package
 Schedule and Mission
 Service Line Composition**



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A008: <i>Integrated Space Situation Awareness</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Surveillance and Reconnaissance Ops Prototype Delivery	2	2009	4	2009
Intelligence Products & Threat Processing Ops Prototype Delivery	2	2009	4	2009
Environment Ops Prototype Delivery	2	2009	2	2009
Capability Integration Ops Prototype Delivery	2	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A009: <i>Space Fence</i>	25.507	60.228	164.790	0.000	164.790	242.023	264.949	334.928	204.202	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Space Fence will satisfy entry criteria to its DAE IPR in advance of Phase A PDR RFP release, and contractors will complete their Phase A SDR activities.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Post PDR Contract Award, the contractors will continue radar development and prototype activities, to include HW/SW Design, and conduct Site Surveys. Space Fence achieved Key Decision Point (KDP) A. Awarded three concept development contracts to conduct trade studies, begin analysis of system design and initial design of prototypes.</p> <p><i>FY 2010 Plans:</i> In FY 2010: The three prime contractors completed System Requirements Review (SRR). Government to form high performance team to develop and finalize the Capabilities Development Document (CDD). Contractors will conduct System Design Review (SDR) and demonstrate the prototypes.</p>	25.507	60.228	164.790	0.000	164.790

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Space Fence will satisfy entry criteria to its Defense Acquisition Executive (DAE) In-Process Review (IPR) in advance of Preliminary Design Review (PDR) Request For Proposal (RFP) release for follow-on contract awards of two contractors to continue radar development and prototype activities, to include HW/SW Design, and conduct Site Surveys and refine their design/prototypes and complete their Delta - System Design Review (SDR) activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	25.507	60.228	164.790	0.000	164.790

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (13366): <i>Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	62.219	201.434	0.000	0.000

D. Acquisition Strategy

The Air Force competitively awarded requirements definition contracts for the effort in FY 2006.

The Air Force competitively awarded three (3) Phase A System Design Review (SDR) contracts in June 2009 to Lockheed Martin, Northrop Grumman, and Raytheon. 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>				PROJECT 65A009: <i>Space Fence</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Design and development (Lockheed Martin)	C/FFP	Lockheed Martin Moorestown, NJ	7.430	12.570	Oct 2009	0.000		0.000		0.000	0.000	20.000	30.000
Design and development (Northrop Grumman)	C/FFP	Northrop Grumman Linthicum Heights, MD	7.430	12.570	Oct 2009	0.000		0.000		0.000	0.000	20.000	30.000
Design and development (Raytheon)	C/FFP	Raytheon Sudbury, MA	7.430	12.570	Oct 2009	0.000		0.000		0.000	0.000	20.000	30.000
Design and development (TBD Contractor 1)	C/FFP	TBD Contractor 1 TBD	0.000	0.645	Apr 2011	70.126	Apr 2011	0.000		70.126	Continuing	Continuing	0.000
Design and development (TBD Contractor 2)	C/FFP	TBD Contractor 2 TBD	0.000	0.645	Apr 2011	70.126	Apr 2011	0.000		70.126	Continuing	Continuing	0.000
Design evaluation (Lincoln Lab)	SS/FP	MIT Lincoln Laboratory Lexington, MA	4.300	4.500	Oct 2009	3.534	Oct 2010	0.000		3.534	Continuing	Continuing	0.000
Design evaluation (Mitre)	SS/FP	MITRE Corp. Bedford, MA	3.336	2.808	Oct 2009	2.892	Oct 2010	0.000		2.892	Continuing	Continuing	0.000
Subtotal			29.926	46.308		146.678		0.000		146.678			90.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	Various/ Various	Electronic Systems Center Various	3.764	9.378	Nov 2010	13.433	Nov 2011	0.000		13.433	Continuing	Continuing	0.000
Development review and management (Odyssey)	C/FP	Odyssey Systems Wakefield, MA	2.084	1.795	Jan 2010	1.849	Jan 2011	0.000		1.849	Continuing	Continuing	0.000
Development review and management (Jacobs)	C/FP	Jacobs Technology Tullahoma, TN	3.415	2.747	Dec 2009	2.830	Dec 2010	0.000		2.830	Continuing	Continuing	0.000
Development review and management (Prior)	C/FP	L3/Engility Billerica, MA	0.166	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Subtotal			9.429	13.920		18.112		0.000		18.112			0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.355	60.228	164.790	0.000	164.790			90.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

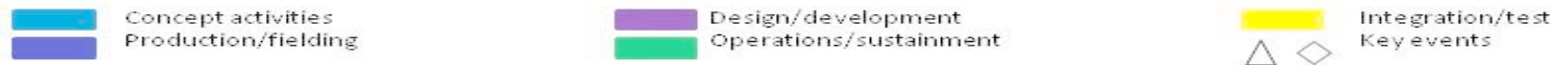
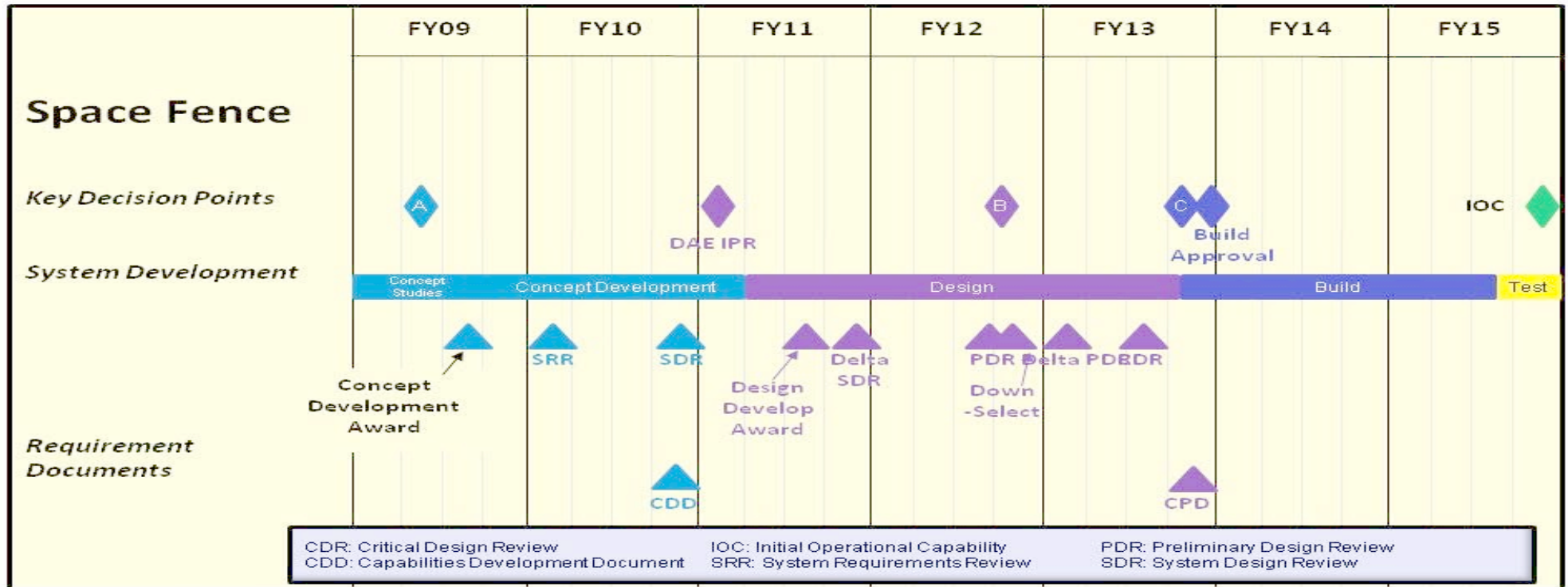
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R-1 Line Item #70

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A009: <i>Space Fence</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Key Decision Point A	2	2009	2	2009
Concept Definition Contract Award	3	2009	3	2009
System Requirements Review	1	2010	1	2010
Capability Development Document	4	2010	4	2010
System Design Review	4	2010	4	2010
Defense Acquisition Executive In-Process Review	1	2011	1	2011
Design Development Award	3	2011	3	2011
Delta System Design Review	4	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>				PROJECT 65A012: <i>Net-centric Sensors and Data Sources</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A012: <i>Net-centric Sensors and Data Sources</i>	0.000	18.357	24.435	0.000	24.435	10.447	12.982	12.424	7.217	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Net-centric Sensors and Data Sources efforts migrate the space surveillance network, non-traditional SSA 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 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 detect, evaluate, attribute space events. This effort builds upon and operationalizes 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Sensor & Data Source Integration & Exposure <i>FY 2009 Accomplishments:</i> In FY09: N/A <i>FY 2010 Plans:</i> In FY10: Research and analysis for sensor and data source roadmapping; traditional / non-traditional SSA sensor and data source exposure; program office related support activities, such as, Technical	0.000	18.357	24.435	0.000	24.435

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A012: <i>Net-centric Sensors and Data Sources</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Studies and Analysis, Systems Engineering and Integration, and Advanced Concept Technology Demonstrations (ACTDs) <i>FY 2011 Base Plans:</i> In FY11: Reserach and analysis for sensor and data source roadmapping; continuation of traditional / non-traditional SSA sensor and data source exposure; program office related support activities, such as, Technical Studies and Analysis, Systems Engineering and Integration, and ACTDs <i>FY 2011 OCO Plans:</i> In FY11 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.000	18.357	24.435	0.000	24.435

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (13721): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 an AFSPC provided prioritization list. The systems engineering team will provide high-level technical oversight support and assist in the proper execution of data exposure.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A012: <i>Net-centric Sensors and Data Sources</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Concept Definition Research and Analysis	Various	Various Various	0.000	4.659	Nov 2009	6.141	Nov 2010	0.000		6.141	Continuing	Continuing	Continuing
Sensor & Data Source Exposure	Various	Various Various	0.000	10.151	Nov 2009	13.381	Nov 2010	0.000		13.381	Continuing	Continuing	Continuing
Systems Engineering and Integration	Various	Various Various	0.000	2.500	Nov 2009	3.685	Nov 2010	0.000		3.685	Continuing	Continuing	Continuing
ESSA ACTD	Various	MIT Lincoln Laboratory, Lexington, MA APL, Laurel, MD	0.000	0.100	Nov 2009	0.000		0.000		0.000	0.000	0.100	0.000
Subtotal			0.000	17.410		23.207		0.000		23.207			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and related support activities, such as Technical Studies and Analysis, Systems Engineering and Integration	Various	Various Various	0.000	0.947	Oct 2009	1.228	Oct 2010	0.000		1.228	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A012: <i>Net-centric Sensors and Data Sources</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Subtotal			0.000	0.947		1.228		0.000		1.228				

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Project Cost Totals	0.000	18.357		24.435		0.000		24.435				

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

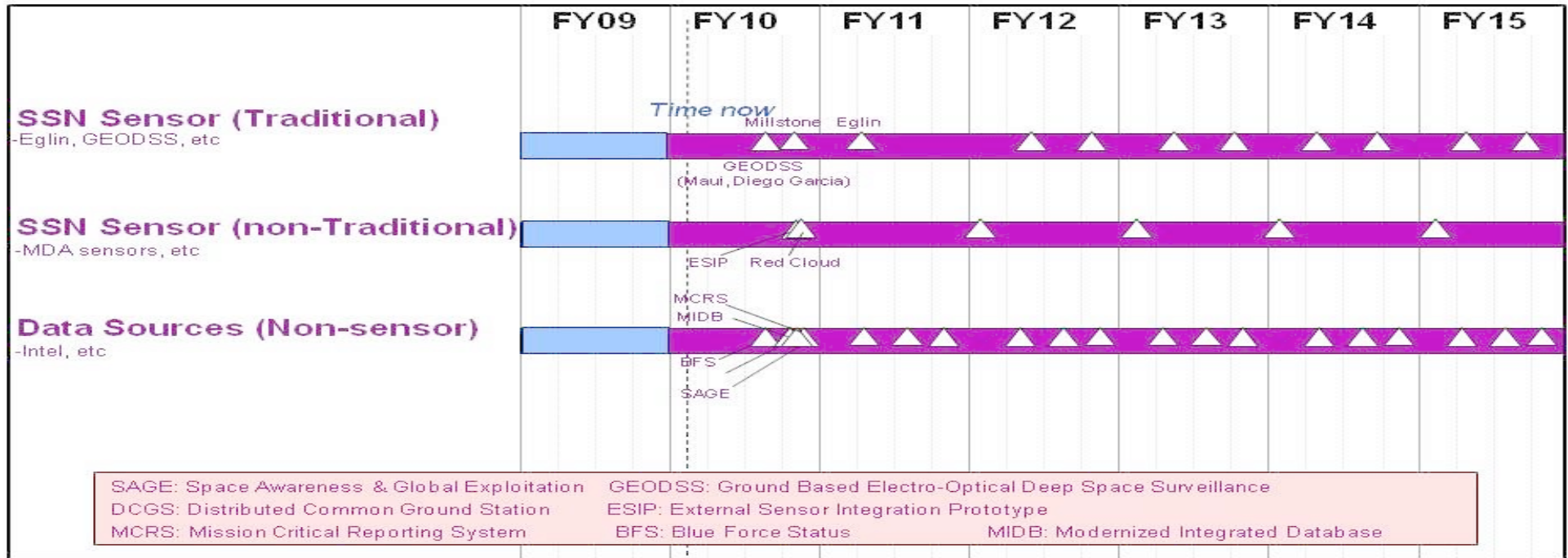
R-1 ITEM NOMENCLATURE

PE 0604425F: *Space Situation Awareness Systems*

PROJECT

65A012: *Net-centric Sensors and Data Sources*

Net-Centric Sensors & Data Sources



SAGE: Space Awareness & Global Exploitation GEODSS: Ground Based Electro-Optical Deep Space Surveillance
 DCGS: Distributed Common Ground Station ESIP: External Sensor Integration Prototype
 MCRS: Mission Critical Reporting System BFS: Blue Force Status MIDB: Modernized Integrated Database

Concept Activities/ Risk Reduction
 Design / Development
 Sensor & Data Source Service

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A012: <i>Net-centric Sensors and Data Sources</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
SSN Sensor (Traditional)	3	2010	2	2011
SSN Sensor (Non-traditional)	4	2010	4	2010
Data Sources (Non-sensor)	3	2010	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A037: <i>Space Surveillance Telescope</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A037: <i>Space Surveillance Telescope</i>	0.000	0.000	1.947	0.000	1.947	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Space Surveillance Telescope (SST) is a Defense Advanced Research Projects Agency (DARPA) program to develop an advanced ground-based optical system to enable detection and tracking of faint objects in deep space, while providing rapid, wide-area search capability. After demonstrating the successful application of state-of-the-art optical, curved charge couple device (CCD) and large telescope control technologies, DARPA involvement will end and AFSPC will conduct a Military Utility Assessment (MUA). This budget item funds post-DARPA development and system support to allow for testing and mission operations during the MUA. The SST system will become a contributing Space Surveillance Network sensor during the MUA and a dedicated sensor upon completion of the MUA.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Space Surveillance Telescope Transition to Operations <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: Develop technical data, technical orders, complete the technical baseline, and modify SST-Initial System during AFSPC's Military Utility Assessment (MUA) to optimize mission performance.	0.000	0.000	1.947	0.000	1.947

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A037: <i>Space Surveillance Telescope</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.947	0.000	1.947

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (13971): N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

This project transitions the SST system, located at White Sands Missile Range, Socorro, New Mexico, from DARPA to the Air Force. It will enable the Air Force to support the system and conduct the MUA beginning in FY11 by obtaining technical baseline documentation, mission communications, sustainment planning, and technical orders-none of which will be provided by DARPA.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A037: <i>Space Surveillance Telescope</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Space Surveillance Telescope Transition	TBD/TBD	MIT Lincoln Laboratory Lexington, MA	0.000	0.000		1.370	Nov 2010	0.000		1.370	0.000	1.370	0.000
Space Surveillance Telescope Data Delivery	C/CPAF	ITT Corporation Colorado Springs, CO	0.000	0.000		0.391	Nov 2010	0.000		0.391	0.000	0.391	0.000
Subtotal			0.000	0.000		1.761		0.000		1.761	0.000	1.761	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	Various/ Various	Electronic Systems Center Peterson AFB, CO	0.000	0.000		0.186	Nov 2010	0.000		0.186	0.000	0.186	0.000
Subtotal			0.000	0.000		0.186		0.000		0.186	0.000	0.186	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A037: <i>Space Surveillance Telescope</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	1.947	0.000	1.947	0.000	1.947	0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

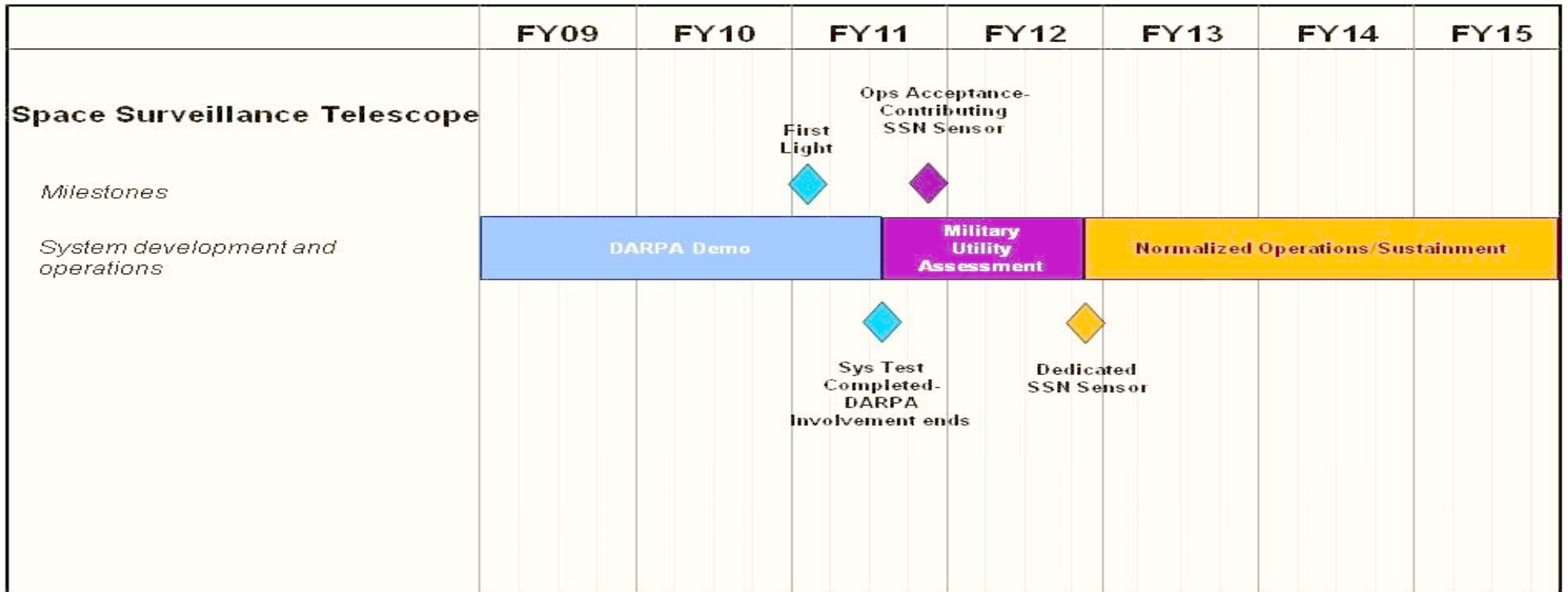
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604425F: *Space Situation Awareness Systems*

PROJECT

65A037: *Space Surveillance Telescope*



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604425F: *Space Situation Awareness Systems*

PROJECT

65A037: *Space Surveillance Telescope*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Initiate Military Utility Assessment (MUA)	3	2011	3	2011
SSN Contributing Sensor Ops Acceptance	4	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A038: <i>SSA Environmental Monitoring</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A038: <i>SSA Environmental Monitoring</i>	0.000	15.550	49.438	0.000	49.438	45.778	32.762	20.637	13.443	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Space Situational Awareness Environmental Monitoring (SSAEM) continues the key space environment measurements of the Defense Meteorological Satellite Program (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, GPS accuracy assurance, system anomaly resolution, attribution and responsive actions, and force protection from communication outages/degradation modulated by solar activity. The key component of SSAEM includes a space-based sensing capability to acquire space environment measurement data. SSAEM will fund risk reduction efforts for space sensors by leveraging existing prototypes, operational systems and Joint/Advanced Concept Technology Demonstrations (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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Replenishing critical space weather sensing capability de-manifested from next generation weather program <i>FY 2009 Accomplishments:</i> In FY2009: N/A. <i>FY 2010 Plans:</i> In FY2010: We are funding risk reduction efforts by leveraging Joint/Advanced Concept Technology Demonstrations (JCTDs/ACTDs). Refine and finalize acquisition/approach for the procurement of spacecraft and sensors in support of initial Key Performance Parameters (KPP) provided by Air Force	0.000	15.550	49.438	0.000	49.438

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A038: <i>SSA Environmental Monitoring</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Space Command. Provides funding for initial development of critical sensors. Funds program office and related support activities, such as Acquisition Planning, Technical Studies, Systems Engineering & Integration.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: We will continue funding risk reduction efforts. Provides funding for continued development of critical sensors and begins spacecraft development. Continue to fund program office and related support activities, such as Acquisition Planning, Technical Studies, Systems Engineering & Integration.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A.</p>					
Accomplishments/Planned Programs Subtotals	0.000	15.550	49.438	0.000	49.438

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (14172): N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

The space environment measurement data sources will be acquired through competitive contract awards. Studies are being conducted to determine the optimum concept to acquire environment measurement data sources. Existing sensors with high Technology Readiness Levels (TRL) will be leveraged. Hosting sensors on rides of opportunity will be a primary consideration, however a variety of other concepts will be considered also, within existing funding levels.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A038: <i>SSA Environmental Monitoring</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sensor and Spacecraft Development	TBD/TBD	TBD TBD	0.000	13.119	Mar 2010	47.229	Mar 2011	0.000		47.229	Continuing	Continuing	0.000
Subtotal			0.000	13.119		47.229		0.000		47.229			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	TBD/TBD	TBD TBD	0.000	2.431	Jan 2010	2.209	Oct 2010	0.000		2.209	Continuing	Continuing	0.000
Subtotal			0.000	2.431		2.209		0.000		2.209			0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	15.550		49.438		0.000		49.438			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

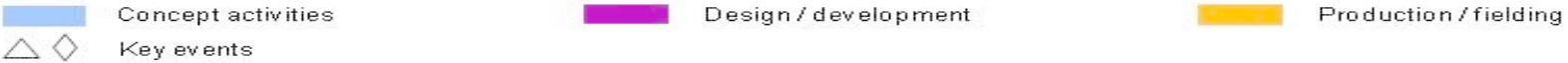
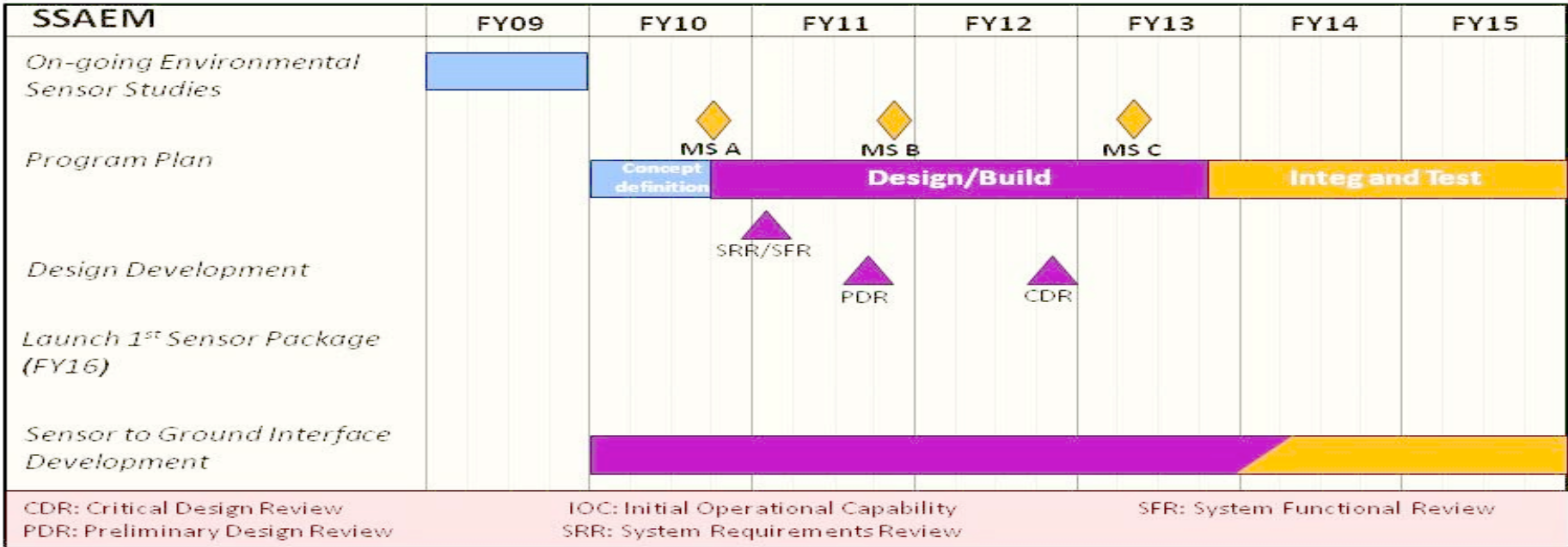
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604425F: <i>Space Situation Awareness Systems</i>	PROJECT 65A038: <i>SSA Environmental Monitoring</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604425F: *Space Situation Awareness Systems*

PROJECT

65A038: *SSA Environmental Monitoring*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Milestone A	4	2010	4	2010
Systems Requirements Review	1	2011	1	2011
Preliminary Design Review	3	2011	3	2011
Milestone B	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	42.173	11.107	25.937	0.000	25.937	47.690	78.631	76.793	11.528	Continuing	Continuing
655192: <i>Network & Sys -of-Sys Dev</i>	42.173	11.107	6.041	0.000	6.041	13.904	13.120	11.365	11.528	Continuing	Continuing
655193: <i>Electronic Attack Pod</i>	0.000	0.000	19.896	0.000	19.896	33.786	65.511	65.428	0.000	0.000	0.000

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. Additionally, this program element supports the development of an advanced electronic attack capability for use in Irregular Warfare scenarios against non-IADS targets such as communications networks and remote controlled improvised explosive devices.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	43.123	11.107	0.000	0.000	0.000
Current President's Budget	42.173	11.107	25.937	0.000	25.937
Total Adjustments	-0.950	0.000	25.937	0.000	25.937
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.950	0.000	25.937	0.000	25.937

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655192: <i>Network & Sys -of-Sys Dev</i>	42.173	11.107	6.041	0.000	6.041	13.904	13.120	11.365	11.528	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project concentrates on the overall systems engineering, modeling and simulation, architecture and network requirements development, effectiveness assessment and requirements allocation to component systems of the Airborne Electronic Attack (AEA) System of Systems (SoS). It also includes establishment and use of virtual test capabilities for system of systems effectiveness testing/evaluation for AEA, studies and technology risk mitigation demonstrations for AEA SoS components and AEA SoS battle management, and the development and maintenance of the Air Force electronic warfare capability investment strategy. These efforts are crucial in the development of critical electronic attack capabilities in support of Air Force and joint operations to include Global Strike and Persistent Global Attack Concepts of Operations (CONOPS).

The joint AEA SoS includes the Navy EA-6B and EA-18G core components; the Air Force Miniature Air Launched Decoy (MALD) and its stand-in jammer variant, MALD-J; the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration; Active Electronically Scanned Array (AESAs) radar equipped aircraft; potentially an unmanned recoverable stand-in jamming platform; potentially a manned low/mid frequency, high power component capable of location and reactive jamming suppression of enemy integrated air defense system (IADS) radars outside the ranges of the associated Surface-to-Air Missiles (SAMs) and non-IADS targets. Recent events have led to an increased focus on an advanced electronic attack capability for use in Irregular Warfare scenarios against non-IADS targets such as communications networks and remote controlled improvised explosive devices.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Apply systems engineering rigor to manage Air Force AEA program requirements, designs, and operational concepts.	33.904	7.609	4.541	0.000	4.541

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY2009: Developed and fabricated high power low/mid frequency phased array transmitters and advanced digital techniques generators, supported AF EW Roadmap development, and updated the AF EW Capability Investment Strategy with studies of common EW systems and analyses of AF EW infrastructure gaps. Define the network and framework of Air Force Electronic Warfare system of systems to ensure seamless integration of electronic attack, electronic protect and electronic surveillance from the unit through the theater levels of operation and engagement.</p> <p><i>FY 2010 Plans:</i> In FY2010: Demonstrate effectiveness of one instantiation of high power low/mid frequency phased array transmitters and digital techniques generator technologies against a typical IADs system; update AF EW Roadmap with latest information; update the AF EW Capability Investment Strategy with studies of common dispenser systems for a variety of aircraft and solutions to close the AF EW infrastructure gaps identified in the 2009 analysis; and conduct analysis to identify appropriate platform(s) to carry and operate the advanced electronic attack capability. Define the network and framework of Air Force Electronic Warfare system of systems to ensure seamless integration of electronic attack, electronic protect and electronic surveillance from the unit through the theater levels of operation and engagement.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Analyze contributions of multiple AEA SoS components to both IADS and non-IADS scenarios for both major warfare and irregular warfare; update AF EW Roadmap as directed by HQ AF; update the AF EW Capability Investment Strategy with studies approved by the sponsoring MAJCOMS in support of AF EW Roadmap initiatives. Define the network and framework of Air Force Electronic Warfare system of systems to ensure seamless integration of electronic attack, electronic protect and electronic surveillance from the unit through the theater levels of operation and engagement.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
<p>MAJOR THRUST: Provide capability planning to the Air Force electronic warfare portfolio. Constructive modeling and simulation and analysis management.</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Instantiated updated Defense Planning Guidance scenarios into digital modeling and simulation executable form to enable AF, other Services, and DoD to have common data base from which to analyze EW effectiveness against advanced threats and environments. Focused on IADS intensive scenarios</p> <p><i>FY 2010 Plans:</i> In FY2010: Instantiate updated non-IADS and irregular warfare scenarios into digital modeling and simulation executable form to enable AF, other Services, and DoD to have common data base from which to analyze EW effectiveness.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Conduct additional AEA SoS simulations to assess effectiveness of newly emerging/upgraded systems (EA-18G, MALD-J, EC-130H upgrades, etc.) operating together in stressing IADS environments.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		8.269	3.498	1.500	0.000	1.500
Accomplishments/Planned Programs Subtotals		42.173	11.107	6.041	0.000	6.041

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (14446): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>				PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEA system of systems engineering	C/CPFF	Various Various	24.472	5.184	Dec 2009	2.541		0.000		2.541	Continuing	Continuing	0.000
Low band array technology maturation	C/CPFF	Various Various	13.313	0.000		0.000		0.000		0.000	0.000	13.313	0.000
Mid band array technology maturation	C/CPFF	Various Various	7.891	0.000		0.000		0.000		0.000	0.000	7.891	0.000
Exciter technology maturation	C/CPFF	Various Various	6.738	0.000		0.000		0.000		0.000	0.000	6.738	0.000
Subtotal			52.414	5.184		2.541		0.000		2.541			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

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEA requirements support	MIPR	Various Various	4.307	1.125	Dec 2009	1.000		0.000		1.000	Continuing	Continuing	0.000
Subtotal			4.307	1.125		1.000		0.000		1.000			0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Requirements support includes contracted requirements refinement support for ACC and AF/A5R

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEA Virtual test/ AFEWCIS/Technology Demonstrations	Various/ Various	Various Various	30.715	3.498	Dec 2009	1.500		0.000		1.500	Continuing	Continuing	0.000
Subtotal			30.715	3.498		1.500		0.000		1.500			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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>				PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASC/XR (AEA Synch office)	Various/ Various	Various Various	4.649	1.300	Oct 2009	1.000		0.000		1.000	Continuing	Continuing	0.000
Subtotal			4.649	1.300		1.000		0.000		1.000			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.

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	92.085	11.107	6.041	0.000	6.041			0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604429F: *AIRBORNE ELECTRONIC
 ATTACK*

PROJECT

655192: *Network & Sys -of-Sys Dev*



AEA SoS Schedule

	FY 09			FY 10			FY 11			FY 12			FY 13			FY 14			FY 15																	
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
AEA SoS Engineering	[Blue bar]																																			
Architecture Development																																				
Ops/Tech Views update																																				
EW Assessments																																				
Working Group Support	[Blue bar]																																			
DoD Planning Scenarios																																				
SUPPRESSOR updates																																				
AEA SoS SUPPRESSOR improvements																																				
AEA EW Invest Strat, Virtual Test	[Blue bar]																																			
AF EW Invest Strategy																																				
M&S Dev/Events																																				
Tech Mat/Demos	[Blue bar]																																			
Array/Exciter Design																																				
Array/Exciter Build																																				
Risk Reduction Demos																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655192: <i>Network & Sys -of-Sys Dev</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continuing to support ongoing AEA systems engineering efforts	1	2009	4	2011
Low Band Array technology maturation build	3	2009	4	2009
Risk reduction demonstrations complete	1	2010	2	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655193: <i>Electronic Attack Pod</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655193: <i>Electronic Attack Pod</i>	0.000	0.000	19.896	0.000	19.896	33.786	65.511	65.428	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project will develop, acquire, and field advanced electronic attack capability to operate in an Irregular Warfare environment to counter non-Integrated Air Defense targets(e.g., counter communications, counter Remote Controlled Improvised Explosive Devices).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop, acquire, and field an advanced electronic attack capability to operate in an Irregular Warfare environment to counter non-IADS targets <i>FY 2009 Accomplishments:</i> In FY2009: N/A <i>FY 2010 Plans:</i> In FY2010: N/A <i>FY 2011 Base Plans:</i> In FY2011: Initiate development of an advanced electronic attack irregular warfare jamming capability. Non-IADS targets include (e.g., counter communications, counter Remote Controlled Improvised Explosive Devices). <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	0.000	0.000	19.896	0.000	19.896
Accomplishments/Planned Programs Subtotals	0.000	0.000	19.896	0.000	19.896

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655193: <i>Electronic Attack Pod</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207442F: <i>Other Appn</i>	0.000	0.000	0.000	0.000	0.000	6.000	61.000	61.000	0.000	0.000	0.000

D. Acquisition Strategy

A full and open competition is planned.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655193: <i>Electronic Attack Pod</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
EA System Development	TBD/TBD	TBD TBD	0.000	0.000		18.796		0.000		18.796	Continuing	Continuing	0.000
Subtotal			0.000	0.000		18.796		0.000		18.796			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655193: <i>Electronic Attack Pod</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000			0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASC/XR	Various/ Various	Various Various	0.000	0.000		1.100		0.000		1.100	Continuing	Continuing	0.000
Subtotal			0.000	0.000		1.100		0.000		1.100			0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000		19.896		0.000		19.896			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604429F: <i>AIRBORNE ELECTRONIC ATTACK</i>	PROJECT 655193: <i>Electronic Attack Pod</i>

Program is an FY11 New Start. Schedule is in development at this time.

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604429F: *AIRBORNE ELECTRONIC
ATTACK*

PROJECT

655193: *Electronic Attack Pod*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Schedule under development	2	2010	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	542.404	521.156	530.047	0.000	530.047	504.409	389.243	313.347	179.896	Continuing	Continuing
653616: <i>SBIRS High Element EMD</i>	542.404	521.156	511.847	0.000	511.847	487.609	389.243	313.347	179.896	Continuing	Continuing
65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>	0.000	0.000	18.200	0.000	18.200	16.800	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. The SBIRS system includes both space and ground elements. The space segment consists of Geosynchronous Earth Orbit (GEO) satellites, payloads hosted on satellites in Highly Elliptical Orbit (HEO), and Defense Support Program (DSP) satellites. The ground segment consists of both fixed and mobile data processing elements, communications infrastructure, and relay ground stations serving all SBIRS space elements. The HEO-1 and HEO-2 payloads are accepted and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations. Concept studies/activities may be implemented to investigate obsolescence issues, OPIR solutions to potential operational concerns, and future evolution paths of the ground and/or space segment.

(U) The Department of Defense terminated the Third Generation Infrared Surveillance (3GIRS) program (PE 0604443F) beginning in FY11. 3GIRS included development efforts for the Commercially Hosted Infrared Payload (CHIRP) demonstration. FY11 and FY12 funds supporting the CHIRP demonstration for technology maturation of space and ground technologies was moved to the SBIRS RDT&E PE under a separate project number. CHIRP will perform risk reduction and evaluation of Wide-Field-of-View (WFOV) IR staring and data processing technology to potentially evolve future SBIRS staring sensors and processing algorithms. An on-orbit demonstration will quantify performance levels of a WFOV sensor in an operational environment. CHIRP sensor testing will also provide Focal Plane Array (FPA) performance/calibration characteristics, validate WFOV staring algorithm performance in an operational environment, and investigate compatibility with current Overhead Persistent Infrared (OPIR) ground systems for missile warning, missile defense, and other mission areas.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>
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(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 and CHIRP demonstration.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	542.411	512.642	0.000	0.000	0.000
Current President's Budget	542.404	521.156	530.047	0.000	530.047
Total Adjustments	-0.007	8.514	530.047	0.000	530.047
• Congressional General Reductions		-2.776			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-2.510			
• Congressional Adds		13.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.007	0.000	530.047	0.000	530.047

Change Summary Explanation

FY10: Congressional Program Reduction of \$2.7M for Federally Funded Research & Development Center (FFRDC)

FY10: Congressional Recissions of -2.5M for Revised Economic Assumptions

FY10: Congressional Increase of \$13.8M for Data Processing/Exploitation

FY11: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant matter.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
653616: <i>SBIRS High Element EMD</i>	542.404	521.156	511.847	0.000	511.847	487.609	389.243	313.347	179.896	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. The SBIRS system includes both space and ground elements. The space segment consists of Geosynchronous Earth Orbit (GEO) satellites, payloads hosted on satellites in Highly Elliptical Orbit (HEO), and Defense Support Program (DSP) satellites. The ground segment consists of both fixed and mobile data processing elements, communications infrastructure, and relay ground stations serving all SBIRS space elements. The HEO-1 and HEO-2 payloads are accepted and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations. Concept studies/activities may be implemented to investigate obsolescence issues, OPIR solutions to potential operational concerns, and future evolution paths of the ground and/or space segment.

(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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue EMD contracts for Space and Ground segment development, concept studies/activities for obsolescence issues.	542.404	521.156	511.847	0.000	511.847

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Office and related support activities (to include SETA), technical analysis and independent verification and validation of contractor. Continue Systems Engineering and Integration (SE&I). <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	542.404	521.156	511.847	0.000	511.847

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0305915F: <i>BA-03, Other Procurement</i>	80.168	2.000	24.878	0.000	24.878	39.521	24.810	3.601	4.980	0.000	0.000
• PE 0305915F (1): <i>BA-05, P-30, Missile Procurement</i>	1,832.976	466.456	975.709	0.000	975.709	1,313.407	785.346	107.598	109.223	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Aerospace Corp	TBD/TBD	Aerospace Corp El Segundo CA	322.048	32.374		24.871		0.000		24.871	42.763	422.056	422.056	
Program Management Support	Various/ Various	Various Various	144.560	17.288		11.878		0.000		11.878	28.551	202.277	202.277	
Systems Engineering and Integration (SEI).	TBD/TBD	TBD TBD	0.000	12.750		13.195		0.000		13.195	31.920	57.865	57.865	
Subtotal			466.608	62.412		49.944		0.000		49.944	103.234	682.198	682.198	

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7,287.006	521.156		511.847		0.000		511.847	2,096.973	10,416.982	10,416.982

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

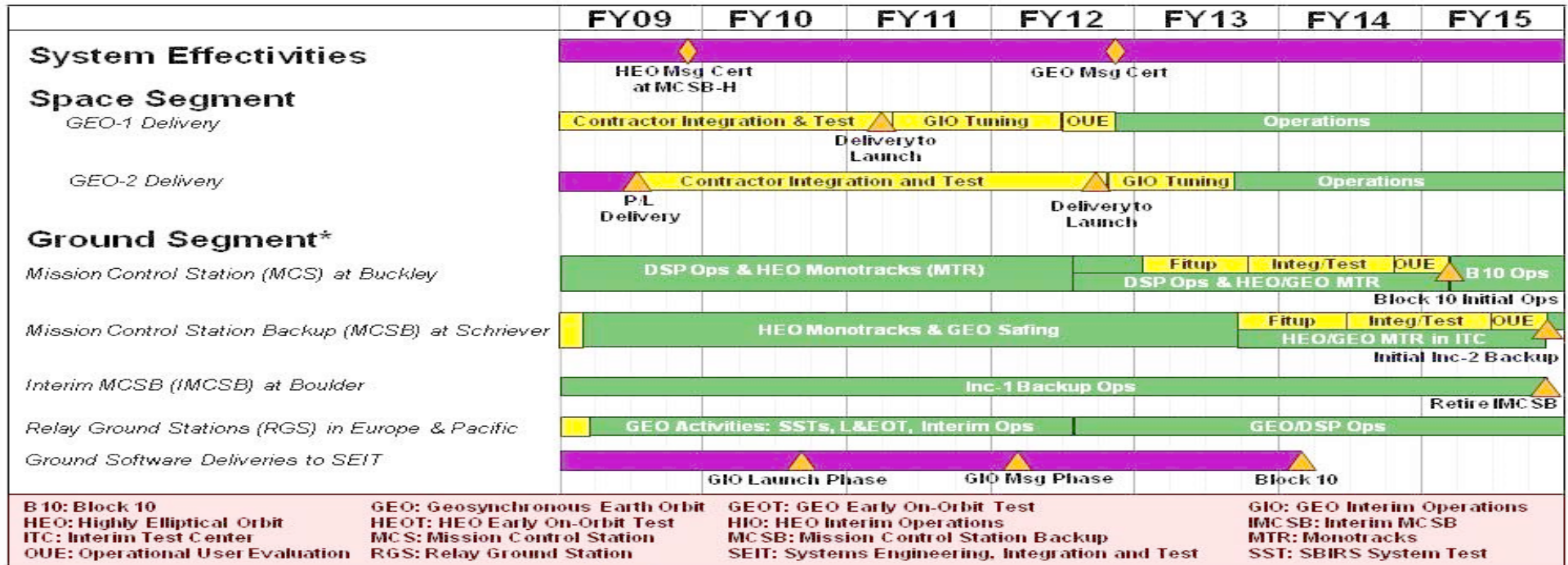
3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604441F: Space Based Infrared Systems (SBIRS) High EMD

PROJECT

653616: SBIRS High Element EMD



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

*Denotes dates are under review pending the determination of ground delivery/implementation strategy

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
GEO-1 SPA Software Item Qualification Test (SIQT) Complete	1	2009	1	2009
HEO-1 Message Certification	1	2009	1	2009
GEO-2 Payload delivery to prime for integration with spacecraft	3	2009	3	2009
HEO Message Certification at MCSB-H	4	2009	4	2009
HEO-2 Operation Acceptance	4	2009	4	2009
GEO-1 TVAC Closed Door Test	4	2009	1	2010
GEO Interim Operations (GIO) Software Delivery for Launch	3	2010	3	2010
GEO-1 FIST Complete	3	2010	3	2010
GEO-1 Satellite Delivery	1	2011	1	2011
GEO-2 BIST-2 Complete	1	2011	2	2011
GEO-2 Acoustic Test Complete	2	2011	2	2011
GEO-1 P/L Calibration and Tuning	2	2011	4	2011
GEO-2 TVAC Closed Door Test	3	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>				PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>	0.000	0.000	18.200	0.000	18.200	16.800	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) The Department of Defense terminated the Third Generation Infrared Surveillance (3GIRS) program (PE 0604443F) beginning in FY11. 3GIRS included development efforts for the Commercially Hosted Infrared Payload (CHIRP) demonstration. FY11 and FY12 funds supporting the CHIRP demonstration for technology maturation of space and ground technologies was moved to the SBIRS RDT&E PE under a separate project number.

(U) CHIRP will perform risk reduction and evaluation of Wide-Field-of-View (WFOV) IR staring and data processing technology to potentially evolve future SBIRS staring sensors and processing algorithms. An on-orbit demonstration will quantify performance levels of a WFOV sensor in an operational environment. CHIRP sensor testing will also provide Focal Plane Array (FPA) performance/calibration characteristics, validate WFOV staring algorithm performance in an operational environment, and investigate compatibility with current Overhead Persistent Infrared (OPIR) ground systems for missile warning, missile defense, and other mission areas.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD) because it funds the development activities for the CHIRP demonstration.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue contracts for Commercially Hosted Infrared Payload (CHIRP) demonstration and related support activities. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A	0.000	0.000	18.200	0.000	18.200

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Demonstrate CHIRP on-orbit operations to include fusion of CHIRP data with DSP and other OPIR systems. Collect and archive on-orbit data against cooperative targets and continue to mature WFOV algorithms. Continue Program Office and related support activities (to include SETA). Continue Systems Engineering and Integration (SE&I).</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	18.200	0.000	18.200

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (15452): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Continuation of risk reduction and evaluation of WFOV IR staring and data processing technology within CHIRP will be performed through contracts previously funded by the 3GIRS program.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WFOV IR staring technologies risk reduction activities	Various/ Various	Various Various	0.000	0.000		15.600		0.000		15.600	14.200	29.800	0.000
Subtotal			0.000	0.000		15.600		0.000		15.600	14.200	29.800	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program office, developmental planning, and technical support including Federally Funded Research and Development Center (FFRDC/SEAT)	TBD/TBD	TBD TBD	0.000	0.000		2.600		0.000		2.600	2.600	5.200	0.000
Subtotal			0.000	0.000		2.600		0.000		2.600	2.600	5.200	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	18.200	0.000	18.200	16.800	35.000	0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

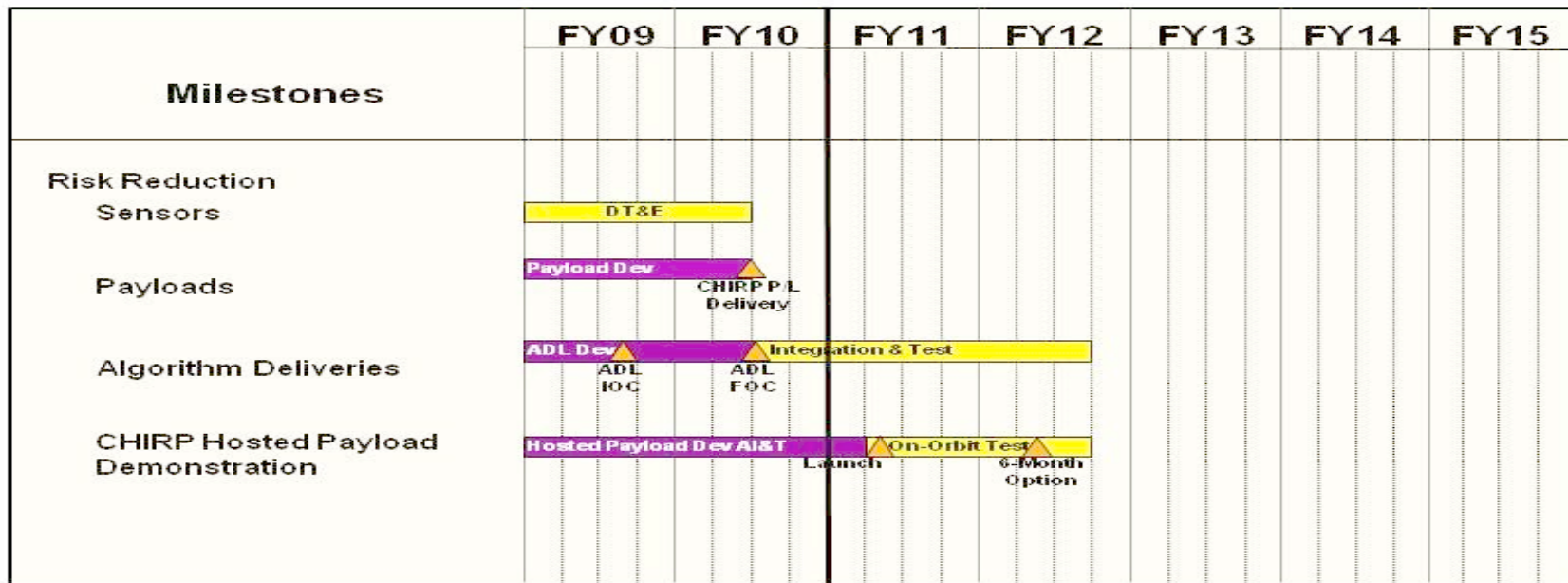
3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604441F: *Space Based Infrared Systems (SBIRS) High EMD*

PROJECT

65A040: *Commercially Hosted Infrared Payload (CHIRP)*



AI&T: Assembly, Integration & Test ADL: Algorithm Development Lab AoA: Analysis of Alternatives CDD: Capability Development Document
 DT&E: Development Test & Eval ICD: Initial Capabilities Document IOC: Initial Operational Capability ITB: Integrated Test Bed

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

Activities prior to FY11 funded in PE 0604443F, Third Generation Infrared Surveillance (3GIRS)

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Space Based Infrared Systems (SBIRS) High EMD</i>	PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Algorithm Deliveries	1	2011	1	2011
Commercially Hosted IR Payload (CHIRP) Launch	2	2011	2	2011
CHIRP Flight Demo	2	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.953	73.369	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
65A020: 3GIRS	0.953	73.369	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) The Department of Defense terminated the Third Generation Infrared Surveillance (3GIRS) program beginning in FY11.

(U) 3GIRS included development efforts for the Commercially Hosted Infrared Payload (CHIRP) demonstration. CHIRP efforts will continue through completion. The FY11 and FY12 funds needed to conduct the CHIRP demonstration for technology maturation of space and ground technologies were moved to the Space Based Infrared Systems (SBIRS) program, PE 0604441F under a separate project number (A040).

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funded the development activities for evolving the next generation of missile warning satellites.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.953	143.169	0.000	0.000	0.000
Current President's Budget	0.953	73.369	0.000	0.000	0.000
Total Adjustments	0.000	-69.800	0.000	0.000	0.000
• Congressional General Reductions		-69.800			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 65A020: 3GIRS

Congressional Add: *Ground demonstration of Ball Aerospace Advanced Staring Infrared Testbed (ASIRT) infrared sensor.*

Congressional Add Subtotals for Project: 65A020

Congressional Add Totals for all Projects

	FY 2009	FY 2010
	0.953	0.000
	0.953	0.000
	0.953	0.000

Change Summary Explanation

FY10: Congressional Program Reduction of \$69.8M removed 3GIRS development efforts not associated with CHIRP

FY11: The FY 2010 President's Budget submittal did not reflect the FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner. NOTE: FY11 and FY12 CHIRP funds moved to SBIRS PE 0604441F.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
65A020: <i>3GIRS</i>	0.953	73.369	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Alternative Infrared Satellite System (AIRSS) mission is to provide a missile warning capability to warn of ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace awareness and technical intelligence missions. As a result of the Nunn-McCurdy certification for the Space Based Infrared System High (SBIRS High) program, the USD(AT&L), directed the DoD Executive Agent for Space to plan for a new program for space-based Overhead Non-Imaging Infrared (ONIR) that generates competition for the SBIRS GEO 3 satellite and exploits alternative technologies. This program will pursue an approach with acceptable technical risk that offers, at a minimum, Defense Support Program (DSP)-like missile warning capability and can ensure a launch availability date of FY2015. In FY2007, the program office awarded a number of contracts for system definition, in preparation for the May 2008 Key Decision Point-B for the new AIRSS system, including flight and ground demonstrations. Contract deliverables will define the geosynchronous warning satellite(s) to support missile detection and missile defense; define the ground systems including legacy interfaces. In all cases, particular attention will be given to identifying key enabling technologies, ground system trades, allocation of requirements to sub-systems, identification of risk areas, and major costs.

This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities of an alternative to the SBIRS High program.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue contracts for Commercially Hosted Infrared Payload (CHIRP) demonstration. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A	0.000	73.369	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Continue CHIRP payload development and integration onto commercial bus. Continue development and test of mission data processing to mature WFOV algorithms and technologies. Continue Program Office and related support activities (to include SETA). Continue Systems Engineering and Integration (SE&I).</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A (funds moved to SBIRS PE 0604441F)</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>						
Accomplishments/Planned Programs Subtotals		0.000	73.369	0.000	0.000	0.000
		FY 2009	FY 2010			
<p>Congressional Add: Ground demonstration of Ball Aerospace Advanced Staring Infrared Testbed (ASIRT) infrared sensor.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above listed activities</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>		0.953	0.000			
Congressional Adds Subtotals		0.953	0.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604441F: <i>Space Based Infrared Systems, BPAC A040, RDT&E</i>	0.000	0.000	18.200	0.000	18.200	16.800	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

CHIRP will perform a launch and on-orbit demonstration starting in FY11. FY11 and FY12 activities will be funded within PE 0604441F, Space Based Infrared Systems (SBIRS).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WFOV IR staring technologies risk reduction activities	Various/ Various	Various Various	96.911	63.714		0.000		0.000		0.000	0.000	160.625	Continuing
Congressional Add: ASIRT	TBD/FFP	Ball Aerospace Boulder, CO	0.953	0.000		0.000		0.000		0.000	0.000	0.953	0.953
System Engineering and Definition	Various/ Various	Various Various	32.153	0.000		0.000		0.000		0.000	0.000	32.153	32.153
Subtotal			130.017	63.714		0.000		0.000		0.000	0.000	193.731	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program office, developmental planning, and technical support including federally funded research and development center (FFRDC/SETA)	Various/ Various	Various Various	13.898	9.655		0.000		0.000		0.000	0.000	23.553	Continuing
Subtotal			13.898	9.655		0.000		0.000		0.000	0.000	23.553	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>
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Support (\$ in Millions)

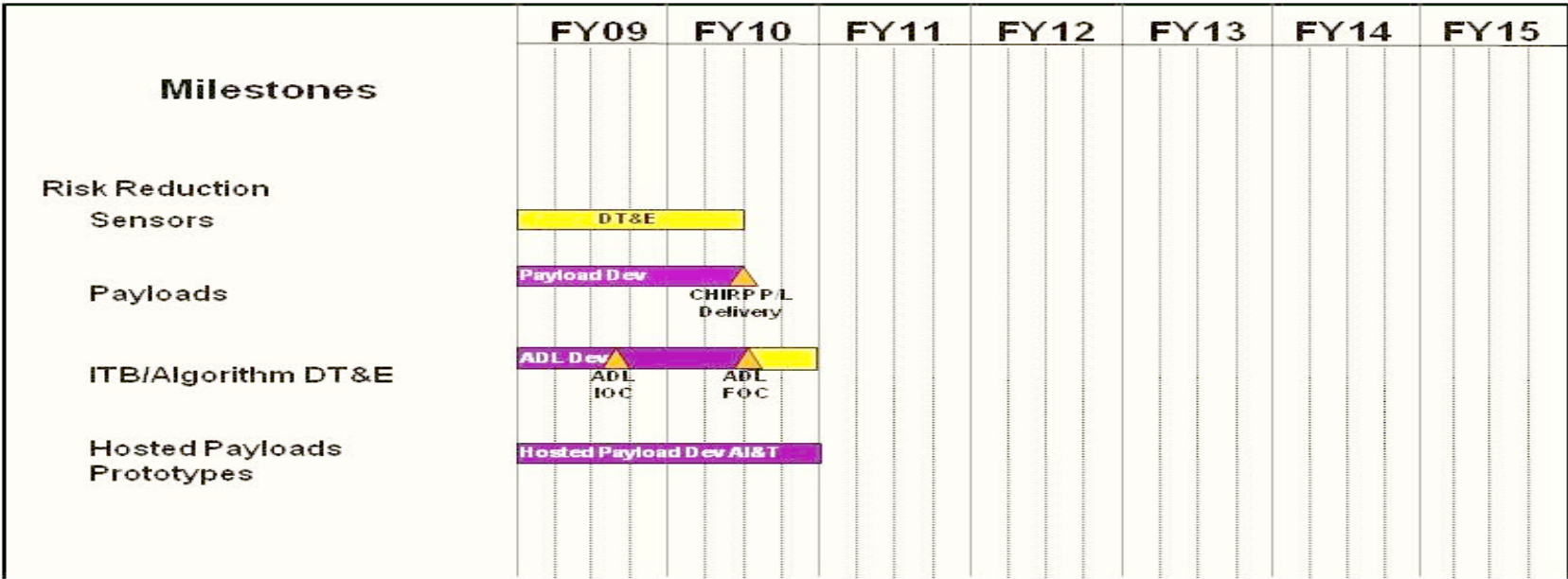
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			143.915	73.369		0.000		0.000		0.000	0.000	217.284	

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604443F: <i>Third Generation Infrared Surveillance (3GIRS)</i>	PROJECT 65A020: <i>3GIRS</i>



AI&T: Assembly, Integration & Test **ADL: Algorithm Development Lab** **AoA: Analysis of Alternatives** **CDD: Capability Development Document**
DT&E: Development Test & Eval **ICD: Initial Capabilities Document** **IOC: Initial Operational Capability** **ITB: Integrated Test Bed**

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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604443F: *Third Generation Infrared Surveillance (3GIRS)*

PROJECT

65A020: *3GIRS*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction Sensors DT&E	1	2009	2	2010
CHIRP Payload Delivery	3	2010	3	2010
Algorithm DT&E Deliveries	3	2009	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	12.088	18.671	6.693	0.000	6.693	5.563	4.973	4.966	3.529	Continuing	Continuing
653133: <i>Armament Subsystems</i>	12.088	11.986	1.215	0.000	1.215	1.222	1.225	1.194	1.154	Continuing	Continuing
655361: <i>Stores-Aircraft Interface</i>	0.000	6.685	5.478	0.000	5.478	4.341	3.748	3.772	2.375	Continuing	Continuing

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 insensitive explosive fills, 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 (OFP) 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 functions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	2.089	18.671	0.000	0.000	0.000
Current President's Budget	12.088	18.671	6.693	0.000	6.693
Total Adjustments	9.999	0.000	6.693	0.000	6.693
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	9.999	0.000	6.693	0.000	6.693

Change Summary Explanation

Other Adjustments in FY 2009 primarily reflects funds (\$8.569M) transferred to support the Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD).

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
653133: <i>Armament Subsystems</i>	12.088	11.986	1.215	0.000	1.215	1.222	1.225	1.194	1.154	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 fills 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 (JOCCG) 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: The Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD) is a FY08-10 USSTRATCOM sponsored joint USAF/USN program.	8.569	9.930	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>		PROJECT 653133: <i>Armament Subsystems</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Conduct Phase 3 characterization sled testing, continue supplier initiative effort with ManTech, and continue TATB qualification effort</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue TATB qualification effort</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
<p>MAJOR THRUST: Design, prototype, test and develop various Munitions Material Handling Equipment (MMHE) projects for AF use;</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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. Completed 23 Munitions Materiel Handling Equipment (MMHE) support equipment projects. Completion of an MMHE project entails solidifying technical requirements from user inputs, developing CAD models of prototype concepts, developing shop drawings for approved prototype concepts, designing and constructing prototype hardware for user test, documenting test and analysis results, developing Technical Data Packages with finalized drawings, and developing procedures to inspect and use the new/modified equipment. Fabricated 29 prototypes for test and evaluation purposes. Completed thirteen 13 first article equipment fabrications for drafting verification and delivery to Air Force units for additional test and evaluation. Provided F-22 program with equipment for loading internal bomb bay. Provided F-35 program with equipment to test and evaluate various pylons and adapters. Provided direct customer support through customer support visits to Tulsa ANG, Fort Smith ANG, Barksdale, Whiteman, Minot, Ellsworth, Edwards, Creech, Nellis, Dyess AFB</p>				1.310	1.318	0.515	0.000	0.515

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>		PROJECT 653133: <i>Armament Subsystems</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Preparation of the IM Strategic Plan; Successful completion of the ESPE initiative in support of BLU-122 production</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
<p>MAJOR THRUST: Medium Caliber Ammunition -- requirements generation</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Define, characterize, and prioritize current and future requirements for medium caliber ammunition.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>				0.250	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals				12.088	11.986	1.215	0.000	1.215

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0604635F: <i>Ground Attack Weapons Fuze Development</i>	0.000	18.778	32.513	0.000	32.513	27.038	5.208	0.000	0.000	0.000	0.000

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 EMD.
MMHE and container project activities performed in-house with limited technical and analysis contract support.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Fuzes (JPF) -- legacy weapons, characterization	SS/FPI	Kaman Precision Products Inc Orlando, FL	9.560	0.036	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	8.699
ESPE	TBD/TBD	Air Force Research Lab/ RWF Eglin AFB, FL	0.295	0.000		0.000		0.000		0.000	0.000	0.295	Continuing
IM	TBD/TBD	Air Force Research Lab RWM Eglin AFB, FL	0.245	0.000		0.000		0.000		0.000	0.000	0.245	0.000
HTVSF JCTD - Competitor 1	C/FFP	Alliant Techsystems Minneapolis, MN	5.544	3.809		0.000		0.000		0.000	0.000	9.353	0.000
HTVSF JCTD - Competitor 2	C/FFP	Thales Electronics Basingstoke, UK	5.669	3.809		0.000		0.000		0.000	0.000	9.478	0.000
CDRS -- Data Management	MIPR	EDSC Eglin AFB, FL	0.013	0.007		0.006		0.000		0.006	Continuing	Continuing	Continuing
MMHE -- Prototypes	TM	Prototype Fabrication Shop Eglin AFB, FL	0.699	0.209		0.120		0.000		0.120	Continuing	Continuing	Continuing
TATB Qualification, source 1	MIPR	BAE Holston TN	0.278	0.040		0.350		0.000		0.350	0.350	1.018	0.000
TATB Qualification, source 2	MIPR	ATK Radford VA	0.126	0.040		0.350		0.000		0.350	0.350	0.866	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>				PROJECT 653133: <i>Armament Subsystems</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			22.429	7.950		0.826		0.000		0.826			

Remarks
Kaman Dayron changed its name to Kaman Precision Products

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IM, ESPE	TBD/TBD	AAC XR Eglin AFB, FL	2.605	0.000		0.000		0.000		0.000	0.000	2.605	1.761
A&AS contract support	C/CPAF	TEAS TAMS Eglin AFB, FL	0.604	1.119		0.235		0.000		0.235	0.000	1.958	0.000
Fuzes -- Progam Office support	TBD/TBD	679 ARSS Eglin AFB	0.539	0.994		0.000		0.000		0.000	0.000	1.533	0.000
External Support (HTVSF,JPF)	Various/ Various	ManTech Stratcom AFOTEC Safety Various	1.544	0.731		0.000		0.000		0.000	0.000	2.275	0.000
MMHE -- Program Office support/analysis	TBD/TBD	688 ARSS Eglin AFB, FL	2.561	0.921		0.154		0.000		0.154	Continuing	Continuing	Continuing
	C/FFP	Booz Allen Hamilton	0.250	0.000		0.000		0.000		0.000	0.000	0.250	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>					PROJECT 653133: <i>Armament Subsystems</i>				

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Medium Caliber Ammunition -- requirements generation		Various											
Subtotal			8.103	3.765		0.389		0.000		0.389			

Remarks
TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Fuzes -- target build; sled and flight tests	TBD/TBD	46th Test Wing Various	2.158	0.271		0.000	Oct 2010	0.000		0.000	Continuing	Continuing	Continuing
Subtotal			2.158	0.271		0.000		0.000		0.000			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.690	11.986		1.215		0.000		1.215			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

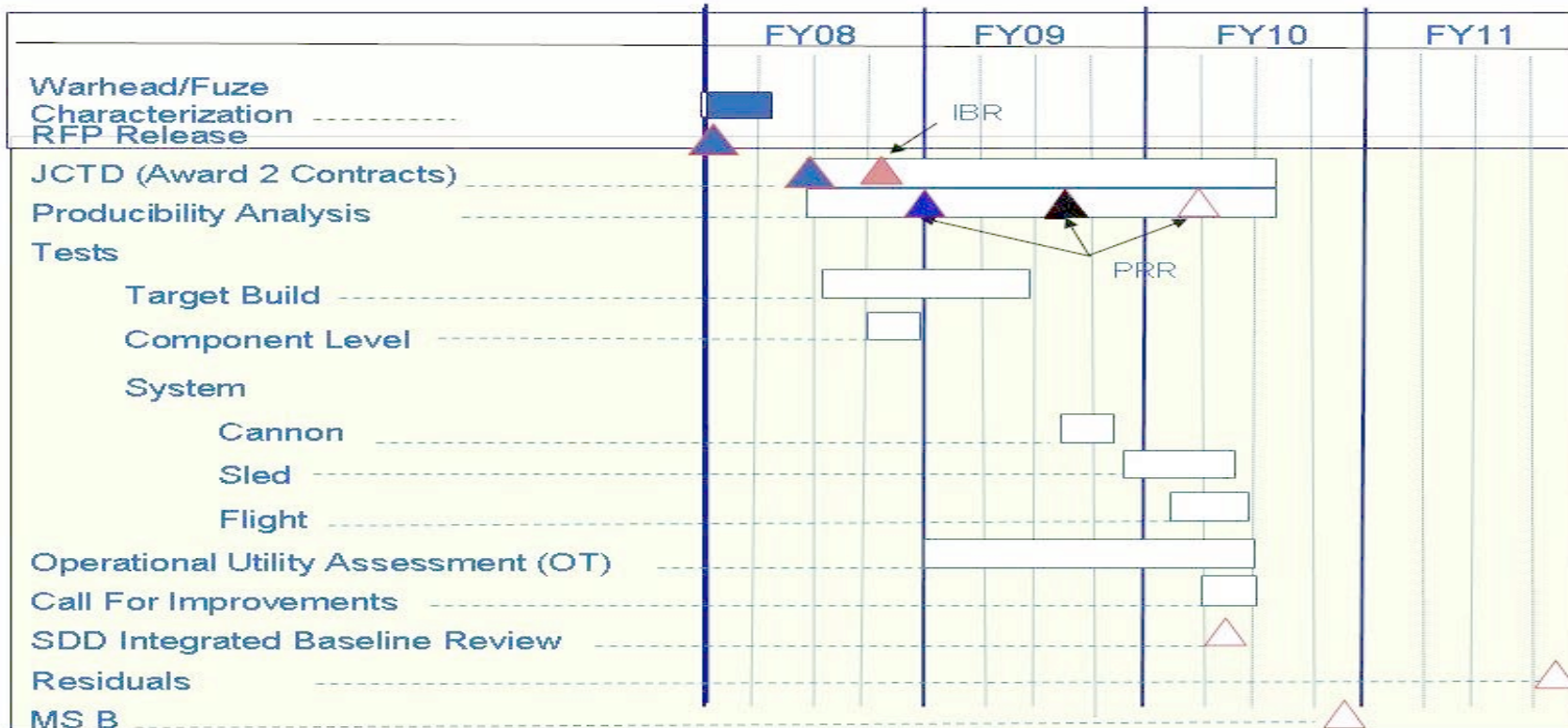
PE 0604602F: *Armament/Ordnance Development*

PROJECT

653133: *Armament Subsystems*

Hard Target Void Sensing Fuze

JCTD Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>

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.

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 653133: <i>Armament Subsystems</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FUZES: JPF Integration on Legacy Weapons & Other Fuze Activity	1	2009	4	2011
HTVSF JCTD	1	2009	4	2010
HTVSF JCTD - Downselect	4	2010	4	2010
Study, design, and test MMHE	1	2009	4	2011
Support CDRS Activities/Meetings	1	2009	4	2011
TATB source qualification effort (JPF)	4	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 655361: <i>Stores-Aircraft Interface</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655361: <i>Stores-Aircraft Interface</i>	0.000	6.685	5.478	0.000	5.478	4.341	3.748	3.772	2.375	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 now reside in PE64602F and BPAC 655361. The new project number is established to provide greater visibility.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because it supports armament integration, an SDD-type activity.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Conduct stores-aircraft interface upgrades and standards development to include the Universal Armament Interface (UAI). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: 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 Operational Flight Program (OFP) updates. Development and configuration management of UAI	0.000	6.685	5.478	0.000	5.478

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 655361: <i>Stores-Aircraft Interface</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
standards in response to user needs, working group management, technical meetings and workshops, risk reduction studies, common mission planning, integration support and procurement of one test tool to complete CV01 and continue CV02.					
<i>FY 2011 Base Plans:</i> In FY 2011: Development and configuration management of UAI standards in response to user needs, working group management, technical meetings and workshops, risk reduction studies, common mission planning, integration support and procurement of one test tool to complete CV02 and continue CV03.					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	0.000	6.685	5.478	0.000	5.478

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0605011: <i>Aging Aircraft</i>	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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. The current contracts are active to June 2010 and acquisition for continuation of the program in 3rd QTR 2010 is in process.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>					PROJECT 655361: <i>Stores-Aircraft Interface</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interface Control Document (ICD) Development/Updates	SS/CPFF	Boeing Northrop Grumman Lockheed Martin Raytheon Various	0.000	5.014	Feb 2010	4.092	Jan 2011	0.000		4.092	Continuing	Continuing	Continuing
UAI Common Component	SS/CPFF	Northrop Grumman Hollywood MD	0.000	0.786	Mar 2010	0.639	Nov 2010	0.000		0.639	Continuing	Continuing	Continuing
Certification Tool	SS/CPFF	Boeing Northrop Grumman Lockheed Martin Raytheon Various	0.000	0.197	Feb 2010	0.197	Jan 2011	0.000		0.197	Continuing	Continuing	Continuing
Subtotal			0.000	5.997		4.928		0.000		4.928			

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration/Program Support	Various/ Various	Various Various	0.000	0.688	Oct 2009	0.550	Oct 2010	0.000		0.550	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604602F: <i>Armament/Ordnance Development</i>	PROJECT 655361: <i>Stores-Aircraft Interface</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Subtotal			0.000	0.688		0.550		0.000		0.550				

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	6.685		5.478		0.000		5.478			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

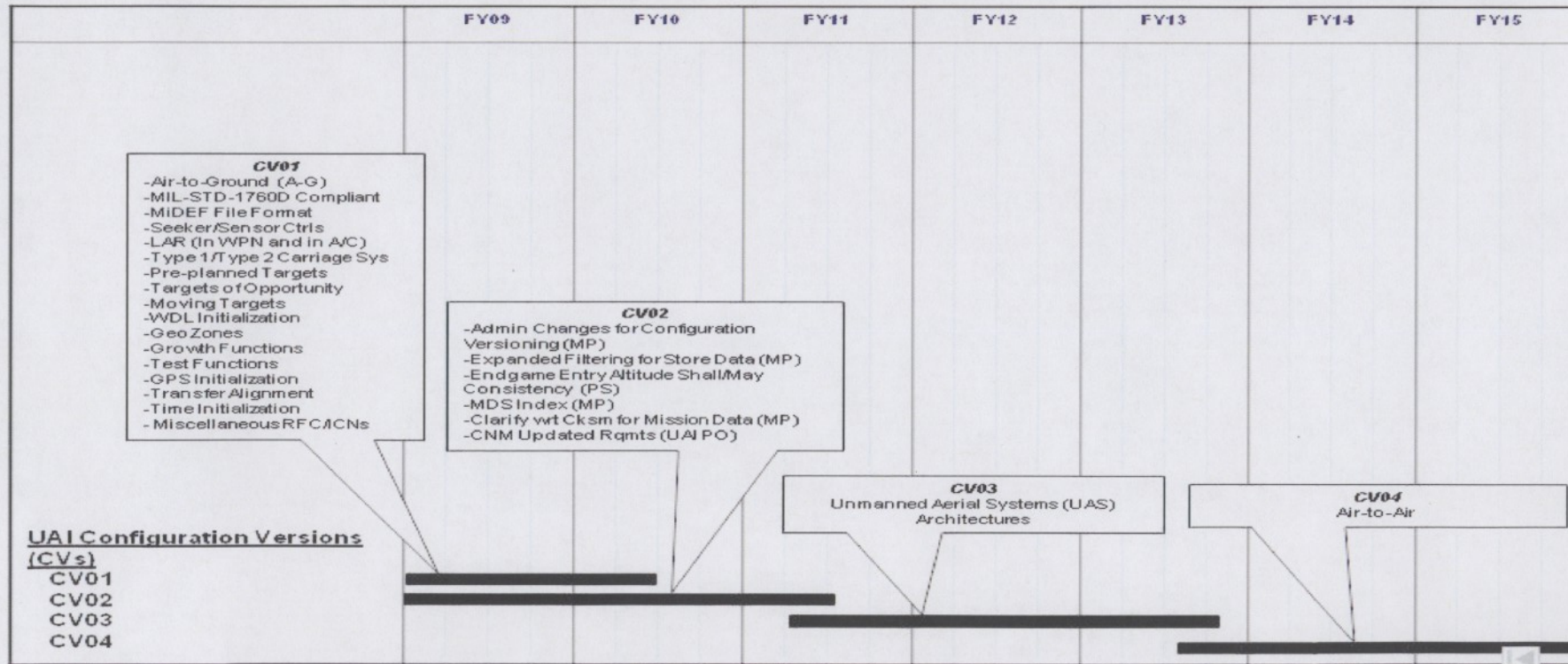
PE 0604602F: Armament/Ordnance
Development

PROJECT

655361: Stores-Aircraft Interface



Exh R-4, UAI Technical Roadmap



Integrity - Service - Excellence

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604602F: *Armament/Ordnance Development*

PROJECT

655361: *Stores-Aircraft Interface*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CV01 - Version 1	1	2009	3	2010
CV01 - Version 2	1	2009	2	2011
CV03 - Version 3	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			PE 0604604F: <i>Submunitions</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.719	1.784	1.622	0.000	1.622	1.641	1.657	1.643	1.623	Continuing	Continuing
653166: <i>Joint Smart Munitions Test and Evaluation</i>	1.719	1.784	1.622	0.000	1.622	1.641	1.657	1.643	1.623	Continuing	Continuing

A. Mission Description and Budget Item Justification

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, (maintained to be signature representative), 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 (JTTCG) who develop the Joint Munitions Effectiveness Manuals (JMEMs), Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include, but not limited to: 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1.725	1.784	0.000	0.000	0.000
Current President's Budget	1.719	1.784	1.622	0.000	1.622
Total Adjustments	-0.006	0.000	1.622	0.000	1.622
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.006	0.000	1.622	0.000	1.622

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>				PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
653166: <i>Joint Smart Munitions Test and Evaluation</i>	1.719	1.784	1.622	0.000	1.622	1.641	1.657	1.643	1.623	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

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, (maintained to be signature representative), 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 (JMEm), Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include, but not limited to: 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: Continue to develop predictive tools for weapon/target interactions in order to support improvements to mission planning and bomb damage assessment.	0.327	0.103	0.250	0.000	0.250

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>		PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Investigated weapon target interactions for very hard structures in response to target solution limitations identified by CENTCOM. Performed sub-scale and full scale tests; from these tests performed a detailed damage assessment to produce damage model.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Study the response of high strength and ultra-high strength concrete. Evaluate the ability to inflict damage through higher impact velocity or larger warheads and produce a list of recommended test events and suggested model improvements.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Conduct additional sub-scale and full scale test events with high strength and ultra-high strength concrete; use test results to improve damage models.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
<p>Major Thrust: Develop, validate, and accredit improved models for target vulnerability and weapons effectiveness in support of Combatant Commands' (CoCOMs) requirements.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Produced a probability of catastrophic damage model due to impact of multiple fragment to small truck; previous models did not consider cumulative damage. Developed two target geometric models of high value CoCOM targets; collected intelligence data, constructed detailed solid model with accurate representation of all systems and sub-systems, and conducted failure modes analysis to identify critical components for targeting.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Construct at least two more geometric models based on CoCOMs' requirements.</p>				0.317	0.280	0.325	0.000	0.325

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>	PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Develop ISR calibration capability for purpose of reducing average measurement uncertainty by 50% and reducing data turnaround by 75%.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Investigate some or all of the following technologies for utility in ISR activities: Hyperspectral Imagery (HIS), shortwave IR and Polarimetric Imaging.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	1.719	1.784	1.622	0.000	1.622

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (16933): <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>				PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46th Test Wing (46 OG and 46 TW)	TBD/TBD	Conducting Tests and Analysis Eglin AFB, FL	93.900	1.769		1.613		0.000		1.613	Continuing	Continuing	Continuing
Subtotal			93.900	1.769		1.613		0.000		1.613			

Remarks
46th Test Wing is the Program Office which conducts inhouse testing.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46 Test Wing (46 OG)	TBD/TBD	TBD TBD	7.451	0.015		0.009		0.000		0.009	Continuing	Continuing	Continuing
Subtotal			7.451	0.015		0.009		0.000		0.009			

Remarks
46th Test Wing is the Program Office which conducts inhouse testing.

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		101.351	1.784	1.622	0.000	1.622		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force						DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>			PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>		
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>	PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>

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 Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604604F: <i>Submunitions</i>	PROJECT 653166: <i>Joint Smart Munitions Test and Evaluation</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Target/warhead evaluation/analysis, signature test, captive carry flight tests.	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	4.518	11.261	37.987	0.000	37.987	12.438	10.536	12.307	12.433	Continuing	Continuing
652895: <i>CE Readiness</i>	0.760	5.135	29.746	0.000	29.746	8.543	7.568	9.293	9.374	Continuing	Continuing
654910: <i>Aeromedical Readiness</i>	3.758	6.126	8.241	0.000	8.241	3.895	2.968	3.014	3.059	Continuing	Continuing

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 - Engineering and Manufacturing Development (EMD) 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	5.775	11.261	0.000	0.000	0.000
Current President's Budget	4.518	11.261	37.987	0.000	37.987
Total Adjustments	-1.257	0.000	37.987	0.000	37.987
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.257	0.000	37.987	0.000	37.987

Change Summary Explanation

FY 2009: \$1.257M Reduced To Support Higher AF Priorities

FY 2011: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
652895: <i>CE Readiness</i>	0.760	5.135	29.746	0.000	29.746	8.543	7.568	9.293	9.374	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 - Engineering and Manufacturing Development (EMD) because it supports development, test, and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, and tactical shelters.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development of Multi-Media Training Systems (MMTS) <i>FY 2009 Accomplishments:</i> In FY 2009: Completed development of MMTS <i>FY 2010 Plans:</i> In FY 2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY 2011: Not Applicable	0.760	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Develop, test and certify equipment for the rapid assessment and repair of runway and airfield damage after attack <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Begin to develop, test and certify equipment for the rapid assessment and repair of runway and airfield damage after attack <i>FY 2011 Base Plans:</i> In FY 2011: Continue to develop, test and certify equipment for the rapid assessment and repair of runway and airfield damage after attack <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		0.000	5.135	4.746	0.000	4.746
MAJOR THRUST: Facilities Study <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY 2011: Facilities Study		0.000	0.000	25.000	0.000	25.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	0.760	5.135	29.746	0.000	29.746

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0208028F: <i>Other Procurement AF (OPAF), Other Base and Maintenance Support, Air Base Operability (</i>	6.464	22.973	28.503	0.000	28.503	30.085	36.485	27.600	54.390	0.000	0.000

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.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Multimedia Training Systems (MMTS) (Formerly MTS)	Various/ FFP	Multiple No text provided	0.760	0.000		0.000		0.000		0.000	0.000	0.760	0.843
Airfield Damage Repair	TBD/TBD	TBD No text provided	0.000	5.135	Mar 2010	4.746	Jan 2011	0.000		4.746	Continuing	Continuing	Continuing
Facilities Study	TBD/TBD	TBD No text provided	0.000	0.000		25.000	Jan 2011	0.000		25.000	0.000	25.000	0.000
Subtotal			0.760	5.135		29.746		0.000		29.746			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
None	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.760	5.135	29.746	0.000	29.746			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604617F: *Agile Combat Support*

PROJECT

652895: *CE Readiness*

2895 CE Readiness

CE Readiness Schedule

0604617F Agile Combat Support

	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<p><u>(U) Schedule Profile</u></p> <ul style="list-style-type: none"> Complete FY09 Multi-Media Training Systems projects Initiate and continue Engineering and Manufacturing Development activities for Airfield Damage Repair Facilities 	▲	▲					
			△	Notional			
			△	△			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 652895: <i>CE Readiness</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FY09 Multimedia Training Systems Projects	2	2009	4	2009
Complete FY09 Multimedia Training Systems Projects	1	2010	2	2010
Engineering, Manufacturing, Development and Test of equipment to support airfield damage repair after attack	4	2010	4	2011
Facilities Study	1	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654910: <i>Aeromedical Readiness</i>	3.758	6.126	8.241	0.000	8.241	3.895	2.968	3.014	3.059	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 - Engineering and Manufacturing Development (EMD) because it supports development, testing, and evaluation of systems and equipment for patient care during contingency operations and aeromedical evacuations.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development of oxygen systems to meet deployable oxygen requirements <i>FY 2009 Accomplishments:</i> In FY 2009: Continue development of oxygen systems to meet deployable oxygen requirements <i>FY 2010 Plans:</i> In FY 2010: Continue development of oxygen systems to meet deployable oxygen requirements <i>FY 2011 Base Plans:</i> In FY 2011: Continue development of oxygen systems to meet deployable oxygen requirements <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	0.049	0.060	2.878	0.000	2.878

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: EMD of FIVR for Expeditionary Trauma Resuscitation (ETR) <i>FY 2009 Accomplishments:</i> In FY 2009: Continue EMD of FIVR for ETR <i>FY 2010 Plans:</i> In FY 2010: Continue EMD of FIVR for ETR <i>FY 2011 Base Plans:</i> In FY 2011: Continue EMD of FIVR for ETR <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		3.560	5.413	3.105	0.000	3.105
MAJOR THRUST: EMD of BOS for ETR <i>FY 2009 Accomplishments:</i> In FY 2009: Not applicable <i>FY 2010 Plans:</i> In FY 2010: Begin EMD of BOS for ETR <i>FY 2011 Base Plans:</i> In FY 2011: Continue EMD of BOS for ETR <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		0.000	0.500	2.100	0.000	2.100
MAJOR THRUST: Aeromedical Systems Analysis - Conduct studies, analyses and product demonstrations to assist in the development of materiel solutions to meet operational needs		0.149	0.153	0.158	0.000	0.158

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: 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</p> <p><i>FY 2010 Plans:</i> In FY 2010: 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</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: 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</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	3.758	6.126	8.241	0.000	8.241

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (17530): <i>Under the lean initiative, procurement</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<i>of Aeromedical Systems is being accomplished using O&M funds.</i>											

D. Acquisition Strategy

All major projects are awarded under best-value competitive solicitation.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Deployable Oxygen Generation System - Small gas generators and storage units	TBD/TBD	TBD TBD	0.317	0.060		2.878	Mar 2011	0.000		2.878	Continuing	Continuing	Continuing
Field Intravenous Resuscitation (FIVR) - ETR	C/CPFF	Applied Research Associates, Inc Albuquerque, NM	7.946	4.258	Jan 2010	2.580	Jan 2011	0.000		2.580	Continuing	Continuing	Continuing
Blood Oxygenation System - ETR	TBD/TBD	TBD TBD	0.000	0.500		2.100	Sep 2011	0.000		2.100	Continuing	Continuing	Continuing
Aeromedical Systems Analysis to include Analysis of Solutions for planned aeromedical and Surgeon General initiatives	TBD/TBD	TBD TBD	0.149	0.153		0.158		0.000		0.158	Continuing	Continuing	Continuing
Subtotal			8.412	4.971		7.716		0.000		7.716			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>				PROJECT 654910: <i>Aeromedical Readiness</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Engineering And Management Support (TEAMS)	PO	Core6 San Antonio, TX	1.843	0.438		0.451		0.000		0.451	Continuing	Continuing	Continuing
Program Management Support & Operations	TBD/TBD	77 AESG Brooks City-Base, TX	0.499	0.072		0.074		0.000		0.074	Continuing	Continuing	Continuing
Subtotal			2.342	0.510		0.525		0.000		0.525			

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DOS Test and Evaluation	MIPR	AFMESA Fort Detrick, MD	0.193	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
FIVR Test and Evaluation	MIPR	28 TES Eglin AFB, FL	0.068	0.645		0.000		0.000		0.000	Continuing	Continuing	0.000
Subtotal			0.261	0.645		0.000		0.000		0.000			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.015	6.126	8.241	0.000	8.241			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604617F: *Agile Combat Support*

PROJECT

654910: *Aeromedical Readiness*

4910 Aeromedical Readiness

Aeromedical Readiness Schedule

0604617F Agile Combat Support

FY09	FY10	FY11	FY12	FY13	FY14	FY15
	MS B △ EMD	MS C △		Production		△
	EMD		MS C △	Production		
		MS B △	EMD			MS C △ Prod.

(U) Schedule Profile

DEPLOYABLE OXYGEN SYSTEM (DOS)

- Deployable Oxygen Generator – Small (DOGS-S)

EXPEDITIONARY TRAUMA RESUSCITATION

- Field Intravenous Resuscitation (FIVR) System
- Blood Oxygenation System (BOS)

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604617F: <i>Agile Combat Support</i>	PROJECT 654910: <i>Aeromedical Readiness</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Manufacturing Development Phase for the Small oxygen generation and storage system	2	2010	4	2011
Continue Engineering and Manufacturing Development Phase for the Field Intravenous Resuscitation System	1	2010	4	2011
Conduct market analysis for the Blood Oxygenation System	4	2010	1	2011
Initiate Engineering and Manufacturing Development Phase for the Blood Oxygenation System	4	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	14.907	14.331	10.650	0.000	10.650	10.691	10.956	10.776	10.538	Continuing	Continuing
65412A: <i>Life Support Systems</i>	14.907	14.331	10.650	0.000	10.650	10.691	10.956	10.776	10.538	Continuing	Continuing

Note

In FY11, Project 65412A, Life Support Systems, includes new starts for flash blindness goggles and aircrew flight equipment.

A. Mission Description and Budget Item Justification

This program element provides for recapitalization, continuing research and development, and integration of aircrew flight equipment/airmen combat effectiveness equipment and subsystems to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew flight equipment/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 flash blindness 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 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 flight equipment/airmen combat effectiveness programs.

Life Support Systems program is in RDT&E, AF; Budget Activity 5 - Engineering and Manufacturing Development (EMD) 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	16.553	10.711	0.000	0.000	0.000
Current President's Budget	14.907	14.331	10.650	0.000	10.650
Total Adjustments	-1.646	3.620	10.650	0.000	10.650
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		3.620			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.646	0.000	10.650	0.000	10.650

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 65412A: *Life Support Systems*

Congressional Add: *ACES Ejection Seat Improvements effort is for upgrading the legacy ACES II Ejection Seat to accommodate a wider range of pilot sizes*

Congressional Add: *Backpack Medical Oxygen System (BMOS).*

Congressional Add: *Bomber Crew Safety Study.*

Congressional Add Subtotals for Project: 65412A

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	5.585	1.920
	0.000	0.800
	0.000	0.900
	5.585	3.620
	5.585	3.620

Change Summary Explanation

FY 2010: \$1.920M ACES 5 Ejection Seat (Congressional Add); \$0.800M Backpack Medical Oxygen System (Congressional Add); \$0.900M Bomber Crew Safety Study (Congressional Add)

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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R-1 Line Item #77

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>				PROJECT 65412A: <i>Life Support Systems</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
65412A: <i>Life Support Systems</i>	14.907	14.331	10.650	0.000	10.650	10.691	10.956	10.776	10.538	Continuing	Continuing	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
Note In FY11, Project 65412A, Life Support Systems, includes new starts for flash blindness goggles and aircrew flight equipment.												
A. Mission Description and Budget Item Justification This program element provides for recapitalization, continuing research and development, and integration of aircrew flight equipment/airmen combat effectiveness equipment and subsystems to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew flight equipment/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 flash blindness 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 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 flight equipment/airmen combat effectiveness programs. Life Support Systems program is in RDT&E, AF; Budget Activity 5 - Engineering and Manufacturing Development (EMD) 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.												
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
MAJOR THRUST: Aircrew Laser Eye Protection (ALEP) Block II effort is for development of eye protection against hazardous lasers						1.191	0.000	0.000	0.000	0.000		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>	PROJECT 65412A: <i>Life Support Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Modular Aircrew Common Helmet (MACH) EMD effort is for development of a common helmet to reduce helmet variants and parts and increase capability. Development and early testing such as wind blast and impact. Testing is in preparation for CDR to get ready to go forward in the program.</p> <p><i>FY 2010 Plans:</i> In FY 2010: DT&E - Reaccomplished wind blast and sled testing in an attempt to determine if the final product is ready for production. The product will get certified for operational testing during this phase. DT&E leads into Milestone C. IOT&E LRIP assets will be purchased and operators will use these in the field during this time.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: IOT&E - Milestone C is accomplished during this phase.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>						
<p>Program Management Support/Travel/Supplies/Technical Engineering & Acquisition Support/Test & Evaluation</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above listed activities.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities</p>		2.688	3.390	3.154	0.000	3.154

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>		PROJECT 65412A: <i>Life Support Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A								
Accomplishments/Planned Programs Subtotals				9.322	10.711	10.650	0.000	10.650
				FY 2009	FY 2010			
Congressional Add: ACES Ejection Seat Improvements effort is for upgrading the legacy ACES II Ejection Seat to accommodate a wider range of pilot sizes <i>FY 2009 Accomplishments:</i> In FY 2009: ACES CA funds validated the adequacy of the CKU-5C catapult for use with limb restraints. Other funds supported a cost-benefit/life-cycle cost analysis of a modular ejection seat design, and the final qualification of the F-15 leg restraint design. Remaining funds may be returned due to disapproval of sole source justification for new contract and insufficient time to award competitive contract using normal source selection process. <i>FY 2010 Plans:</i> In FY 2010: Program Office working with SAF/AQP and ACC on path forward/requirement definition for future ACES improvements.				5.585	1.920			
Congressional Add: Backpack Medical Oxygen System (BMOS). <i>FY 2009 Accomplishments:</i> In FY 2009: N/A				0.000	0.800			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>	PROJECT 65412A: <i>Life Support Systems</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2010 Plans:</i> In FY 2010: Funding planned to be MIPR'd to Guardian Angel program, PE 0207227F, Combat Rescue (Pararescue), to execute against similar effort.		
Congressional Add: Bomber Crew Safety Study. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Funding planned to be MIPR'd to B-52 program, PE 0101113F, B-52 Squadrons, to investigate fixing ejection seat sustainment issues and/or conduct Analysis of Alternatives or Business Case Analysis on seat replacement.	0.000	0.900
Congressional Adds Subtotals	5.585	3.620

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0702833: <i>Other Procurement, AF Items Less than \$5M (Safety) Life Support Procurement, WSC 842990</i>	0.000	15.635	10.675	0.000	10.675	10.827	11.047	11.199	11.400	0.000	0.000
• PE 0702833 (1): <i>Other Procurement, AF Items Less than</i>	13.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>	PROJECT 65412A: <i>Life Support Systems</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
\$5M (Base Support Equip) Life Support Procurement											

D. Acquisition Strategy

Acquisition Strategy Is Carried Out At The Project Level.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>				PROJECT 65412A: <i>Life Support Systems</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ACES Ejection Seat Improvements (Congressional Add) Contract value TBD	C/CPIF	Goodrich CO	17.585	1.920		0.000		0.000		0.000	Continuing	Continuing	Continuing
Backpack Medical Oxygen System (BMOS) (Congressional Add)	TBD/TBD	TBD TBD	0.000	0.800		0.000		0.000		0.000	0.000	0.800	Continuing
Bomber Crew Safety Study (Congressional Add)	TBD/TBD	TBD TBD	0.000	0.900		0.000		0.000		0.000	0.000	0.900	Continuing
Aircrew Laser Eye Protection (ALEP) Block II EMD	C/CPFF	Teledyne Imaging CA	17.091	0.000		0.000		0.000		0.000	0.000	17.091	12.043
ALEP LRIP / IOT&E / FDE	TBD/TBD	TBD TBD	1.688	0.000		0.000		0.000		0.000	0.000	1.688	0.000
Flash Blindness Goggles EMD	TBD/TBD	TBD TBD	0.000	0.000		0.568	Jan 2011	0.000		0.568	Continuing	Continuing	Continuing
Integrated Aircrew Ensemble (IAE) EMD	C/FPI	TBD TBD	0.145	3.688	Mar 2010	4.608	Jan 2011	0.000		4.608	Continuing	Continuing	Continuing
COTS/NDI EMD	C/FFP	TBD TBD	0.000	0.000		0.824	Jan 2011	0.000		0.824	Continuing	Continuing	Continuing
Modular Aircrew Common Helmet (MACH) EMD	C/FPI	Gentex PA	7.910	3.633	Jan 2010	0.872	Jan 2011	0.000		0.872	Continuing	Continuing	Continuing
Subtotal			44.419	10.941		6.872		0.000		6.872			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>	PROJECT 65412A: <i>Life Support Systems</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	TBD/TBD	77 AESG Brooks City-Base, TX	0.571	0.727		0.777		0.000		0.777	Continuing	Continuing	0.000
Travel	Various/ Various	Various Various	0.125	0.120		0.130		0.000		0.130	Continuing	Continuing	0.000
Supplies and Equipment	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Technical Engineering & Acquisition Support	TBD/TBD	Terra Health Brooks City Base, TX	1.612	2.243		2.571		0.000		2.571	Continuing	Continuing	0.000
Subtotal			2.308	3.090		3.478		0.000		3.478			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>				PROJECT 65412A: <i>Life Support Systems</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Tests (ACES, AHNR, ALEP, Beacon, IAE, etc.)	Various/ Various	Various Various	0.380	0.300		0.300		0.000		0.300	0.000	0.980	0.000
Subtotal			0.380	0.300		0.300		0.000		0.300	0.000	0.980	0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.107	14.331	10.650	0.000	10.650			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604706F: *Life Support Systems*

PROJECT

65412A: *Life Support Systems*

Life Support Systems Schedule

0604706F Life Support Systems

412A Life Support Systems

(U) Schedule Profile

ACES EJECTION SEAT IMPROVEMENTS

- Ejection Seat Development and Qualification Testing
(Congressional Add)

AIRCREW HELMET NOISE REDUCTION (AHNR)

- EMD / FDE / Test

AIRCREW LASER EYE PROTECTION (ALEP)

- Block II EMD
- Block II CDR
- Block II LRIP

FLASH BLINDNESS GOGGLES

- EMD

IMPROVED RESCUE BEACON

- EMD

INTEGRATED AIRCREW ENSEMBLE (IAE)

- EMD

LOW PROFILE PARACHUTE (LPP)

- EMD

MODULAR AIRCREW COMMON HELMET (MACH)

- EMD
- Tactical / Rotary and Universal Connector Combined CDR

	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
ACES EJECTION SEAT IMPROVEMENTS																												
• Ejection Seat Development and Qualification Testing (Congressional Add)																												
AIRCREW HELMET NOISE REDUCTION (AHNR)																												
• EMD / FDE / Test																												
AIRCREW LASER EYE PROTECTION (ALEP)																												
• Block II EMD																												
• Block II CDR																												
• Block II LRIP																												
FLASH BLINDNESS GOGGLES																												
• EMD																												
IMPROVED RESCUE BEACON																												
• EMD																												
INTEGRATED AIRCREW ENSEMBLE (IAE)																												
• EMD																												
LOW PROFILE PARACHUTE (LPP)																												
• EMD																												
MODULAR AIRCREW COMMON HELMET (MACH)																												
• EMD																												
• Tactical / Rotary and Universal Connector Combined CDR																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604706F: <i>Life Support Systems</i>	PROJECT 65412A: <i>Life Support Systems</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
ACES Ejection Seat Improvements [Effort started in 1QFY01]	1	2009	4	2011
Aircrew Helmet Noise Reduction (AHNR) EMD / FDE / Test [Effort started in 2-3QFY07]	1	2009	2	2010
ALEP Block II EMD [Effort started in 3QFY06]	1	2009	4	2009
ALEP Block II CDR	1	2009	1	2009
ALEP Block II LRIP	4	2009	2	2011
Flash Blindness Goggles EMD [Effort scheduled till 3-4QFY15]	3	2011	4	2011
Improved Rescue Beacon EMD [Effort started in 3QFY07]	1	2009	3	2010
IAE EMD [Effort scheduled till 3QFY14]	2	2010	4	2011
COTS/NDI EMD [Effort scheduled till 3-4QFY13]	2	2011	4	2011
MACH EMD [Effort started in 2QFY08]	1	2009	2	2011
MACH Combined CDR	2	2010	2	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			PE 0604735F: <i>Combat Training Ranges</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	12.241	22.718	36.905	0.000	36.905	29.934	20.389	20.577	20.758	Continuing	Continuing
652286: <i>Combat Training Range Equipment</i>	12.241	22.718	36.905	0.000	36.905	29.934	20.389	20.577	20.758	Continuing	Continuing

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 realistic 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>
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This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	27.971	29.718	0.000	0.000	0.000
Current President's Budget	12.241	22.718	36.905	0.000	36.905
Total Adjustments	-15.730	-7.000	36.905	0.000	36.905
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-15.730	-7.000	36.905	0.000	36.905

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 652286: *Combat Training Range Equipment*

Congressional Add: *Add to P5CTS budget with a Congressional Earmark for Mountain Home Air to Air Range Improvements.*

Congressional Add Subtotals for Project: 652286

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	0.000	3.000
	0.000	3.000
	0.000	3.000

Change Summary Explanation

FY09 reduced -3.405 by Omnibus reprogramming for higher AF priorities

FY09 reduced -6.000 CTR Recission

FY10 change represents -\$10M Congressional adjustment and +3M add for Mt Home AFB

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>				PROJECT 652286: <i>Combat Training Range Equipment</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
652286: <i>Combat Training Range Equipment</i>	12.241	22.718	36.905	0.000	36.905	29.934	20.389	20.577	20.758	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 realistic 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>				
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.						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems <i>FY 2009 Accomplishments:</i> In FY 2009: 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. <i>FY 2010 Plans:</i> In FY 2010: 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. <i>FY 2011 Base Plans:</i> In FY 2011: 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. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A	3.080	2.660	10.612	0.000	10.612	
MAJOR THRUST: Development, testing and documentation of Range Threat Systems, Double Digith threat capability and engineering, mission and A&AS support.		2.732	7.907	17.895	0.000	17.895

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Complete SFF-K development. Complete evaluation, demonstration, and test effort. Deliver production representative hardware to Government.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	12.241	19.718	36.905	0.000	36.905

	FY 2009	FY 2010
<p>Congressional Add: Add to P5CTS budget with a Congressional Earmark for Mountain Home Air to Air Range Improvements.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: Add for P5CTS budget with a Congressional Earmark for Mountain Home Air to Air Range Improvements.</p>	0.000	3.000
Congressional Adds Subtotals	0.000	3.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (18755): <i>0207429F, Other Procurement, AF,</i>	40.684	61.170	22.622	0.000	22.622	30.501	36.643	35.269	24.525	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
<i>Combat Training Ranges, OPAF BP83</i>											
• PE Not Provided (18767): <i>0207429F, Initial Spares, OPAF BP86</i>	0.887	0.895	0.904	0.000	0.904	0.920	0.936	0.659	0.643	0.000	0.000
• PE Not Provided (18779): <i>0207429F, Aircraft Procurement, AF, Combat Training Ranges, APAF BP19</i>	15.575	15.381	15.376	0.000	15.376	28.990	30.519	22.408	14.552	0.000	0.000
• PE Not Provided (18791): <i>0207429F, Initial Spares, APAF BP16</i>	1.729	1.628	1.638	0.000	1.638	1.346	1.369	8.706	8.868	0.000	0.000

D. Acquisition Strategy

The acquisition strategy is competitive, with cost plus and fixed price contracts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>				PROJECT 652286: <i>Combat Training Range Equipment</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cubic Defense Applications (P5CTS)	SS/FFP	Cubic Defense San Diego, CA	1.115	0.000		7.746	Mar 2011	0.000		7.746	Continuing	Continuing	0.000
SRI (P5CTS)	SS/FFP	GSA Mid Atl #3, Philadelphia PA	0.206	0.166	Feb 2010	0.166	Feb 2011	0.000		0.166	Continuing	Continuing	0.000
TBD (JTE Increment 2)	C/CPFF	TBD TBD	1.537	14.121	Aug 2011	17.010	Aug 2011	0.000		17.010	Continuing	Continuing	0.000
Legacy L1 Upgrade	TBD/TBD	TBD TBD	2.136	0.000		0.000		0.000		0.000	0.000	2.136	0.000
Rockwell-Collins, Inc (P5CTS)	SS/CPFF	Rockwell-Collins, Inc Cedar Rapids, IA	0.000	4.400	Feb 2010	4.000	Feb 2011	0.000		4.000	Continuing	Continuing	0.000
Army Joint Tactical Radio System (JTRS-HMS) (P5CTS)	SS/CPAF	General Dynamics Scottsdale AZ	5.300	0.752	Feb 2010	4.398	Feb 2011	0.000		4.398	Continuing	Continuing	0.000
National Security Agency (NSA)	SS/FFP	NSA Ft George G. Meade, MD 20755	0.200	0.265	Feb 2010	0.250	Feb 2011	0.000		0.250	Continuing	Continuing	0.000
Boeing - F15 SPO OFF (P5CTS)	SS/FFP	Boeing St Louis, MO	0.000	0.000		0.100	Apr 2011	0.000		0.100	Continuing	Continuing	0.000
Lockheed - F16 SPO OFF (P5CTS)	SS/FFP	Lockheed Martin Ft Worth, TX	0.000	0.050	Apr 2010	0.100	Apr 2011	0.000		0.100	Continuing	Continuing	0.000
Booz Allen Hamilton (P5CTS)	SS/FFP	Booz Allen Hamilton Mclean, VA	0.353	0.150	May 2010	0.000		0.000		0.000	0.000	0.503	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>				PROJECT 652286: <i>Combat Training Range Equipment</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapons Sim Interface Upg	SS/FFP	Milted Corp Huntsville AL	0.191	0.000		0.000		0.000		0.000	0.000	0.191	0.000
JTRS Test and Evaluation Lab (JTEL)	SS/FFP	SPAWARSYCEN San Diego, CA	0.000	0.131	Jan 2010	0.000		0.000		0.000	0.000	0.131	0.000
Congressional Earmark - Range Improvements for MT (P5CTS)	TBD/TBD	TBD Mt Home	0.000	1.000		0.000		0.000		0.000	0.000	1.000	0.000
Subtotal			11.038	21.035		33.770		0.000		33.770			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OO/ALC/LH, Hill AFB, UT	Various/ Various	TBD TBD	0.397	0.785		0.885		0.000		0.885	Continuing	Continuing	0.000
AAC/689 ARSS, Eglin AFB - Direct Msn Spt	Various/ Various	TBD TBD	0.631	0.723		2.100		0.000		2.100	0.000	3.454	0.000
Subtotal			1.028	1.508		2.985		0.000		2.985			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>				PROJECT 652286: <i>Combat Training Range Equipment</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block I/II Flight Test, 46 Test Wing	Various/ Various	Eglin AFB FL	0.175	0.175	Mar 2010	0.150	Mar 2011	0.000		0.150	Continuing	Continuing	0.000
Subtotal			0.175	0.175		0.150		0.000		0.150			0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.241	22.718	36.905	0.000	36.905			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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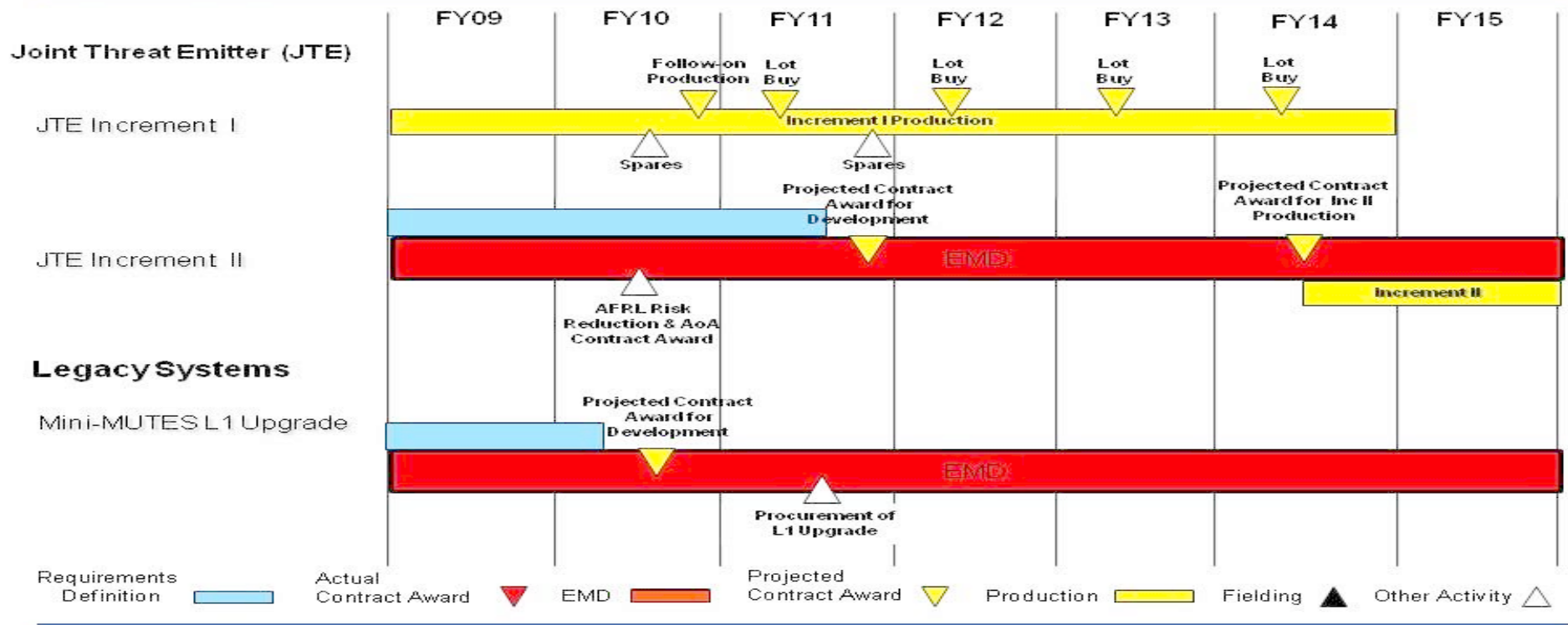
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604735F: Combat Training Ranges	PROJECT 652286: Combat Training Range Equipment



U.S. AIR FORCE

CTR Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
-- Small Form Factor K Radio (SFFK) Contract annual Award	2	2009	2	2011
-- Range Instrumentation Waveform (RIW) Task 3	2	2010	2	2010
-- Advanced Data Link (ADL) Integration System Requirements Review	2	2011	2	2011
--Air Force Research Laboratory (AFRL) Antenna Risk Reduction	3	2009	2	2010
--Air Force Research Laboratory (AFRL) Antenna Risk Reduction (1)	3	2010	3	2011
--Analysis of Alternative (AoA)	3	2010	1	2011
--Engineering and Manufacturing Development (EMD) Increment II	4	2011	4	2011
--Mini-MUTES L1 Upgrade	3	2010	3	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	9.700	6.910	0.010	0.000	0.010	0.010	0.010	0.010	0.010	Continuing	Continuing
652523: <i>Product Lines</i>	0.256	0.010	0.010	0.000	0.010	0.010	0.010	0.010	0.010	Continuing	Continuing
652524: <i>Reuse and Component Support</i>	9.444	6.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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. This is accomplished via Congressional Earmarks identified in Project 2524.

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).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	9.704	0.010	0.000	0.000	0.000
Current President's Budget	9.700	6.910	0.010	0.000	0.010
Total Adjustments	-0.004	6.900	0.010	0.000	0.010
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		6.900			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.004	0.000	0.010	0.000	0.010

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 652524: Reuse and Component Support

Congressional Add: *Distributed Mission Interoperability Toolkit (DMIT)*

Congressional Add: *Asset/Data Fusion/Program Increase*

Congressional Add: *Command and Control Service Level Management (C2SLM)*

Congressional Add: *User Defined Operational Picture*

Congressional Add Subtotals for Project: 652524

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	1.574	3.200
	3.935	0.000
	3.935	0.000
	0.000	3.700
	9.444	6.900
	9.444	6.900

Change Summary Explanation

FY10: changes between previous and current President's Budget due to Congressional increases.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652523: <i>Product Lines</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
652523: <i>Product Lines</i>	0.256	0.010	0.010	0.000	0.010	0.010	0.010	0.010	0.010	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Program Management Support <i>FY 2009 Accomplishments:</i> In FY 2009: Contractor Advisory and Assistance Services (A&AS) and travel support for the Congressional programs. <i>FY 2010 Plans:</i> In FY 2010: Funding provides for Program Manager travel in support of Congressional funded programs.	0.256	0.010	0.010	0.000	0.010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652523: <i>Product Lines</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Funding will provide for Program Manager travel in support of Congressional funded programs.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.256	0.010	0.010	0.000	0.010

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (19297): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All major contracts were awarded after full and open competition.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652523: <i>Product Lines</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	Various/ Various	ESC Hanscom AFB, MA	0.256	0.010	Oct 2009	0.010	Oct 2010	0.000		0.010	Continuing	Continuing	Continuing
Subtotal			0.256	0.010		0.010		0.000		0.010			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.256	0.010	0.010	0.000	0.010			

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604740F: *Integrated Command & Control Applications*

PROJECT

652523: *Product Lines*



Product Lines Schedule

	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Program Management Support							

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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604740F: *Integrated Command & Control Applications*

PROJECT

652523: *Product Lines*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Program management support	1	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>				PROJECT 652524: <i>Reuse and Component Support</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
652524: <i>Reuse and Component Support</i>	9.444	6.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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).

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

	FY 2009	FY 2010
Congressional Add: Distributed Mission Interoperability Toolkit (DMIT)	1.574	3.200

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652524: <i>Reuse and Component Support</i>
B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Provided a service oriented architecture based communications, presence, and compression capability at the infrastructure level.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Provides a service oriented architecture based communications, presence, and compression capability at the infrastructure level.</p>		
<p>Congressional Add: Asset/Data Fusion/Program Increase</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Provided fused force protection sensor data via web services using the Service Oriented Architecture.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>	3.935	0.000
<p>Congressional Add: Command and Control Service Level Management (C2SLM)</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Implemented Service Level Agreements through the use of Service Oriented Architecture.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>	3.935	0.000
<p>Congressional Add: User Defined Operational Picture</p>	0.000	3.700

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R-1 Line Item #79

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652524: <i>Reuse and Component Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2009 Accomplishments:</i> In FY 2009: N/A		
<i>FY 2010 Plans:</i> In FY 2010: Program Increase to fund Pro Logic, Inc. for net-centric enterprise efforts. Implemented Service Oriented Architecture. Visualization of airborne web services management.		
Congressional Adds Subtotals	9.444	6.900

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (19552): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All major contracts for Reuse and Component Support development will be awarded after full and open competition.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652524: <i>Reuse and Component Support</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Asset/Data Fusion/ Program Increase	C/CPFF	Fenwick West Virginia	3.432	0.000		0.000		0.000		0.000	0.000	3.432	Continuing
Distributed Mission Interoperability Toolkit (DMIT)	C/CPFF	Accenture Pennsylvania	1.390	3.200	Mar 2010	0.000		0.000		0.000	0.000	4.590	Continuing
Command and Control Service Level Management (C2SLM)	C/CPFF	Accenture Pennsylvania	3.437	0.000		0.000		0.000		0.000	0.000	3.437	Continuing
User Defined Operational Picture	C/CPFF	Pro Logic West Virginia	0.000	3.700	Mar 2010	0.000		0.000		0.000	0.000	3.700	0.000
Subtotal			8.259	6.900		0.000		0.000		0.000	0.000	15.159	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support	Various/ Various	ESC Hanscom AFB, MA (AA&S)	0.547	0.000		0.000		0.000		0.000	0.000	0.547	Continuing
No text provided	FFRDC	MITRE Corporation Bedford MA	0.638	0.000		0.000		0.000		0.000	0.000	0.638	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652524: <i>Reuse and Component Support</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			1.185	0.000		0.000		0.000		0.000	0.000	1.185	

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Not applicable.	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.444	6.900		0.000		0.000		0.000	0.000	16.344	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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R-1 Line Item #79

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

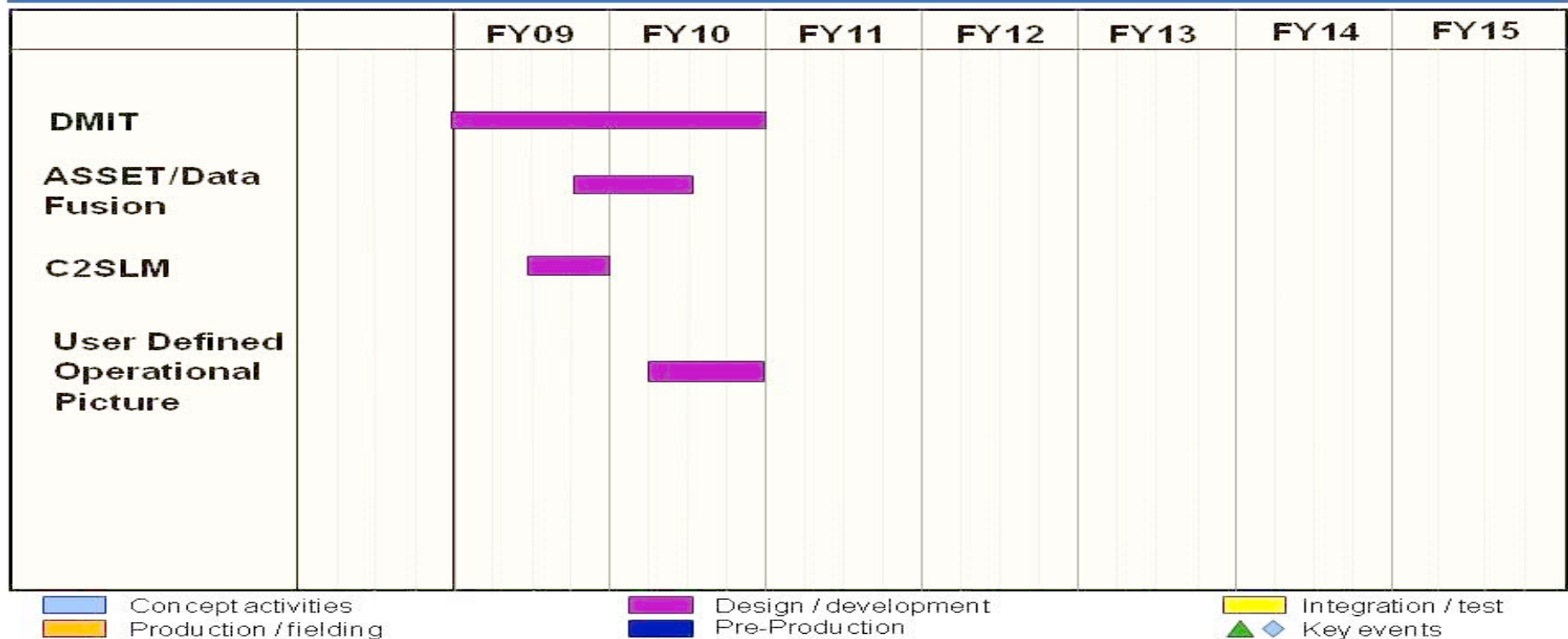
PE 0604740F: *Integrated Command & Control Applications*

PROJECT

652524: *Reuse and Component Support*



Reuse Component Support Schedule



PB10 R-Docs

Depicted by installation/production flow

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604740F: <i>Integrated Command & Control Applications</i>	PROJECT 652524: <i>Reuse and Component Support</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
DMIT	1	2009	4	2010
ASSET/Data Fusion	4	2009	2	2010
C2SLM	3	2009	4	2009
User Defined Operational Picture	2	2010	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	2.282	1.495	1.364	0.000	1.364	1.262	1.074	1.289	1.367	Continuing	Continuing
652053: <i>National Air Intel Center</i>	2.282	1.495	1.364	0.000	1.364	1.262	1.074	1.289	1.367	Continuing	Continuing

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	2.282	1.495	0.000	0.000	0.000
Current President's Budget	2.282	1.495	1.364	0.000	1.364
Total Adjustments	0.000	0.000	1.364	0.000	1.364
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	1.364	0.000	1.364

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 652053: *National Air Intel Center*

Congressional Add: *Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)*

Congressional Add Subtotals for Project: 652053

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)	0.800	0.000
Congressional Add Subtotals for Project: 652053	0.800	0.000
Congressional Add Totals for all Projects	0.800	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>	PROJECT 652053: <i>National Air Intel Center</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>652053: National Air Intel Center</i>	2.282	1.495	1.364	0.000	1.364	1.262	1.074	1.289	1.367	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Completed Upgrade of TEL-SCOPE Tool with Expanded Operational Capability (EOC)	0.290	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>	PROJECT 652053: <i>National Air Intel Center</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY2010: Continue Electronic Warfare (EW) Flagging</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continue Electronic Warfare (EW) Flagging</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)</p> <p><i>FY 2010 Plans:</i> In FY2010: Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		0.295	0.332	0.319	0.000	0.319
<p>MAJOR THRUST: Initiate High Performance Aero Vehicle Modeler</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY2010: Initiate High Performance Aero Vehicle Modeler</p>		0.000	0.119	0.233	0.000	0.233

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>		PROJECT 652053: <i>National Air Intel Center</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY2011: Initiate High Performance Aero Vehicle Modeler								
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.								
Accomplishments/Planned Programs Subtotals				1.482	1.495	1.364	0.000	1.364
				FY 2009	FY 2010			
Congressional Add: Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)				0.800	0.000			
<i>FY 2009 Accomplishments:</i> In FY2009: Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)								
<i>FY 2010 Plans:</i> In FY2010: N/A								
Congressional Adds Subtotals				0.800	0.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>	PROJECT 652053: <i>National Air Intel Center</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (20003): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>					PROJECT 652053: <i>National Air Intel Center</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TEL-SCOPE Expanded Operational Capability (EOC)	Various/ Various	Prediction Systems, Inc. Spring Lake, NJ & Northrop Grumman Mission Sys...	1.305	0.000		0.000		0.000		0.000	0.000	1.305	1.305
Radio Frequency Detection & Analysis Capabilities	Various/ Various	Dept of Energy, Northrop Grumman Mission Systems Fairborn, OH and NE	1.129	0.190	Nov 2009	0.000		0.000		0.000	0.000	1.319	1.319
Electronic Warfare Flagging	C/CPFF	Sierra Nevada Corporation San Antonio, TX	1.043	0.854	Nov 2009	0.812	Nov 2010	0.000		0.812	Continuing	Continuing	Continuing
Project Theo (Automated Text Retrieval, Analysis & Exploitation Capability)	C/CPFF	Northrup Grumman Mission Systems Fairborn, OH	0.395	0.332	Nov 2009	0.319	Nov 2010	0.000		0.319	Continuing	Continuing	Continuing
High Performance Aero Vehicle	C/CPFF	Northrop Grumman Mission Systems Fairborn, OH	0.000	0.119	Jan 2010	0.233	Nov 2010	0.000		0.233	Continuing	Continuing	Continuing
Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR)	C/CPFF	CACI/GTS Division Dayton, OH	0.800	0.000		0.000		0.000		0.000	0.000	0.800	0.800

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>	PROJECT 652053: <i>National Air Intel Center</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(FY09 Congressional Add)													
Subtotal			4.672	1.495		1.364		0.000		1.364			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.672	1.495	1.364	0.000	1.364			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

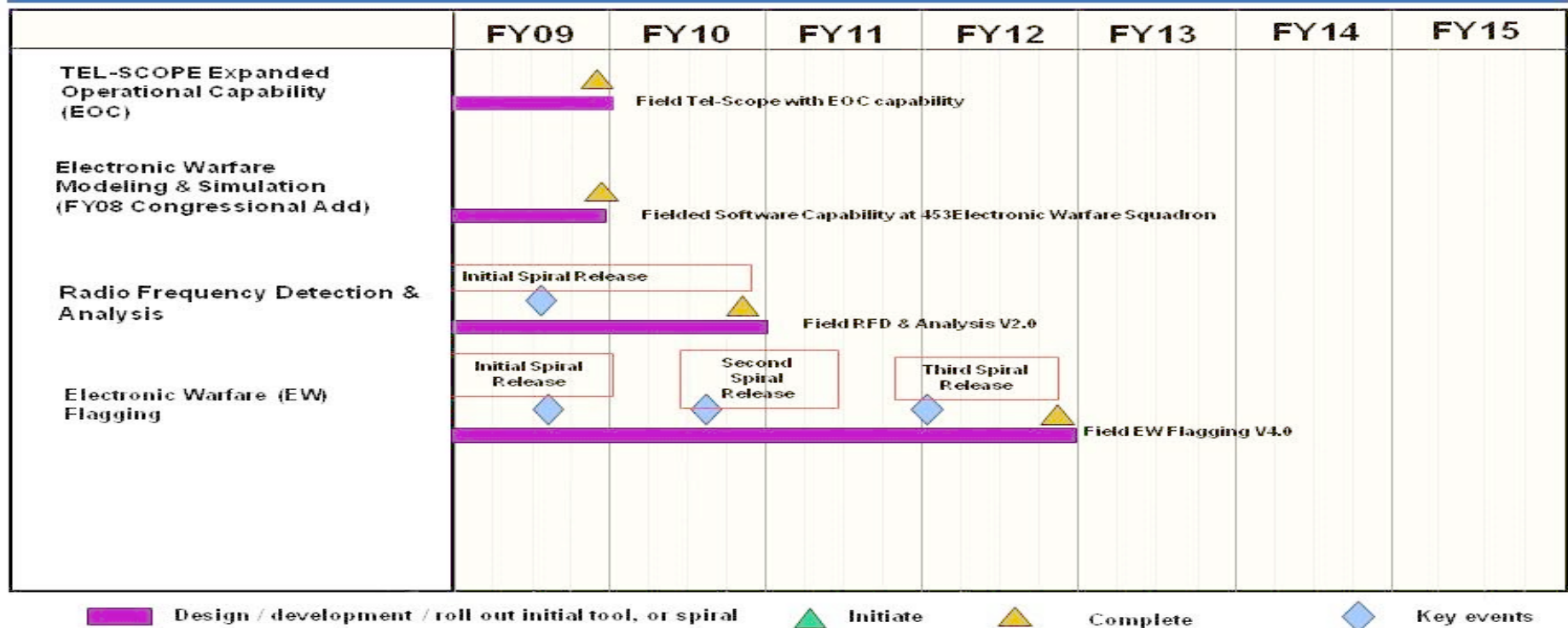
PE 0604750F: *Intelligence Equipment*

PROJECT

652053: *National Air Intel Center*



Intelligence Equipment Program Schedule (p 1 of 2)



PB11 R-Docs

Depicted by installation/production flow

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

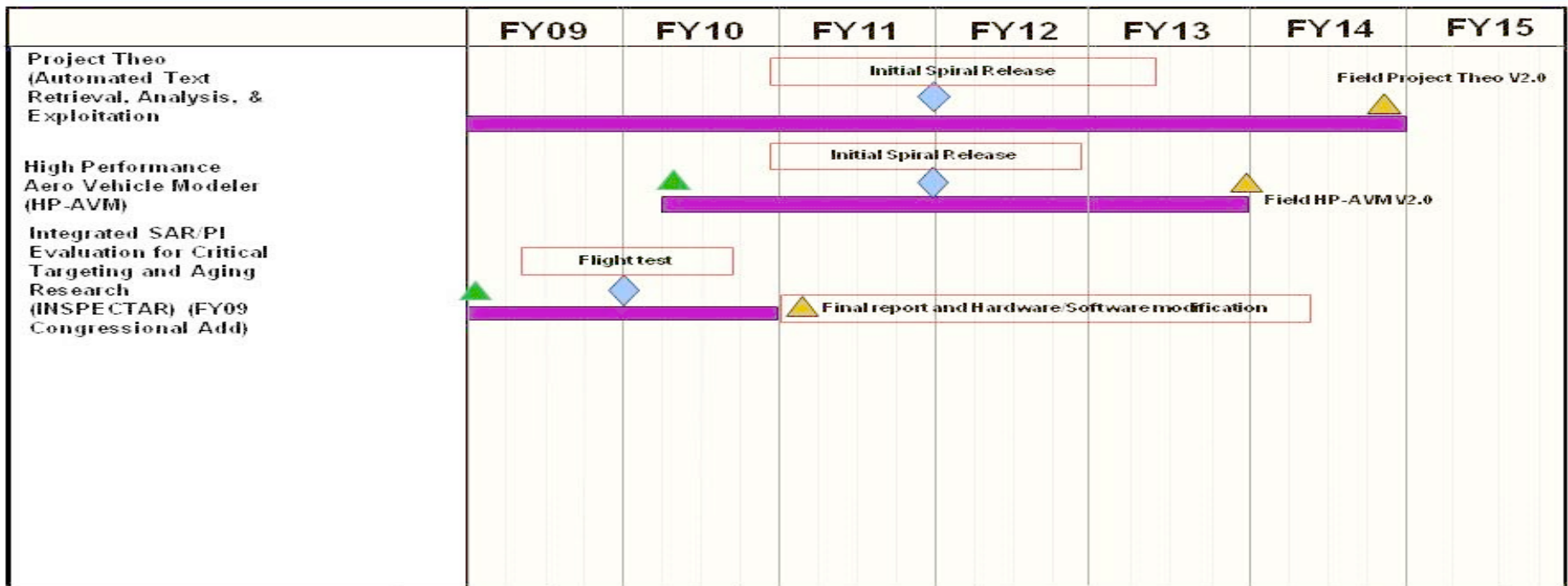
PE 0604750F: *Intelligence Equipment*

PROJECT

652053: *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-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604750F: <i>Intelligence Equipment</i>	PROJECT 652053: <i>National Air Intel Center</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Completed TEL-SCOPE Expanded Operational Capability (EOC)	1	2009	4	2009
Completed Electronic Warfare Modeling and Simulation (FY08 Congressional Add)	1	2009	4	2009
Completed Radio Frequency (RF) Detection & Analysis Capabilities	1	2009	4	2010
Continue Electronic Warfare (EW) Flagging	1	2009	4	2011
Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)	1	2009	4	2011
Continue High Performance Aero Vehicle Modeler	2	2010	4	2011
Completed Integrated SAR/PI Evaluation for Critical Targeting and Aging Research (INSPECTAR) (FY09 Congressional Add)	1	2009	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1,743.569	2,072.897	883.773	0.000	883.773	1,028.424	649.759	233.991	47.213	Continuing	Continuing
653831: <i>Joint Strike Fighter</i>	1,743.569	2,072.897	883.773	0.000	883.773	1,028.424	649.759	233.991	47.213	0.000	0.000

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 reflects 13 flight test articles (including 1 asset in FY07, 1 in FY08, 1 in FY09, and 10 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 first flight.

Due to an inadvertent error the Air Force requests a technical adjustment transferring \$159,837,000 from R-1 Line No. 135, "F-35 Squadrons" to R-1 Line No. 81, "Joint Strike Fighter (JSF)". The following exhibits reflect the requested transfer amounts.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>
--	--

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1,734.299	1,858.055	0.000	0.000	0.000
Current President's Budget	1,743.569	2,072.897	883.773	0.000	883.773
Total Adjustments	9.270	214.842	883.773	0.000	883.773
• Congressional General Reductions		-0.158			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		215.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	9.270	0.000	883.773	0.000	883.773

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 653831: *Joint Strike Fighter*

 Congressional Add: *F136 Second engine*

Congressional Add Subtotals for Project: 653831

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	425.390	429.108
	425.390	429.108
	425.390	429.108

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>	PROJECT 653831: <i>Joint Strike Fighter</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
653831: <i>Joint Strike Fighter</i>	1,743.569	2,072.897	883.773	0.000	883.773	1,028.424	649.759	233.991	47.213	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This exhibit reflects an Air Force request for a technical adjustment transferring \$159,837,000 from R-1 Line 135 "F-35 Squadrons" to Line No. 81 "Joint Strike Fighter (JSF)"

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 reflects 13 flight test articles (including 1 asset in FY07, 1 in FY08, 1 in FY09, and 10 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 first flight.

Due to an inadvertent error the Air Force requests a technical adjustment transferring \$159,837,000 from R-1 Line No. 135, "F-35 Squadrons" to R-1 Line No. 81, "Joint Strike Fighter (JSF)". The following exhibits reflect the requested transfer amounts.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
	2,452.707	2,445.453	1,465.181	0.000	1,465.181

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>	PROJECT 653831: <i>Joint Strike Fighter</i>

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: SDD execution of the Air System (Lockheed Martin) including International Commonality Effort; includes airframe, vehicle and mission systems, autonomic logistics, systems engineering...</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continued 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.</p> <p><i>FY 2010 Plans:</i> In FY2010: 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.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: 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.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
<p>MAJOR THRUST: SDD execution of the F135 Propulsion System (Pratt & Whitney) using International Commonality Effort; includes testing, autonomic logistics, integration & performing technology matur...</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continued SDD execution of the F135 Propulsion System, with Pratt & Whitney using (ICE) which includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p>	507.209	636.978	211.828	0.000	211.828

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>	PROJECT 653831: <i>Joint Strike Fighter</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						
Major Thrust: Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. <i>FY 2009 Accomplishments:</i> In FY2009: Continued SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. <i>FY 2010 Plans:</i> In FY2010: Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. <i>FY 2011 Base Plans:</i> In FY2011: Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.		100.211	164.758	207.393	0.000	207.393
MAJOR THRUST: Government Development Test & Evaluation (DT&E) continued to support test aircraft first flight. DT&E includes flight test preparation, weapons integration testing, & Program Introdu... <i>FY 2009 Accomplishments:</i> In FY2009: Government Development Test and Evaluation (DT&E) continud 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).		101.538	311.925	404.102	0.000	404.102

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
maturation, engine testing, autonomic logistics and integration. Congressional Add actions restored \$480M in FY08 and \$430M in FY09.		
<i>FY 2010 Plans:</i> In FY2010: 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 included technology maturation, engine testing, autonomic logistics and integration. Congressional Add actions restored \$480M in FY08 and \$430M in FY09.		
Congressional Adds Subtotals	425.390	429.108

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

Line Item	FY 2009	FY 2010	FY 2011	FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PE 0604800F: <i>USN RDT&E</i>	1,675.776	1,918.416	667.915	0.000	667.915	594.004	529.826	375.897	134.676	0.000	0.000
• PE 0604800M: <i>USMC RDT&E</i>	0.000	0.000	667.916	0.000	667.916	594.004	529.826	375.925	134.707	0.000	0.000
• PE 0604800N: <i>USN RDT&E - USRL</i>	28.816	31.813	39.876	0.000	39.876	27.028	19.792	0.000	0.000	0.000	0.000
• PE not applicable: <i>Int'l Partner RDT&E</i>	244.584	109.511	91.386	0.000	91.386	19.400	11.620	0.000	0.000	0.000	0.000
• PE 0207142F: <i>USAF PROCUREMENT</i>	1,660.628	2,355.345	3,983.242	204.900	4,188.142	4,229.333	4,212.451	6,145.339	6,973.983	136,362.822	0.000
• PE 0204146N: <i>USN Procurement</i>	1,692.965	4,464.251	1,886.988	0.000	1,886.988	2,012.008	2,636.771	2,467.155	2,764.547	27,964.270	0.000
• PE 0204146M: <i>USMC Procurement</i>	0.000	0.000	2,576.142	0.000	2,576.142	2,863.025	4,016.672	3,447.547	3,451.525	22,070.323	0.000
• PE not applicable (1): <i>Int'l Partner Procurement</i>	874.014	629.965	1,936.600	0.000	1,936.600	4,690.200	5,737.700	7,893.900	7,898.740	0.000	0.000
	2.957	3.017	5.398	0.000	5.398	5.728	4.901	4.981	5.713	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>	PROJECT 653831: <i>Joint Strike Fighter</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 426500: <i>USN Other Procurement</i>											
• PE 0207142F (2): <i>USAF Initial Spares and Repair Parts</i>	61.096	129.296	263.573	0.000	263.573	260.659	293.707	413.225	444.519	10,876.348	0.000
• PE 0204146N (3): <i>USN Initial Spares and Repair Parts</i>	182.508	248.191	107.030	0.000	107.030	92.216	178.496	194.183	192.599	2,049.006	0.000
• PE 0204146M (4): <i>USMC Initial Spares and Repair Parts</i>	0.000	0.000	164.135	0.000	164.135	136.957	311.553	325.794	324.437	1,718.297	0.000
• PE 0207142F (5): <i>USAF MILCON</i>	21.973	73.360	139.640	0.000	139.640	73.783	82.313	0.000	27.619	0.000	0.000
• PE 0212576N: <i>USN MILCON</i>	0.000	3.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207142F (6): <i>USAF Modifications</i>	0.000	0.000	123.936	0.000	123.936	8.319	5.047	3.461	31.472	0.000	0.000
• PE 0207142F (7): <i>USAF RDT&E</i>	0.000	0.000	57.724	0.000	57.724	372.215	469.563	515.628	230.617	0.000	0.000

D. Acquisition Strategy

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

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<p>These follow-on development efforts will be procured via cost type contracts. It is anticipated that the fee provisions will be used to target and motivate contractor performance. A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.</p> <p>In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable, engine for competition in production.</p> <p>Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & 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.</p> <p>Follow-on Development will continue the evolutionary approach of SDD by providing capability enhancements through an incremental methodology. The Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) shall provide the framework and basis for defining, managing and acquiring the envisioned F-35 enhancements. The plan for each follow-on increment will include all the development, integration and verification testing of those capabilities. Additionally, the non-recurring efforts for cut-in of retrofit, production and sustainment will be included. Retrofit planning will be based on upgrading all previously fielded aircraft to the latest increment in order to limit the number of configurations, thus reducing life cycle cost. Retrofit execution will be in accordance with the stakeholders direction.</p> <p>The new configurations will be incorporated into production and, if required by the U.S. Services or SDD International Partners, retrofitted to fielded aircraft under F-35 production and sustainment contracts. Similar to SDD, BOAs and ID/IQ contracts may be used for trade studies and analyses to supplement Follow-On requirements development.</p> <p>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 was awarded in June 09. LRIP IV advanced procurement was awarded in March 09, and full funding contract award will occur in February 10.</p>		

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Budget reflects a one-year flight test extension approved by the Executive Steering Committee.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Lockheed Martin - SDD	C/CPAF	Lockheed Martin Ft. Worth, TX	23,060.300	2,431.167	Oct 2009	1,462.504	Oct 2010	0.000		1,462.504	2,907.330	29,861.302	27,481.288
Lockheed Martin - IDIQ D0022	SS/Various	Lockheed Martin Ft. Worth, TX	5.015	7.286	Oct 2009	2.677	Oct 2010	0.000		2.677	2.350	17.328	0.000
Lockheed Martin - IDIQ D0009	SS/Various	Lockheed Martin Ft. Worth, TX	19.733	7.000	Oct 2009	0.000		0.000		0.000	0.000	26.733	0.000
Lockheed Martin - BOA	SS/Various	Lockheed Martin Ft. Worth, TX	3.511	0.000		0.000		0.000		0.000	0.000	3.511	0.000
Pratt & Whitney - SDD	SS/CPAF	Pratt &Whintey Hartford, CT	6,065.573	636.978	Oct 2009	211.828	Oct 2010	0.000		211.828	373.286	7,287.665	6,660.675
Pratt & Whitney - Close Out Contract C0132	SS/CPFF	Pratt &Whintey Hartford, CT	1.364	0.000		0.000		0.000		0.000	0.000	1.364	0.000
Pratt & Whitney - CDP Close Out Contract C0050	SS/CPFF	Pratt &Whintey Hartford, CT	2.211	0.000		0.000		0.000		0.000	0.000	2.211	0.000
Pratt & Whitney - BOA	SS/Various	Pratt &Whintey Hartford, CT	35.983	0.000		0.000		0.000		0.000	0.000	35.983	0.000
Pratt & Whitney - IDIQ	SS/Various	Pratt &Whintey Hartford, CT	10.862	0.000		0.000		0.000		0.000	0.000	10.862	0.000
General Electric - SDD	SS/CPAF	FET General Electric/ Rolls Royce: Cincinnati, OH	1,670.367	429.108	Oct 2009	0.000		0.000		0.000	0.000	2,099.475	1,716.386
General Electric - IDIQ D0009	SS/Various	FET	0.264	0.000		0.000		0.000		0.000	0.000	0.264	0.000

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		General Electric/ Rolls Royce: Cincinnati, OH											
General Electric - IDIQ D0074	SS/Various	FET General Electric/ Rolls Royce: Cincinnati, OH	4.175	0.000		0.000		0.000		0.000	0.000	4.175	0.000
General Electric - F-136 Transition	SS/Various	FET General Electric/ Rolls Royce: Cincinnati, OH	100.400	0.000		0.000		0.000		0.000	0.000	100.400	0.000
General Electric - BOA	SS/Various	FET General Electric/ Rolls Royce: Cincinnati, OH	5.548	0.000		0.000		0.000		0.000	0.000	5.548	0.000
General Electric - Phase IIIb	SS/Various	FET General Electric/ Rolls Royce: Cincinnati, OH	382.753	0.000		0.000		0.000		0.000	0.000	382.753	0.000
Systems Engineering	Various/ Various	Various Various	240.041	42.537	Oct 2009	49.752	Oct 2010	0.000		49.752	237.634	569.965	0.000
Lockheed Martin - Follow-on Development	SS/CPAF	Lockheed Martin Ft. Worth, TX	0.000	0.000		52.073	Oct 2010	0.000		52.073	292.333	344.406	0.000
Pratt & Whitney - Follow-on Development	SS/CPAF	Pratt &Whintey Hartford, CT	0.000	0.000		4.250	Oct 2010	0.000		4.250	9.000	13.250	0.000
Systems Engineering - Follow-on Development	Various/ Various	Various Various	0.000	0.000		0.067	Oct 2010	0.000		0.067	1.864	1.931	0.000

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			31,608.100	3,554.076		1,783.151		0.000		1,783.151	3,823.797	40,769.126	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFFTC/Eglin	Various/ Various	Various Various	71.143	18.081	Oct 2009	20.999	Oct 2010	0.000		20.999	72.004	182.227	0.000
ASC/AFRL	Various/ Various	ASC/AFRL Wright Patterson AFB, OH	35.388	9.463	Oct 2009	6.096	Oct 2010	0.000		6.096	31.376	82.324	0.000
Bolling AFB	Various/ Various	Bolling AFB Washington DC	6.400	1.170	Oct 2009	1.142	Oct 2010	0.000		1.142	2.198	10.909	0.000
DMEA	Various/ Various	DMEA Wright Patterson AFB Dayton, OH	4.112	0.000	Oct 2009	0.000		0.000		0.000	0.000	4.112	0.000
ESC	Various/ Various	ESC Hanscom AFB, MA	6.383	0.836	Oct 2009	0.455	Oct 2010	0.000		0.455	1.376	9.050	0.000
AEDC/Fuel	Various/ Various	Various Various	107.092	62.447	Oct 2009	72.364	Oct 2010	0.000		72.364	179.013	420.916	0.000

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NAS Jacksonville	Various/ Various	NAS Jacksonville, FL	4.832	2.009	Oct 2009	2.143	Oct 2010	0.000		2.143	9.559	18.543	0.000
Miscellaneous	Various/ Various	Various Various	191.088	10.572	Oct 2009	16.068	Oct 2010	0.000		16.068	41.721	259.449	0.000
NAWC China Lake	Various/ Various	Various Various	71.847	14.297	Oct 2009	11.751	Oct 2010	0.000		11.751	41.895	139.790	0.000
NAWC TSD	Various/ Various	Various Various	6.096	1.854	Oct 2009	2.038	Oct 2010	0.000		2.038	7.990	17.978	0.000
NAWC Patuxent River	Various/ Various	NAWC AD Patuxent River, VA	233.248	42.612	Oct 2009	73.381	Oct 2010	0.000		73.381	188.114	537.356	0.000
NSWC	Various/ Various	Various Various	2.880	1.318	Oct 2009	0.909	Oct 2010	0.000		0.909	2.265	7.373	0.000
SPAWAR	Various/ Various	Various Various	6.484	0.099	Oct 2009	0.045	Oct 2010	0.000		0.045	0.249	6.878	0.000
SBIR Technology Insertion Congressional Add	Various/ Various	Various Various	24.187	0.000		0.000		0.000		0.000	0.000	24.187	0.000
Follow-on Development	Various/ Various	Various Various	0.000	0.000		1.662	Oct 2010	0.000		1.662	40.215	41.877	0.000
Subtotal			771.180	164.758		209.053		0.000		209.053	617.975	1,762.969	0.000

Remarks

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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NAWC Patuxent	Various/ Various	NAWC AD Patuxent River, VA	158.437	136.921	Oct 2009	174.158	Oct 2010	0.000		174.158	851.343	1,320.858	0.000
NAWC China Lake	Various/ Various	NAWC WD China Lake, CA	39.441	13.218	Oct 2009	15.266		0.000		15.266	39.148	107.072	0.000
Edwards AFB	Various/ Various	Edwards AFB California	147.537	97.290	Oct 2009	129.550	Oct 2010	0.000		129.550	291.103	665.481	0.000
Other (including Classified PIDs)	Various/ Various	Various Various	49.391	28.151	Oct 2009	29.127	Oct 2010	0.000		29.127	69.577	176.246	0.000
WEPS/Eglin	Various/ Various	WEPS Eglin AFB, FL	60.274	16.119	Oct 2009	21.103	Oct 2010	0.000		21.103	9.614	107.111	0.000
JITC	Various/ Various	Various Various	0.503	0.000		0.000		0.000		0.000	0.000	0.503	0.000
OT - UK	Various/ Various	Various Various	3.270	6.910	Oct 2009	11.185	Oct 2010	0.000		11.185	34.931	56.296	0.000
OT - AFOTEC/AFFTC	Various/ Various	Various Various	18.124	10.956	Oct 2009	20.179	Oct 2010	0.000		20.179	405.214	454.473	0.000
OT - JITC/OPTEV	Various/ Various	Various Various	3.485	2.361	Oct 2009	3.535	Oct 2010	0.000		3.535	33.396	42.776	0.000
Subtotal			480.462	311.926		404.103		0.000		404.103	1,734.326	2,930.816	0.000

Remarks

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ACT I	SS/CPFF	ACT I Arlington, VA	0.000	2.750	Nov 2009	2.833	Nov 2009	0.000		2.833	12.206	17.789	0.000
Mantech	C/FP	Mantech Arlington, VA	31.399	6.681	Nov 2009	7.015	Nov 2010	0.000		7.015	31.749	76.845	0.000
PA Consulting	SS/CPFF	PA Consultants Arlington, VA	0.000	2.021	Nov 2009	2.082	Nov 2009	0.000		2.082	8.970	13.073	0.000
DRC	C/CPFF	DRC Arlington, VA	0.000	2.333	Nov 2009	3.000	Nov 2010	0.000		3.000	3.000	8.333	0.000
First Principles	C/CPFF	First Principles Arlington, VA	0.000	0.881	Nov 2009	0.909	Nov 2010	0.000		0.909	3.951	5.741	0.000
Wyle	C/CPFF	Wyle Arlington, VA	49.032	18.066	Nov 2009	18.970	Nov 2010	0.000		18.970	85.602	171.670	0.000
SAFTAS	C/CPAF	SAFTAS Arlington, VA	46.562	15.504	Nov 2009	16.174	Nov 2010	0.000		16.174	67.581	145.821	0.000
Stanley	C/CPAF	Stanley Arlington, VA	110.805	17.810	Nov 2009	19.500	Nov 2010	0.000		19.500	88.060	236.175	0.000
Congressional Studies	Various/ Various	Various Various	0.800	0.000		0.000		0.000		0.000	0.000	0.800	0.000
Program Management Support	Various/ Various	Various Various	22.917	4.017	Oct 2009	4.037	Oct 2010	0.000		4.037	16.331	47.302	0.000
Subtotal			261.515	70.063		74.520		0.000		74.520	317.450	723.549	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604800F: <i>Joint Strike Fighter EMD</i>	PROJECT 653831: <i>Joint Strike Fighter</i>
--	--	---

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33,121.257	4,100.823	2,470.827	0.000	2,470.827	6,493.548	46,186.460	

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

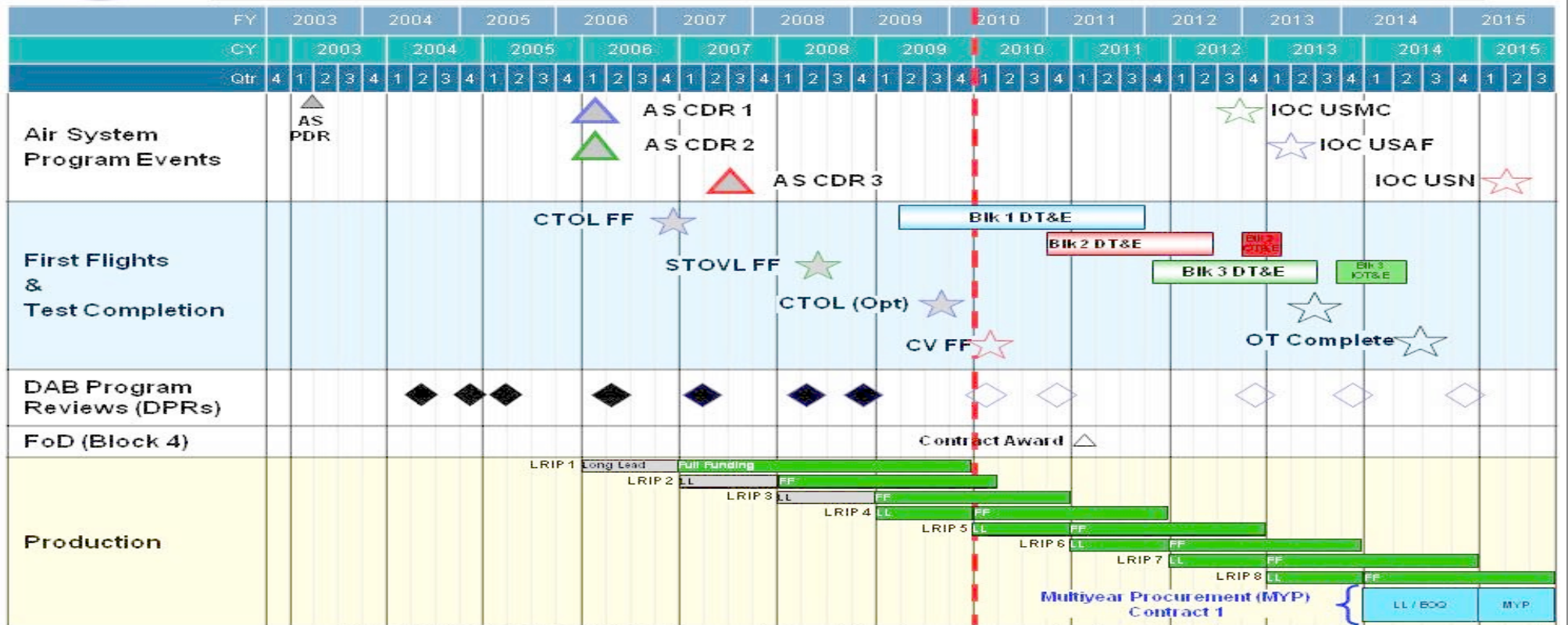
PE 0604800F: Joint Strike Fighter EMD

PROJECT

653831: Joint Strike Fighter



JSF Top-Level Development Program Schedule



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As of Jan 10 ¹

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0604800F: *Joint Strike Fighter EMD*

PROJECT

653831: *Joint Strike Fighter*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
DAB Program Review (DPR)	1	2009	1	2011
F-35A CTOL (Optimized Design) First Flight	4	2009	4	2009
F-35C Carrier Variant (CV) First Flight	2	2010	2	2010

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R-1 Line Item #81

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	60.010	71.843	0.000	71.843	66.776	67.342	49.220	17.513	Continuing	Continuing
655037: <i>Support Equipment</i>	0.000	41.331	71.843	0.000	71.843	66.776	67.342	49.220	17.513	Continuing	Continuing
655081: <i>ICBM Crypto</i>	0.000	18.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.679

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 efforts include design, development, and testing of replacement Electrical-Electronic Equipment Test Sets, Reentry Field Support Equipment, Minuteman Code Media, the Payload Transporter Tractor and Trailer and Higher Authority Command/Rapid Message Processing Element (HAC/RMPE) Message Generator.

The ICBM Cryptography Upgrade Increment II program will complete requirement definition, validation and risk mitigation efforts to expand on the ICBM Cryptography Upgrade Increment 1 program for future design and development needed 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>
--	--

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	60.010	0.000	0.000	0.000
Current President's Budget	0.000	60.010	71.843	0.000	71.843
Total Adjustments	0.000	0.000	71.843	0.000	71.843
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	71.843	0.000	71.843

Change Summary Explanation

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>				PROJECT 655037: <i>Support Equipment</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655037: <i>Support Equipment</i>	0.000	41.331	71.843	0.000	71.843	66.776	67.342	49.220	17.513	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification											
The ongoing Support Equipment program designs, develops and tests support equipment necessary to extend the operational life of the Minuteman (MM) III Weapon System through 2030. The production phase, MPAF 3020 funding, is budgeted under MMIII Support Equipment Replacement, PE 0101213F,											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
MAJOR THRUST: 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. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: The program will replace the current unsupportable 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).----Begin design, development, fabrication and testing of EEETS. Begin Independent Validation and Verification (IV&V) for the EEETS. <i>FY 2011 Base Plans:</i> In FY 2011: Continue design, development, fabrication and testing of EEETS. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						0.000	5.407	8.603	0.000	8.603	

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010																									
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>		PROJECT 655037: <i>Support Equipment</i>																									
B. Accomplishments/Planned Program (\$ in Millions)																													
<table border="1"> <thead> <tr> <th></th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011 Base</th> <th>FY 2011 OCO</th> <th>FY 2011 Total</th> </tr> </thead> <tbody> <tr> <td> the new media. Ensures capability through 2030 to load codes/software on MM ICBMs--critical to CY12 code change. Begin design, development, fabrication and testing of CSM. Begin Nuclear Surety Cross Check Analysis (NSCCA) for the CSM. <i>FY 2011 Base Plans:</i> In FY 2011: Continue design, development, fabrication and testing of CSM. Continue NSCCA for the CSM. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable. </td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> MAJOR THRUST: Design and develop the capabilities necessary to replace the current Payload Transporter Tractor and Trailer (PT3), mitigating emerging threat technologies and methods. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY 2011: The new Weapons Transporter design increases safety and security during transport activities and improves maintenance operations.---Begin design, development, fabrication and testing of HAC/RMPE message generator. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable. </td> <td align="center">0.000</td> <td align="center">0.000</td> <td align="center">0.790</td> <td align="center">0.000</td> <td align="center">0.790</td> </tr> <tr> <td> MAJOR THRUST: Design and develop the replacement for the Higher Authority Command/Rapid Message Processing Element (HAC/RMPE) message generator due to obsolescence and unsupportability for repair. </td> <td align="center">0.000</td> <td align="center">0.000</td> <td align="center">1.049</td> <td align="center">0.000</td> <td align="center">1.049</td> </tr> </tbody> </table>							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	the new media. Ensures capability through 2030 to load codes/software on MM ICBMs--critical to CY12 code change. Begin design, development, fabrication and testing of CSM. Begin Nuclear Surety Cross Check Analysis (NSCCA) for the CSM. <i>FY 2011 Base Plans:</i> In FY 2011: Continue design, development, fabrication and testing of CSM. Continue NSCCA for the CSM. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.						MAJOR THRUST: Design and develop the capabilities necessary to replace the current Payload Transporter Tractor and Trailer (PT3), mitigating emerging threat technologies and methods. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY 2011: The new Weapons Transporter design increases safety and security during transport activities and improves maintenance operations.---Begin design, development, fabrication and testing of HAC/RMPE message generator. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	0.000	0.000	0.790	0.000	0.790	MAJOR THRUST: Design and develop the replacement for the Higher Authority Command/Rapid Message Processing Element (HAC/RMPE) message generator due to obsolescence and unsupportability for repair.	0.000	0.000	1.049	0.000	1.049
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total																								
the new media. Ensures capability through 2030 to load codes/software on MM ICBMs--critical to CY12 code change. Begin design, development, fabrication and testing of CSM. Begin Nuclear Surety Cross Check Analysis (NSCCA) for the CSM. <i>FY 2011 Base Plans:</i> In FY 2011: Continue design, development, fabrication and testing of CSM. Continue NSCCA for the CSM. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.																													
MAJOR THRUST: Design and develop the capabilities necessary to replace the current Payload Transporter Tractor and Trailer (PT3), mitigating emerging threat technologies and methods. <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Not Applicable <i>FY 2011 Base Plans:</i> In FY 2011: The new Weapons Transporter design increases safety and security during transport activities and improves maintenance operations.---Begin design, development, fabrication and testing of HAC/RMPE message generator. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	0.000	0.000	0.790	0.000	0.790																								
MAJOR THRUST: Design and develop the replacement for the Higher Authority Command/Rapid Message Processing Element (HAC/RMPE) message generator due to obsolescence and unsupportability for repair.	0.000	0.000	1.049	0.000	1.049																								

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force							DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>			PROJECT 655037: <i>Support Equipment</i>					
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not Applicable</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: This program will address the replacement of Test Support Equipment (TSE) with a modern, sustainable common platform and standard interfaces.---Begin design, development, fabrication and testing of HAC/RMPE message generator.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>											
Accomplishments/Planned Programs Subtotals						0.000	41.331	71.843	0.000	71.843	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0101213F: <i>Missile Procurement - AF, Minuteman Squadrons, MM III Modifications</i>	0.000	0.000	0.000	0.000	0.000	0.000	1.500	0.500	0.000	0.000	0.000
• PE 0101213F (1): <i>Missile Procurement - AF, Minuteman</i>	0.000	0.000	0.000	0.000	0.000	0.000	2.000	9.900	80.800	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655037: <i>Support Equipment</i>
--	--	--

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<i>Squadrons, MM III Support Equipment Replacement</i>											

D. Acquisition Strategy

The support equipment replacement programs will be Cost Plus Award Fee (CPAF) and/or Cost Plus Incentive Fee (CPIF) contract addendums 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655037: <i>Support Equipment</i>
--	--	--

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ICBM Prime Integration Contract	SS/CPAF	Northrop Grumman Mission Systems Clearfield, UT	2.000	33.546	Jul 2010	65.487	Oct 2010	0.000		65.487	113.297	214.330	Continuing
Subtotal			2.000	33.546		65.487		0.000		65.487	113.297	214.330	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NSCCA	SS/CPAF	NGIT No text provided	0.000	2.368	Aug 2010	3.148	Oct 2010	0.000		3.148	3.166	8.682	Continuing
SPO/Other Program Support	Various/ Various	ICBM Program Office Hill AFB, UT	0.000	1.189	Jan 2010	1.468	Oct 2010	0.000		1.468	6.336	8.993	Continuing
Subtotal			0.000	3.557		4.616		0.000		4.616	9.502	17.675	

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>					PROJECT 655037: <i>Support Equipment</i>				

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	SS/CPAF	Northrop Grumman Mission Systems Clearfield, UT	0.000	1.103	Aug 2010	0.454		0.000		0.454	1.296	2.853	Continuing
Independent Validation and Verification	SS/CPAF	Northrop Grumman IT Clearfield, UT	0.000	3.125	Aug 2010	1.286	Oct 2010	0.000		1.286	10.086	14.497	Continuing
Subtotal			0.000	4.228		1.740		0.000		1.740	11.382	17.350	

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.000	41.331		71.843		0.000		71.843	134.181	249.355	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

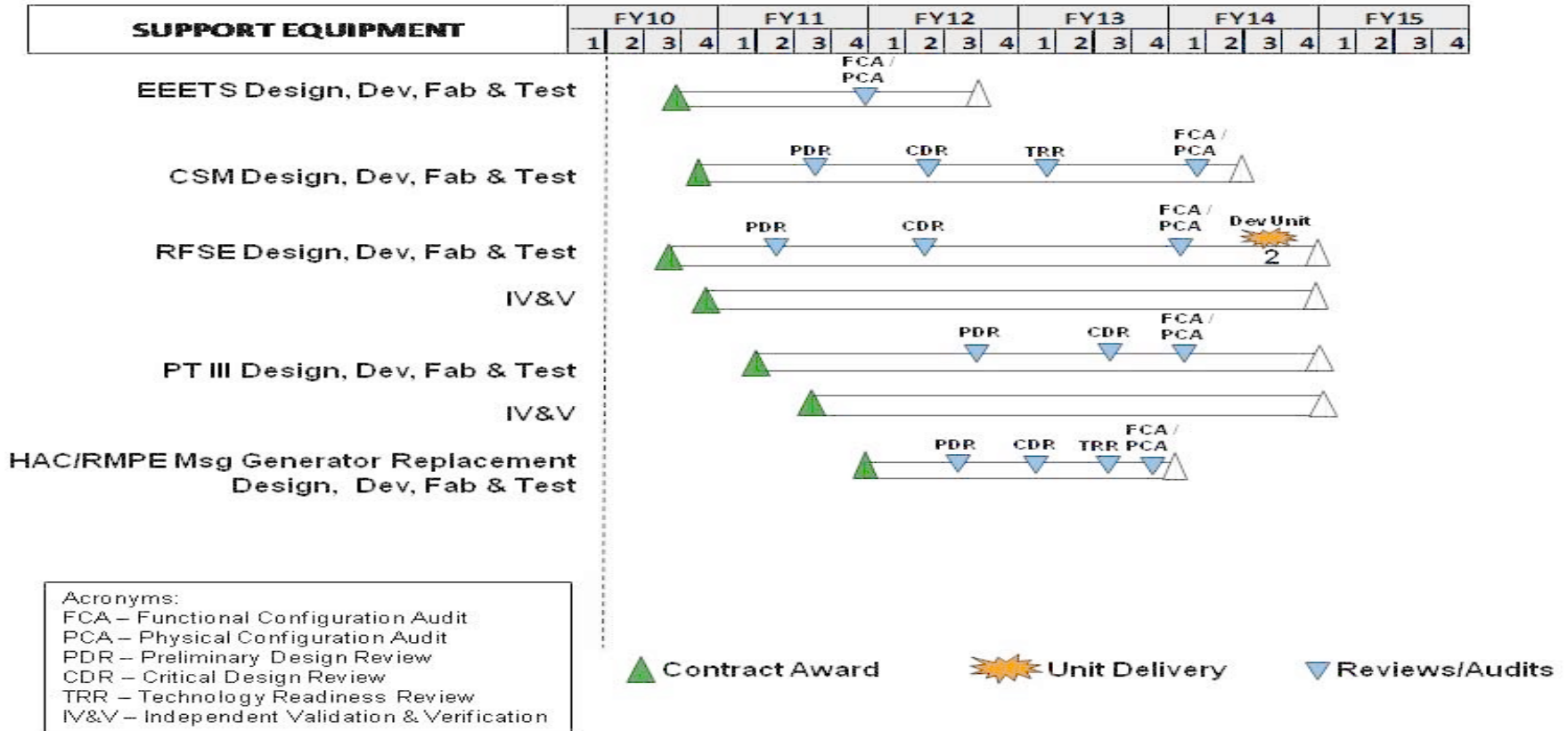
R-1 ITEM NOMENCLATURE

PE 0604851F: *ICBM - EMD*

PROJECT

655037: *Support Equipment*

As of 18 Dec 09



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655037: <i>Support Equipment</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Electrical-Electronic Equipment Test Set (EEETS) Development Contract Award	3	2010	3	2010
Reentry Field Support Equipment (RFSE) Development Contract Award	3	2010	3	2010
Codes System Media (CSM) Development Contract Award	4	2010	4	2010
RFSE Independent Validation & Verification (IV&V) Kickoff	4	2010	4	2010
RFSE Preliminary Design Review (PDR)	2	2011	2	2011
Payload Tractor Trailer Transporter (PT3) Development Contract Award	2	2011	2	2011
CSM PDR	3	2011	3	2011
PT3 IV&V Kickoff	3	2011	3	2011
HAC/RMPE Msg Generator Replacement Development Contract Award	4	2011	4	2011
EEETS Functional Configuration Audit (FCA)/Physical Configuration Audit (PCA)	4	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655081: <i>ICBM Crypto</i>
--	--	--

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655081: <i>ICBM Crypto</i>	0.000	18.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.679
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Increment II of the Inter-Continental Ballistic Missile Cryptography Upgrade program executes USSTRATCOM, Air Force Global Strike Command (AFGSC) and Nuclear Weapon Safety Center (NWSC) requirements by implementing 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 75 days annually and reduce associated resource costs for 450 launch facilities (LF) and 45 launch control centers (LCC).

This document is for the RDT&E phase of the ICBM Cryptography Program Increment II and is in Budget Activity 05. The Production portion of the program is under PE 0101213F MM III Modification.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: ICBM cryptography upgrade II requirement definition, validation and risk mitigation for future design & development <i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable <i>FY 2010 Plans:</i> In FY 2010: Complete requirement definition, validation and risk mitigation for future design, develop & test of the software upgrades/changes to the Console Operating Program, Launch Facility hardware/ software modification and Wing Code Processing System.	0.000	18.679	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655081: <i>ICBM Crypto</i>
--	--	--

B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY 2011: Not Applicable					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	0.000	18.679	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0101213F: <i>Missile Procurement - AF, Minuteman Squadrons, Modification</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy
Cost Plus Award Fee contract will be added to the ICBM Prime Integration Contractor (IPIC).

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>				PROJECT 655081: <i>ICBM Crypto</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ICBM Prime Integration Contract	SS/CPAF	Northrop Grumman Clearfield, UT	0.000	18.187	Jan 2010	0.000		0.000		0.000	0.000	18.187	0.000
Subtotal			0.000	18.187		0.000		0.000		0.000	0.000	18.187	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO/Other Program Support	Various/ Various	ICBM Program Office Hill AFB, UT	0.000	0.492	Oct 2009	0.000		0.000		0.000	0.000	0.492	0.000
Subtotal			0.000	0.492		0.000		0.000		0.000	0.000	0.492	0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	18.679	0.000	0.000	0.000	0.000	18.679	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655081: <i>ICBM Crypto</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
Total Prior Years Cost may include only FY 2009 data.

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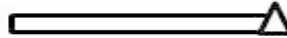
Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655081: <i>ICBM Crypto</i>

ICBM Cryptography Upgrade (ICU) II

	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

Contract Award

Requirement definition,
validation and risk mitigation



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604851F: <i>ICBM - EMD</i>	PROJECT 655081: <i>ICBM Crypto</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Contract Award	2	2010	2	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	43.628	46.545	30.245	0.000	30.245	4.333	0.000	0.000	0.000	Continuing	Continuing
650004: <i>Evolved Expendable Launch Vehicle</i>	43.628	46.545	30.245	0.000	30.245	4.333	0.000	0.000	0.000	0.000	1,516.730

A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed to provide two families of launch vehicles (for example 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: qualification of the extended mission kit, fleet standardization of the RS-68 main engine upgrade, Pre-Planned Product Improvements to ensure sustainability (includes, but is not limited to, secondary payload adaptor standard service, Global Positioning System (GPS) Metric Tracking capability, development of replacement components, flight and ground instrumentation), special studies, 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, commercial, and international partnership mission requirements.

As of 21 August 2007, the EELV Program has formally entered the sustainment phase.

As of 31 October 2007, Air Force Space Command formally extended 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	33.628	26.545	0.000	0.000	0.000
Current President's Budget	43.628	46.545	30.245	0.000	30.245
Total Adjustments	10.000	20.000	30.245	0.000	30.245
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		20.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	10.000	0.000	30.245	0.000	30.245

Change Summary Explanation

FY 2009: \$10M BTR for GPS Metric Tracking.

Congress added \$20.0M in FY2010 to study options and begin research and development to achieve a common upper stage between the Atlas and Delta launch vehicle families.

The FY2010 President's Budget submittal did not reflect FY2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
650004: <i>Evolved Expendable Launch Vehicle</i>	43.628	46.545	30.245	0.000	30.245	4.333	0.000	0.000	0.000	0.000	1,516.730
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed to provide two families of launch vehicles (for example 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: qualification of the extended mission kit, fleet standardization of the RS-68 main engine upgrade, Pre-Planned Product Improvements to ensure sustainability (includes, but is not limited to, secondary payload adaptor standard service, Global Positioning System (GPS) Metric Tracking capability, development of replacement components, flight and ground instrumentation), special studies, 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, commercial, and international partnership mission requirements.

As of 21 August 2007, the EELV Program has formally entered the sustainment phase.

As of 31 October 2007, Air Force Space Command formally extended 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
	43.628	46.545	30.245	0.000	30.245

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Fund EELV product improvements, replacement components, system enhancements, and studies to allow EELV to meet National Launch Forecast requirements through 2030.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Continued development and qualification of the extended mission kit. Continued development of GPS metric tracking system. Began fleet-wide integration and certification of RS-68 upgrade. Continued development of secondary payload standard service.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continue fleet-wide integration and certification of RS-68 upgrade. Continue development and qualification of the Atlas V extended mission kit. Continue development of GPS metric tracking system. Continued development of secondary payload standard service.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue fleet-wide integration and certification of RS-68 upgrade. Continued development of secondary payload standard service. Continue development of GPS metric tracking system. Conduct studies.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	43.628	46.545	30.245	0.000	30.245

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (22530): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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. The Air Force is evaluating the addition of other potential EELV suppliers.

In December 2006, TBC and LM initiated a joint venture, the United Launch Alliance (ULA), with the approval of the Federal Trade Commission. ULA will continue mission success and assure access to space with two launch vehicle systems by combining Delta IV/Atlas V management and engineering in Denver, CO; combining most of the manufacturing in Decatur, AL; and combining launch teams at both launch sites.

As of 21 August 2007, the EELV program has formally entered the sustainment phase.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	650004: <i>Evolved Expendable Launch Vehicle</i>

As of 31 Oct 2007, Air Force Space Command formally extended the EELV Program an additional 10 years, from 2020 through 2030.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>					PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Delta Prime Contractor	C/FFP	Boeing Huntington Beach, CA	710.182	0.000		0.000		0.000		0.000	0.000	710.182	0.000
Atlas Prime Contractor	C/FFP	Lockheed Martin Denver, CO	583.511	0.000		0.000		0.000		0.000	0.000	583.511	0.000
United Launch Alliance (ULA) Prime Contractor	SS/CPAF	ULA Decatur, AL	50.023	43.175	Oct 2009	28.390		0.000		28.390	4.333	125.921	Continuing
Subtotal			1,343.716	43.175		28.390		0.000		28.390	4.333	1,419.614	

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO/CTF Range Mission Spt	Various/ Various	Space and Missile Center Los Angeles Air Force Base, CA	43.617	0.000		0.000		0.000		0.000	0.000	43.617	0.000
FFRDC	SS/CPAF	Aerospace El Segundo, CA	67.214	0.000		0.000		0.000		0.000	0.000	67.214	0.000
Other Cntr Spt	Various/ Various	Various Various	15.192	3.370		1.855		0.000		1.855	0.000	20.417	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Subtotal			126.023	3.370		1.855		0.000		1.855	0.000	131.248		

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,469.739	46.545		30.245		0.000		30.245	4.333	1,550.862	

Remarks

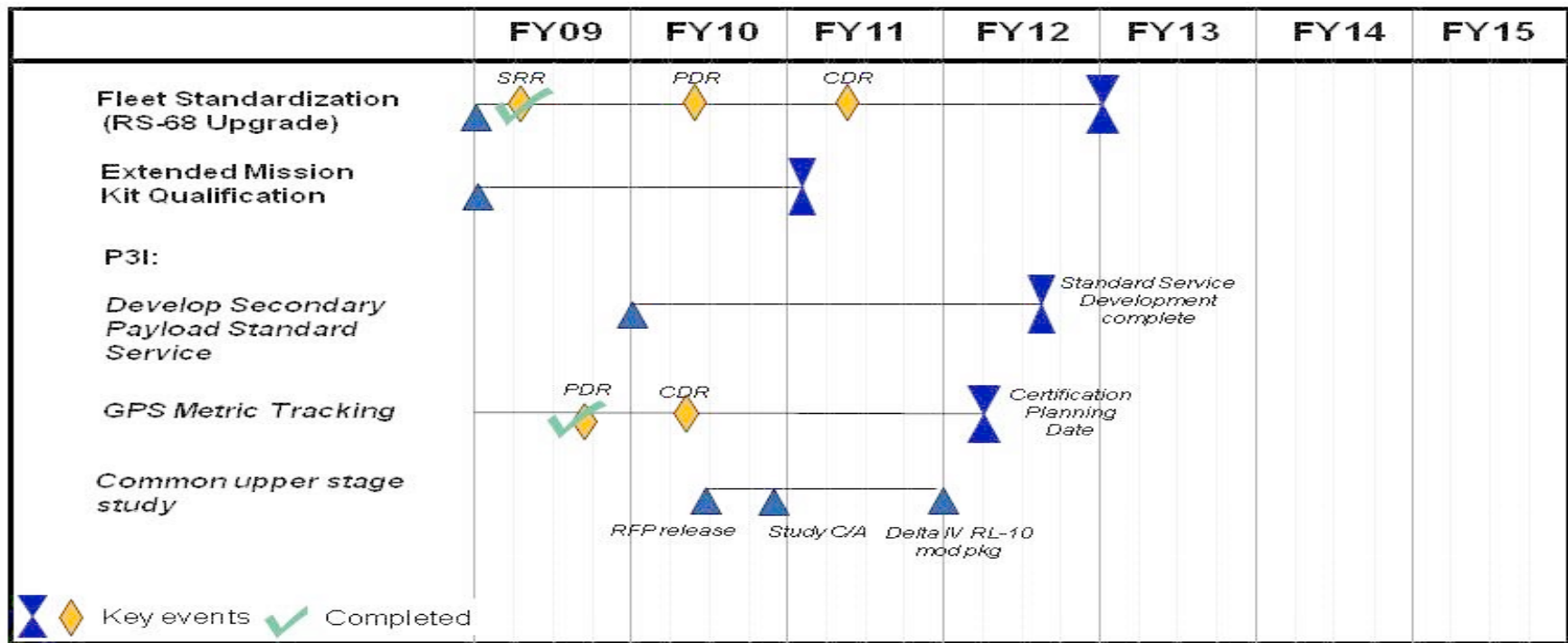
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>

EELV Development Program - Key Events



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604853F: <i>Evolved Expendable Launch Vehicle - EMD</i>	PROJECT 650004: <i>Evolved Expendable Launch Vehicle</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Pre-Planned Product Improvement (P3I): Secondary Payload Standard Service	1	2010	4	2011
Pre-Planned Product Improvement (P3I): GPS Metric Tracking Development	1	2009	4	2011
Pre-Planned Product Improvement (P3I): GPS Metric Tracking Development - Preliminary Design Review	3	2009	3	2009
Pre-Planned Product Improvement (P3I): GPS Metric Tracking Development - Critical Design Review	2	2010	2	2010
Atlas V Extended Mission Kit Qualification	1	2009	4	2010
Fleet Standardization (RS-68 Upgrade implementation)	1	2009	4	2011
Fleet Standardization - System Requirements Review	2	2009	2	2009
Fleet Standardization - Preliminary Design Review	2	2010	2	2010
Fleet Standardization - Critical Design Review	2	2011	2	2011
Common booster upper stage study RFP release	2	2010	3	2010
Common booster upper stage study proposal	3	2010	4	2010
Common booster stage study activities	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605011F: <i>RDT&E For Aging Aircraft</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	5.808	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
654685: <i>Aging Aircraft</i>	5.808	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	13.791	0.000	0.000	0.000	0.000
Current President's Budget	5.808	0.000	0.000	0.000	0.000
Total Adjustments	-7.983	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-7.983	0.000	0.000	0.000	0.000

Change Summary Explanation

In FY 2010, this program will be terminated due to higher Air Force priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605011F: <i>RDT&E For Aging Aircraft</i>	PROJECT 654685: <i>Aging Aircraft</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654685: <i>Aging Aircraft</i>	5.808	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program identifies cross-cutting technologies that reduce total ownership costs and improve reliability, availability, and maintainability. Based on these technologies, the program develops and delivers solutions (to include prototype hardware and software) to address aging aircraft needs. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the air logistics centers, product centers, acquisition organizations, other services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and air logistics center engineers and managers.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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. Investigated the use of legacy aircraft airframes for next-generation weapon systems such as directed energy weapons.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not Applicable.</p>	1.100	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605011F: <i>RDT&E For Aging Aircraft</i>	PROJECT 654685: <i>Aging Aircraft</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	5.808	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (22925): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605011F: <i>RDT&E For Aging Aircraft</i>	PROJECT 654685: <i>Aging Aircraft</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Raytheon/Northrop	C/CPFF	TBD TBD	1.100	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Raytheon	C/CPFF	TBD TBD	3.608	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Dynamics Research Corporation	C/CPFF	TBD TBD	1.100	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			5.808	0.000		0.000		0.000		0.000			

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.808	0.000		0.000		0.000		0.000			

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

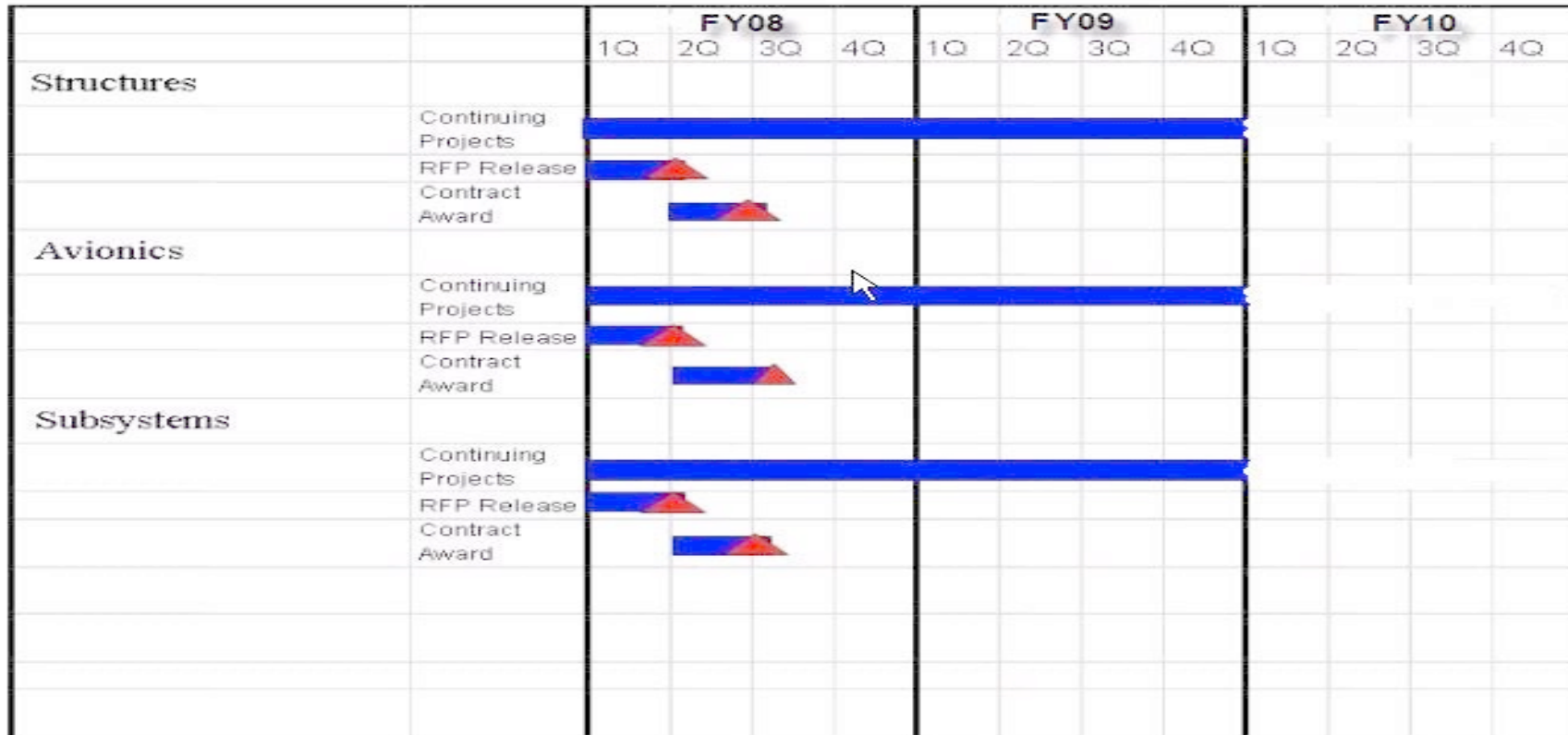
R-1 ITEM NOMENCLATURE

PE 0605011F: *RDT&E For Aging Aircraft*

PROJECT

654685: *Aging Aircraft*

Aging Aircraft Schedule Summary



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605011F: <i>RDT&E For Aging Aircraft</i>	PROJECT 654685: <i>Aging Aircraft</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Aging Aircraft Structures Projects	1	2009	4	2009
Request for Proposal Release	1	2009	1	2009
Contract Award	2	2009	2	2009
Aging Aircraft Avionics Projects	1	2009	4	2009
Request for Proposal Release (1)	1	2009	1	2009
Contract Award (2)	2	2009	2	2009
Aging Aircraft Subsystems Projects	1	2009	4	2009
Request for Proposal Release (3)	1	2009	1	2009
Contract Award (4)	2	2009	2	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	22.629	15.000	863.875	0.000	863.875	1,146.007	1,189.883	345.599	48.147	Continuing	Continuing
655271: <i>KC-X RDT&E</i>	22.629	15.000	863.875	0.000	863.875	1,146.007	1,189.883	345.599	48.147	Continuing	Continuing

Note

The Air Force is preparing for the new source selection competition as a result of the SECDEF's termination of the 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 Defense Acquisition Board (DAB) 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 4Q FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF. The FY10 Appropriations Bill reduced \$132.9M in RDT&E, moved \$291.715M of FY10 RDT&E into the TRTF, and left \$15.0M in RDT&E to support program office & source selection activities, and to initiate contract award. The FY11 PB restructures the KC-X budget to account for the fact-of-life delays for the recompetition and planned summer 2010 contract award.

In FY2009, PE 0605221F, KC-X Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, efforts were transferred from PE 0401221F, KC-X Replacement Tanker, 4927, KC-X Replacement Tanker, in order to move funds to Budget Activity (BA) 05 to correctly represent the phase of the KC-X Program.

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 of the KC-X competition. On 6 Apr 09, SECDEF decided to proceed with a new competition. The FY11 PB restructures the KC-X budget to account for the fact-of-life delays for the recompetition and planned summer 2010 contract award.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 49 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 a third of the current capability with the purchase of 179 aircraft. The KC-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>
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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 communication, navigation and surveillance 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.

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 sustainment efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including the five-nation Future Technology and Aerial Refueling (FTAR) project, and KC-Y/KC-Z planning activities.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	23.000	439.615	0.000	0.000	0.000
Current President's Budget	22.629	15.000	863.875	0.000	863.875
Total Adjustments	-0.371	-424.615	863.875	0.000	863.875
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.371	-424.615	863.875	0.000	863.875

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>
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Change Summary Explanation

The Air Force is preparing for the new source selection competition as a result of the SECDEF's termination of the 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 Defense Acquisition Board (DAB) 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 4Q FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF. The FY10 Appropriations Bill reduced \$132.9M in RDT&E, moved \$291.715M of FY10 RDT&E into the TRTF, and left \$15.0M in RDT&E to support program office & source selection activities, and to initiate contract award. The FY11 PB restructures the KC-X budget to account for the fact-of-life delays for the recompetition and planned summer 2010 contract award.

In FY2009, PE 0605221F, KC-X Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, efforts were transferred from PE 0401221F, KC-X Replacement Tanker, 4927, KC-X Replacement Tanker, in order to move funds to Budget Activity (BA) 05 to correctly represent the phase of the KC-X Program.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655271: <i>KC-X RDT&E</i>	22.629	15.000	863.875	0.000	863.875	1,146.007	1,189.883	345.599	48.147	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The Air Force is preparing for the new source selection competition as a result of the SECDEF's termination of the 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 Defense Acquisition Board (DAB) approved baseline.

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In FY2009, PE 0605221F, KC-X Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, efforts were transferred from PE 0401221F, KC-X Replacement Tanker, 4927, KC-X Replacement Tanker, in order to move funds to Budget Activity (BA) 05 to correctly represent the phase of the KC-X Program.

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 of the KC-X competition. On 6 Apr 09, SECDEF decided to proceed with a new competition. The FY11 PB restructures the KC-X budget to account for the fact-of-life delays for the recompetition and planned summer 2010 contract award.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 49 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 a third of the current capability with the purchase of 179 aircraft. The KC-

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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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 communication, navigation and surveillance 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.

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 sustainment efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including the five-nation Future Technology and Aerial Refueling (FTAR) project, and KC-Y/KC-Z planning activities.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: To begin recapitalizing the aging KC-135 fleet <i>FY 2009 Accomplishments:</i> In FY2009: Program office began contract termination activities with Northrop Grumman KC-45. Began documentation and preparation of new contract solicitation for KC-X per SECDEF 8 Jul 09 decision to proceed with new competition. Began Aircraft and Maintenance Training System Requirement Analyses to determine training requirements.	22.629	15.000	863.875	0.000	863.875

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY2010: Continuing documentation and preparation of new contract solicitation for KC-X -- contract award planned for summer of 2010. After contract award, program office will begin the Engineering and Manufacturing Design (EMD) phase which includes purchase of EMD aircraft for development, integration, and demonstration of capability. Continuing Aircrew and Maintenance Training System Requirement Analyses. Begin solicitation for KC-X aircrew training and maintenance systems. Begin planning for developmental testing and evaluation. Continuing program office mission support and studies & analyses. The Tanker Replacement Transfer Fund (TRTF) will be used as required in 2010 and beyond.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continues KC-X tanker EMD activities. Awards KC-X aircrew training and maintenance systems development contracts. Continues test and evaluation efforts. Continuing program office mission support and studies & analyses.</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	22.629	15.000	863.875	0.000	863.875

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0605221F: <i>KC-X Aircraft Procurement, BP10</i>	0.000	0.000	0.000	0.000	0.000	0.000	1,582.962	3,213.361	3,265.010	0.000	0.000
• PE 0605221F (1): <i>KC-X MILCON</i>	0.000	0.000	0.000	0.000	0.000	83.989	156.000	69.000	218.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0605221F (2): <i>KC-X O & M</i>	0.873	0.473	2.721	0.000	2.721	13.984	16.341	16.655	17.012	0.000	0.000

D. Acquisition Strategy

The Air Force is preparing for a new source selection competition as a result of the SECDEF's termination of the KC-X competition on 10 Sep 08. Draft RFP released on 25 Sep 09. The program schedule and 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 Defense Acquisition Board (DAB) approved baseline. The Tanker Replacement Transfer Fund (TRTF) will be used as required in 2010 and beyond.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 49 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 a third of the current capability with the purchase of 179 aircraft.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non-recurring, RDT&E tanker aircraft and support	TBD/FP	Aerospace Manufacturer TBD	0.000	2.000		810.412		0.000		810.412	Continuing	Continuing	0.000
Subtotal			0.000	2.000		810.412		0.000		810.412			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies and Analysis	Various	Various Various	2.000	1.000		1.800		0.000		1.800	Continuing	Continuing	0.000
Subtotal			2.000	1.000		1.800		0.000		1.800			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Planning	Various	Various Various	0.138	0.161		15.500		0.000		15.500	Continuing	Continuing	0.000
Subtotal			0.138	0.161		15.500		0.000		15.500			0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	Various	KC-X Program Office Wright Patterson AFB, OH	20.491	11.319		21.013		0.000		21.013	Continuing	Continuing	0.000
Trainer Development	TBD/TBD	Trainer Manufacturer TBD	0.000	0.520		15.150		0.000		15.150	0.000	15.670	0.000
Subtotal			20.491	11.839		36.163		0.000		36.163			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.629	15.000	863.875	0.000	863.875			0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0605221F: *KC-X, Next Generation Aerial Refueling Aircraft*

PROJECT

655271: *KC-X RDT&E*

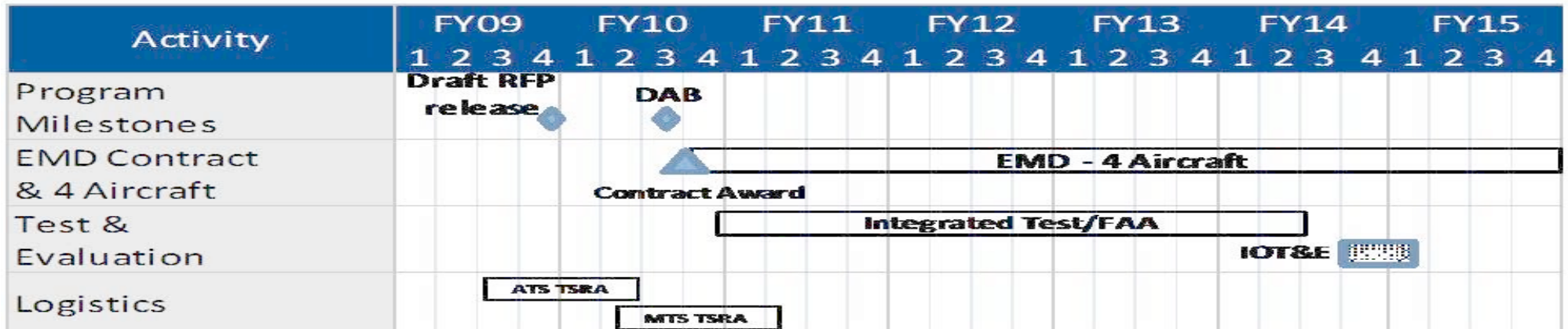


U.S. AIR FORCE

KC-X Notional Schedule



Dominant Air Power: Design For Tomorrow... Deliver Today



RFP - Request for Proposal	DAB - Defense Acquisition Board
EMD - Engineering Manufacturing and Development	FAA - Federal Aviation Agency
IOT&E - Initial Operational Test & Evaluation	ATS - Aircrew Training System
MTS - Maintenance Training System	TSRA - Training Systems Requirement Analysis

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605221F: <i>KC-X, Next Generation Aerial Refueling Aircraft</i>	PROJECT 655271: <i>KC-X RDT&E</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Product Development: Non recurring, RDT&E tanker aircraft and support	3	2010	4	2011
Trainer Development:	2	2010	4	2011
Test & Evaluation: Test & Planning	1	2009	4	2011
Support: Studies and Analysis	1	2009	4	2011
Management: Program Office Support	1	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	12.584	0.000	12.584	21.227	60.644	63.318	24.098	Continuing	Continuing
654364: <i>HH-60 Recap RDT&E</i>	0.000	0.000	10.650	0.000	10.650	16.062	55.996	55.471	15.038	0.000	0.000
657001: <i>Avionics Development and Integration</i>	0.000	0.000	1.934	0.000	1.934	5.165	4.648	7.847	9.060	0.000	0.000

A. Mission Description and Budget Item Justification

The HH-60 Recapitalization will replace the aging HH-60G USAF aircraft. The Avionics Development and Integration effort is an OSD-mandated program to fund a fully-integrated avionics upgrade that includes predictive terrain awareness and traffic collision avoidance warnings for all currently fielded Air Force helicopters.

Budget Justification: Funding is needed, but not limited to, the development of an acquisition strategy, a test and evaluation master plan, preparation of milestone documents, development of request for proposals, support of source selection activities, and/or sole source justification based on market research. HH-60 Recapitalization is in Budget Activity 05 as both of the efforts in this PE involve weapons systems and modifications that have not yet been fielded. This is an FY11 New Start.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	12.584	0.000	12.584
Total Adjustments	0.000	0.000	12.584	0.000	12.584
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	12.584	0.000	12.584

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R-1 Line Item #86

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654364: <i>HH-60 Recap RDT&E</i>	0.000	0.000	10.650	0.000	10.650	16.062	55.996	55.471	15.038	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The HH-60 Recapitalization program will replace the aging HH-60G USAF aircraft.

Budget Justification: Funding is needed, but not limited to, the development of an acquisition strategy, a test and evaluation master plan, preparation of milestone documents, development of request for proposals, support of source selection activities, and /or sole source justification based on market research. Funding for the H-60 Recapitalization program is contained in Budget Activity 05, as this effort involves a weapons system that has not been fully fielded.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Studies, analysis, program office support, development of an acquisition strategy and test and evaluation plan, and preparation of milestone documents as needed.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Studies, analysis, program office support, development of an acquisition strategy and test and evaluation plan, and preparation of milestone documents as needed for the HH-60 Recapitalization effort.</p>	0.000	0.000	10.650	0.000	10.650

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	10.650	0.000	10.650

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207229F: <i>CSAR HH-60 Recapitalization</i>	0.000	0.000	0.000	0.000	0.000	78.544	238.381	464.132	760.813	0.000	1,541.900

D. Acquisition Strategy
The HH-60G Recapitalization will replace the aging HH-60G Pave Hawk Combat Search and Rescue Aircraft. Efforts for this FY will include studies and analysis, the development of an acquisition strategy and a test and evaluation master plan, support of source selection activities, and/or sole source justification based on market research.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies and Analysis	TBD/TBD	TBD TBD	0.000	0.000		3.427		0.000		3.427	0.000	3.427	0.000
Subtotal			0.000	0.000		3.427		0.000		3.427	0.000	3.427	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test and Evaluation	TBD/TBD	TBD TBD	0.000	0.000		1.549		0.000		1.549	0.000	1.549	0.000
Subtotal			0.000	0.000		1.549		0.000		1.549	0.000	1.549	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
SPO Support	TBD/TBD	TBD TBD	0.000	0.000		5.674		0.000		5.674	0.000	5.674	0.000	
Subtotal			0.000	0.000		5.674		0.000		5.674	0.000	5.674	0.000	

Remarks

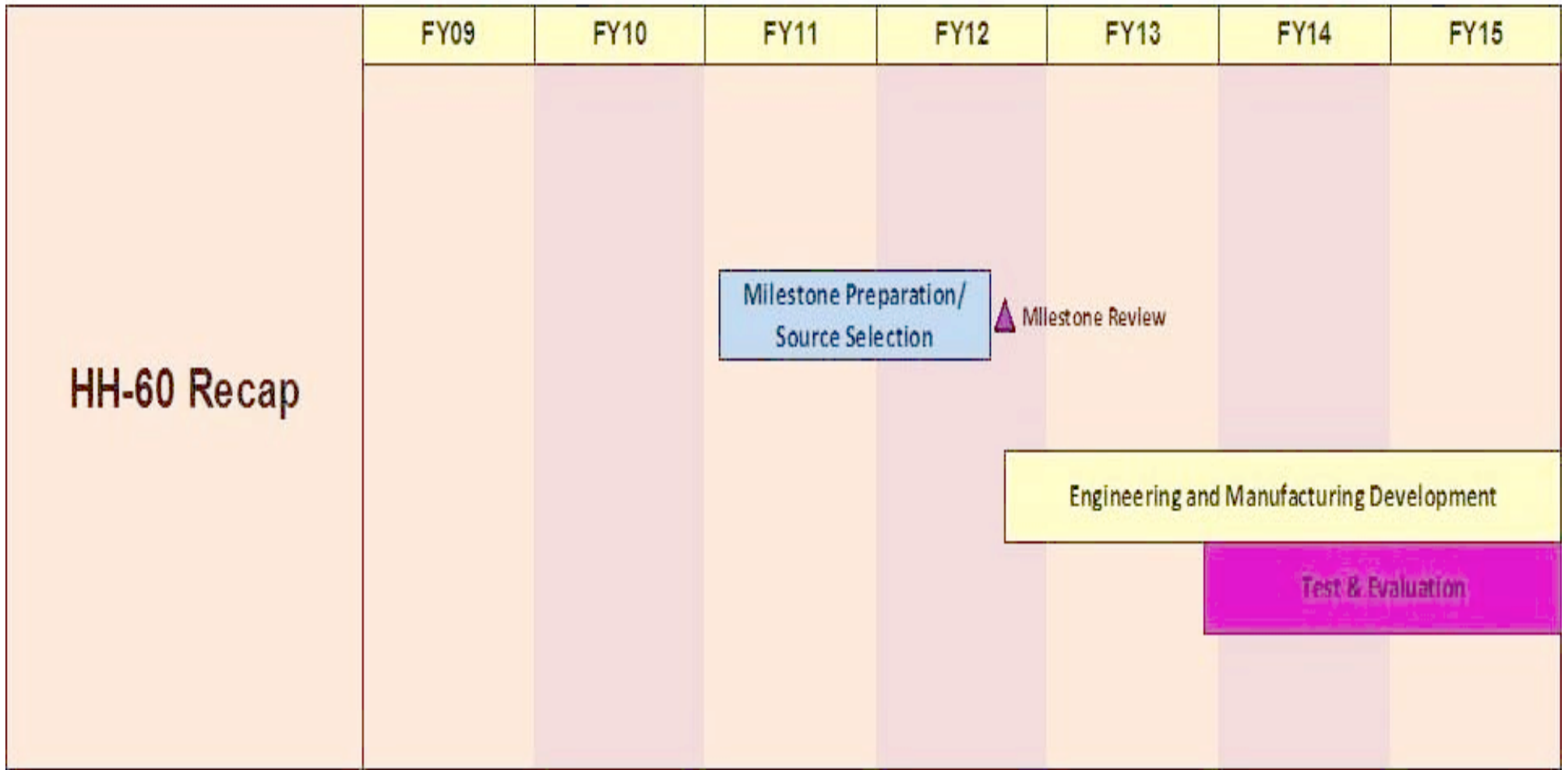
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	10.650	0.000	10.650	0.000	10.650	0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 654364: <i>HH-60 Recap RDT&E</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Activities include, but not limited to, the development of an acquisition strategy, a test and evaluation master plan, preparation of milestone documents, development of request for proposals, and	1	2011	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 657001: <i>Avionics Development and Integration</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
657001: <i>Avionics Development and Integration</i>	0.000	0.000	1.934	0.000	1.934	5.165	4.648	7.847	9.060	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Air Force Rotary Wing Avionics Development and Integration effort is an OSD-mandated program to fund a fully integrated avionics upgrade that includes predictive terrain awareness and traffic collision avoidance warnings for all Air Force helicopters.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Investigate and develop technologies to integrate avionics upgrades that include predictive terrain awareness and traffic collision avoidance warnings.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Investigate and develop technologies to integrate avionics upgrades that include predictive terrain awareness and traffic collision avoidance warnings. Efforts to include studies and analysis.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>	0.000	0.000	1.934	0.000	1.934

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 657001: <i>Avionics Development and Integration</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.934	0.000	1.934

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0207224: <i>Aircraft Procurement, Air Force</i>	17.202	63.996	11.630	81.000	92.630	15.698	10.118	9.487	4.880	0.000	0.000

D. Acquisition Strategy

Conduct a study to determine the means, method, and cost in integrating predictive terrain and traffic collision warnings into helicopter avionics systems.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>				PROJECT 657001: <i>Avionics Development and Integration</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies and Analysis	TBD/TBD	TBD TBD	0.000	0.000		1.000		0.000		1.000	0.000	1.000	0.000
Subtotal			0.000	0.000		1.000		0.000		1.000	0.000	1.000	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 657001: <i>Avionics Development and Integration</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO Support	TBD/TBD	TBD TBD	0.000	0.000		0.934		0.000		0.934	0.000	0.934	0.000
Subtotal			0.000	0.000		0.934		0.000		0.934	0.000	0.934	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000		1.934		0.000		1.934	0.000	1.934	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

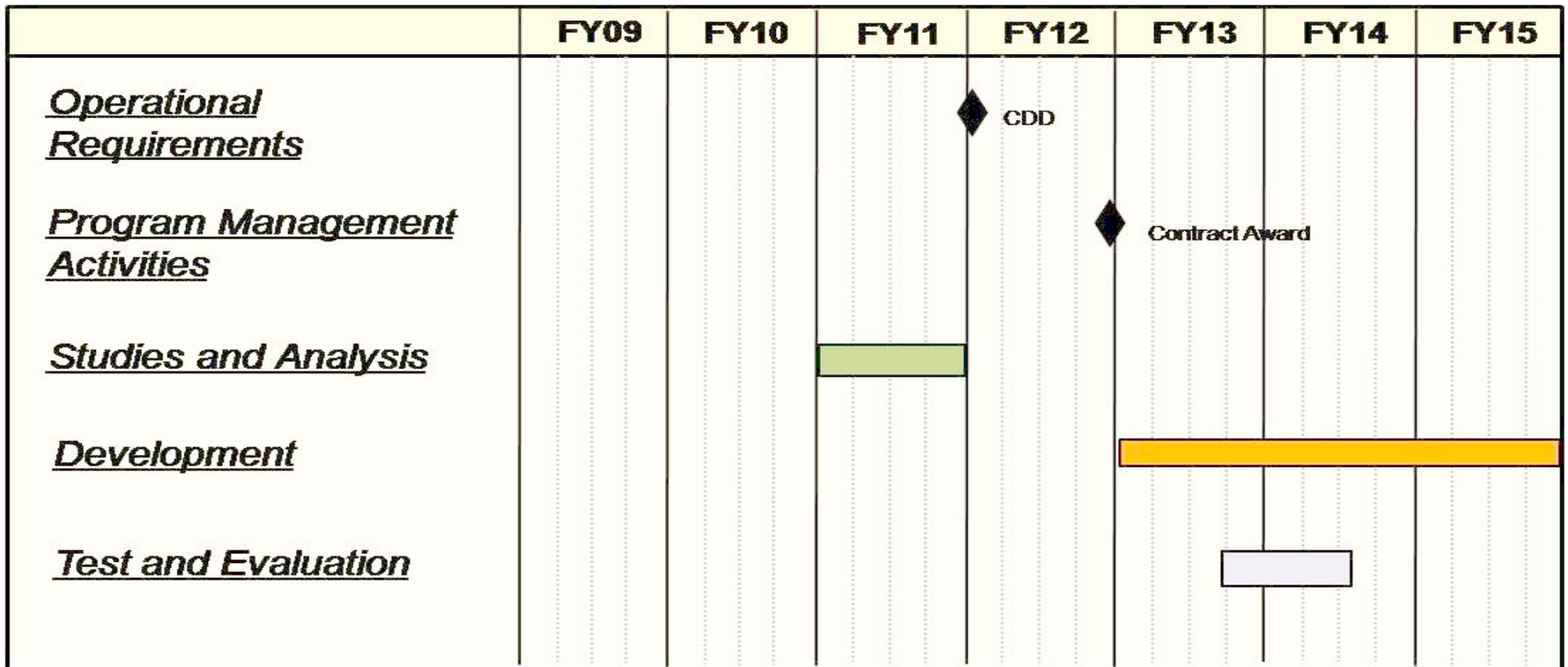
R-1 ITEM NOMENCLATURE

PE 0605229F: *CSAR HH-60 Recapitalization*

PROJECT

657001: *Avionics Development and Integration*

AF Rotary Wing Avionics Development and Integration



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605229F: <i>CSAR HH-60 Recapitalization</i>	PROJECT 657001: <i>Avionics Development and Integration</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Activities include, but not limited to, conducting studies to determine the means, method, and cost of integrating predictive terrain and traffic collision warnings into helicopter avionics systems.	3	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	15.000	14.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
655213: CSAR-X	15.000	14.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.975

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.

Budget Justification: In the spring of 2009 the Secretary of Defense (SECDEF) directed the Air Force to "Terminate the CSAR-X program and procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities." The Air Force terminated the existing CSAR-X contract in June 09. Remaining 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 to replace aircraft lost in combat and operational missions. These aircraft, identified as Operational Loss Replacement (OLR) will procure UH-60 Aircraft from the Army and then purchase and integrate modification kits to bring the UH-60M to the fielded HH-60G configuration. OLR is an interim step to maintain combat capability.

Portions of FY10 funding will also be used to support the HH-60G recapitalization program with any follow on studies and analysis, the development of an acquisition strategy and to support subsequent acquisition activities. FY10 will be the last year of RDT&E funding in this PE and BPAC. Future HH-60G recapitalization RDT&E activities will be tracked in PE 0605229F.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	232.232	89.975	0.000	0.000	0.000
Current President's Budget	15.000	14.975	0.000	0.000	0.000
Total Adjustments	-217.232	-75.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-217.232	-75.000	0.000	0.000	0.000

Change Summary Explanation

- 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 Air Force reprogramming of \$111.6M to support higher priorities.
- In FY09, the CSAR-X program was terminated. Remaining funding used for Operational Loss Replacement (OLR) program.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X	PROJECT 655213: CSAR-X
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655213: CSAR-X	15.000	14.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.975
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

Budget Justification: In the spring of FY09, the Secretary of Defense directed the Air Force to "Terminate the CSAR-X program and procure replacement Rotary Wing Aircraft based upon currently fielded CSAR capabilities". In June of 2009 the Air Force terminated 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 to replace aircraft lost in combat and operational missions. These aircraft, identified as Operational Loss Replacement (OLR), will procure UH-60 aircraft from the Army and then purchase and integrate modification kits to bring the UH-60M aircraft up to the fielded HH-60G configuration. OLR is an interim step to maintain combat capability.

Portions of FY10 funding will also be used to support the HH-60G recapitalization program with any follow on studies and analysis, the development of an acquisition strategy and to support subsequent acquisition activities. FY10 will be the last year of RDT&E funding in this PE and BPAC. Future HH-60G recapitalization RDT&E activities will be tracked in PE 0605229F.

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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X		PROJECT 655213: CSAR-X							
B. Accomplishments/Planned Program (\$ in Millions)											
<table border="1"> <thead> <tr> <th></th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011 Base</th> <th>FY 2011 OCO</th> <th>FY 2011 Total</th> </tr> </thead> </table>							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total						
<p>Major Thrust: CSAR-X contract termination related activities and CSAR helicopter SPO support activities.</p> <p><i>FY 2009 Accomplishments:</i> FY 2009: Execute contract termination related activities and execute program support to include, but not limited to, studies and analysis, and the development of an acquisition strategy to procure replacement aircraft with CSAR mission equipment.</p> <p><i>FY 2010 Plans:</i> FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> FY 2011 OCO: N/A</p>						15.000	0.000	0.000	0.000	0.000	
<p>Major Thrust: Studies, analysis, preparation of milestone documents, and development of CSAR modifications for H-60 Operational loss replacement helicopter program.</p> <p><i>FY 2009 Accomplishments:</i> FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> FY 2010: Studies, analysis, program office support, and development of CSAR modifications necessary for fielding of a modification package to enable the UH-60M to execute the CSAR mission.</p> <p><i>FY 2011 Base Plans:</i> FY 2011: N/A</p>						0.000	14.975	0.000	0.000	0.000	

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X	PROJECT 655213: CSAR-X
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> <i>FY 2011 OCO: N/A</i>					
Accomplishments/Planned Programs Subtotals	15.000	14.975	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0605229F: APAF	0.000	95.200	104.447	114.000	218.447	204.524	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy
 CSAR-X Procurement cancelled by SECDEF. Termination Activities for CSAR-X ongoing.
 The acquisition strategy for the HH-60 OLR is to procure UH-60M aircraft from the Army and then purchase modification kits to bring the UH-60M aircraft up to the fielded HH-60G configuration. Non-recurring engineering will be required to integrate and test mods once the configuration is set.

E. Performance Metrics
 Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X				PROJECT 655213: CSAR-X					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies and Analysis	Various	Various Various	6.633	1.251		0.000		0.000		0.000	0.000	7.884	0.000
Non-recurring Engineering	TBD/TBD	TBD TBD	0.000	11.947		0.000		0.000		0.000	0.000	11.947	0.000
Subtotal			6.633	13.198		0.000		0.000		0.000	0.000	19.831	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test and Evaluation	TBD/TBD	TBD TBD	0.474	0.000		0.000		0.000		0.000	0.000	0.474	0.000
Subtotal			0.474	0.000		0.000		0.000		0.000	0.000	0.474	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X				PROJECT 655213: CSAR-X					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPO Support	TBD/TBD	TBD TBD	5.783	1.777		0.000		0.000		0.000	0.000	7.560	0.000
Termination related costs	TBD/TBD	TBD TBD	2.110	0.000		0.000		0.000		0.000	0.000	2.110	0.000
Subtotal			7.893	1.777		0.000		0.000		0.000	0.000	9.670	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.000	14.975		0.000		0.000		0.000	0.000	29.975	0.000

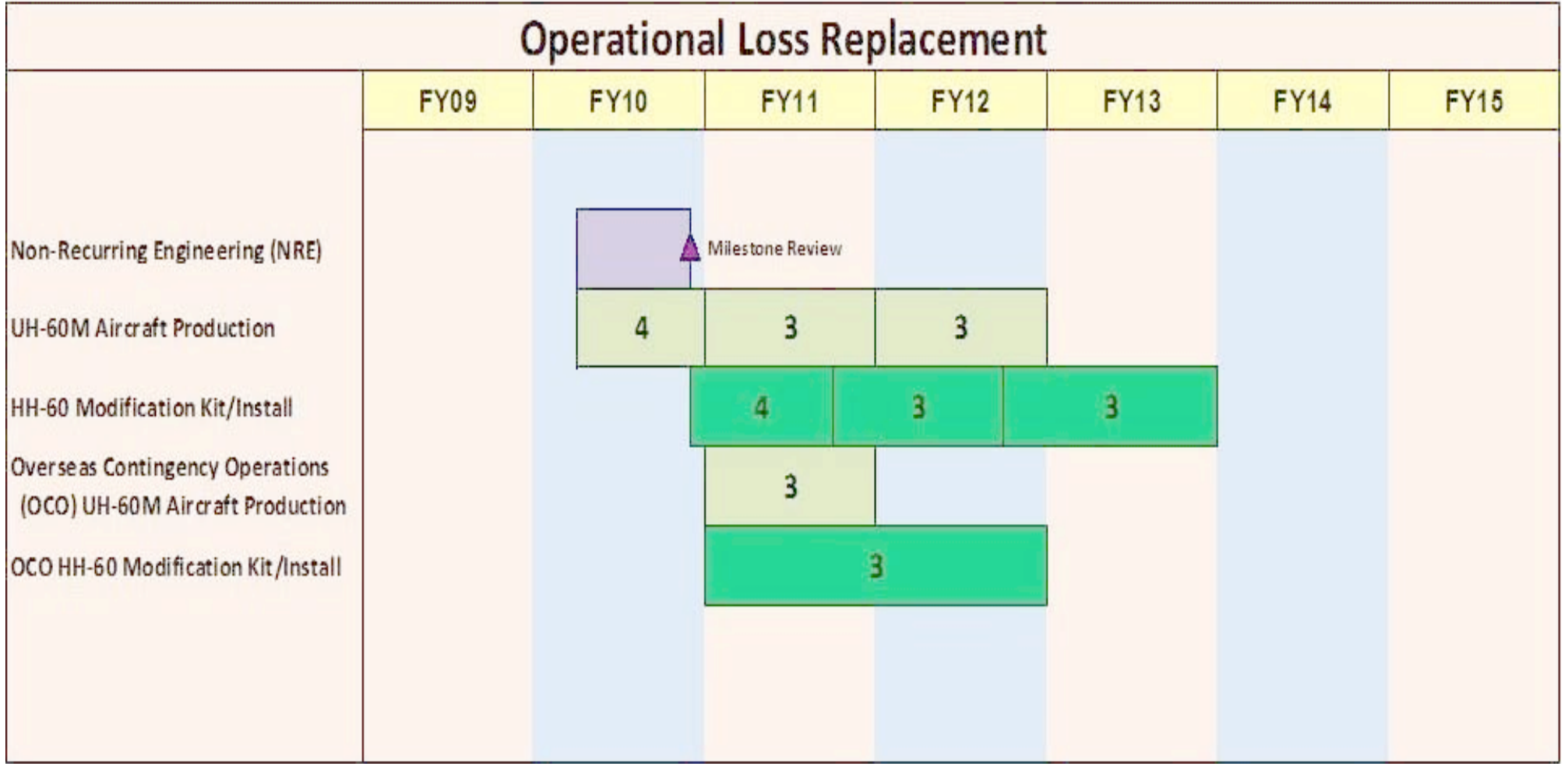
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X	PROJECT 655213: CSAR-X



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605277F: CSAR-X	PROJECT 655213: CSAR-X

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CSAR-X Procurement cancelled by SECDEF. Termination Activities ongoing.	3	2009	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	11.336	20.582	15.536	0.000	15.536	28.348	19.087	16.128	9.910	Continuing	Continuing
655249: <i>HC/MC-130 Recap</i>	11.336	20.582	15.536	0.000	15.536	28.348	19.087	16.128	9.910	Continuing	Continuing

A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Production Document (CPD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CPD in Aug 2009.

FY10 HC/MC-130J program RDT&E funding provides for:

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.

The FY10 MC-130J program also has funds in PE 010160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

FY11 HC/MC-130J program RDT&E funding provides for:

1) Continuation of 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) Trial kit install of the C-130J Block 7.0 into the HC/MC-130J. The C-130J Block 7.0 program is in PE 0401132F. Block 7.0 primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is an international collaboration as the common core development costs are being shared by each participating nation (United Kingdom, Australia, Italy, Canada, Denmark, Norway, and the United States). Block 7.0 requirements include:

- a) Communication, Navigation & Identification (CNI) upgrades
- b) Dual Multi-Mode Receivers (MMR) with a Civil Global Positioning System
- c) CNI special processor upgrade

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>
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- d) Tactical datalink
- e) Mission computer upgrades

The FY11 MC-130J program also has funds in PE 010160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	11.692	20.582	0.000	0.000	0.000
Current President's Budget	11.336	20.582	15.536	0.000	15.536
Total Adjustments	-0.356	0.000	15.536	0.000	15.536
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.356	0.000			
• Other Adjustments	0.000	0.000	15.536	0.000	15.536

Change Summary Explanation

Funds were included in PE 0604261F and were transferred to PE 0605278F in FY09.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>	PROJECT 655249: <i>HC/MC-130 Recap</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655249: <i>HC/MC-130 Recap</i>	11.336	20.582	15.536	0.000	15.536	28.348	19.087	16.128	9.910	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Production Document (CPD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CPD in Aug 2009.

FY10 HC/MC-130J program RDT&E funding provides for:

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.

The FY10 MC-130J program also has funds in PE 010160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

FY11 HC/MC-130J program RDT&E funding provides for:

1) Continuation of 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) Trial kit install of the C-130J Block 7.0 into the HC/MC-130J. The C-130J Block 7.0 program is in PE 0401132F. Block 7.0 primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is an international collaboration as the common core development costs are being shared by each participating nation (United Kingdom, Australia, Italy, Canada, Denmark, Norway, and the United States). Block 7.0 requirements include:

- a) Communication, Navigation & Identification (CNI) upgrades
- b) Dual Multi-Mode Receivers (MMR) with a Civil Global Positioning System
- c) CNI special processor upgrade

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>		PROJECT 655249: <i>HC/MC-130 Recap</i>		
<p>d) Tactical datalink e) Mission computer upgrades</p> <p>The FY11 MC-130J program also has funds in PE 010160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.</p> <p>B. Accomplishments/Planned Program (\$ in Millions)</p>						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Systems Engineering, integration and test of mature, fielded capabilities</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Integration of matured items such as Electro-Optical-Infrared Imaging (EO/IR), Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS), Enhanced Service Life (ESL) Wing, and a Combat Systems Officer (CSO) crew station on to a C-130J.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continued integration of matured items such as Electro-Optical-Infrared Imaging (EO/IR), Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS), Enhanced Service Life (ESL) Wing, and a Combat Systems Officer (CSO) crew station on to a C-130J.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Concluding integration of matured items such as Electro-Optical-Infrared Imaging (EO/IR), Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS), Enhanced Service Life (ESL) Wing, and a Combat Systems Officer (CSO) crew station on to a C-130J.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>		11.244	17.582	2.600	0.000	2.600

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>	PROJECT 655249: <i>HC/MC-130 Recap</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Testing will move into the Developmental Testing & Evaluation (DT&E) phase, concluding with a DT&E report.</p> <p><i>FY 2011 OCO Plans:</i> In Fy 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	11.336	20.582	15.536	0.000	15.536

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (24395): <i>N/A</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

AF is using FY 2009, FY08 GWOT and FY 2010 funds to procure modified KC-130Js to meet the warfighter's urgent requirement . The Milestone C decision for the remaining program is planned in 2nd quarter of FY2010.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>	PROJECT 655249: <i>HC/MC-130 Recap</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering and Integration	SS/CPFF	WPAFB OH	21.144	17.582	Oct 2009	2.600	Oct 2010	0.000		2.600	0.000	41.326	Continuing
Block 7.0 Integration	SS/CPFF	WPAFB OH	0.000	0.000		3.300	Nov 2010	0.000		3.300	0.000	3.300	Continuing
Subtotal			21.144	17.582		5.900		0.000		5.900	0.000	44.626	

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation Support	C/FFP	EAFB FL	0.092	3.000	Jan 2010	9.636	Oct 2010	0.000		9.636	0.000	12.728	Continuing
Subtotal			0.092	3.000		9.636		0.000		9.636	0.000	12.728	

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605278F: <i>HC/MC-130 Recap</i>				PROJECT 655249: <i>HC/MC-130 Recap</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
SPO Support	C/FFP	WPAFB OH	3.400	0.000		0.000		0.000		0.000		0.000	3.400	0.000
Subtotal			3.400	0.000		0.000		0.000		0.000		0.000	3.400	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	24.636	20.582		15.536		0.000		15.536	0.000	60.754	

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

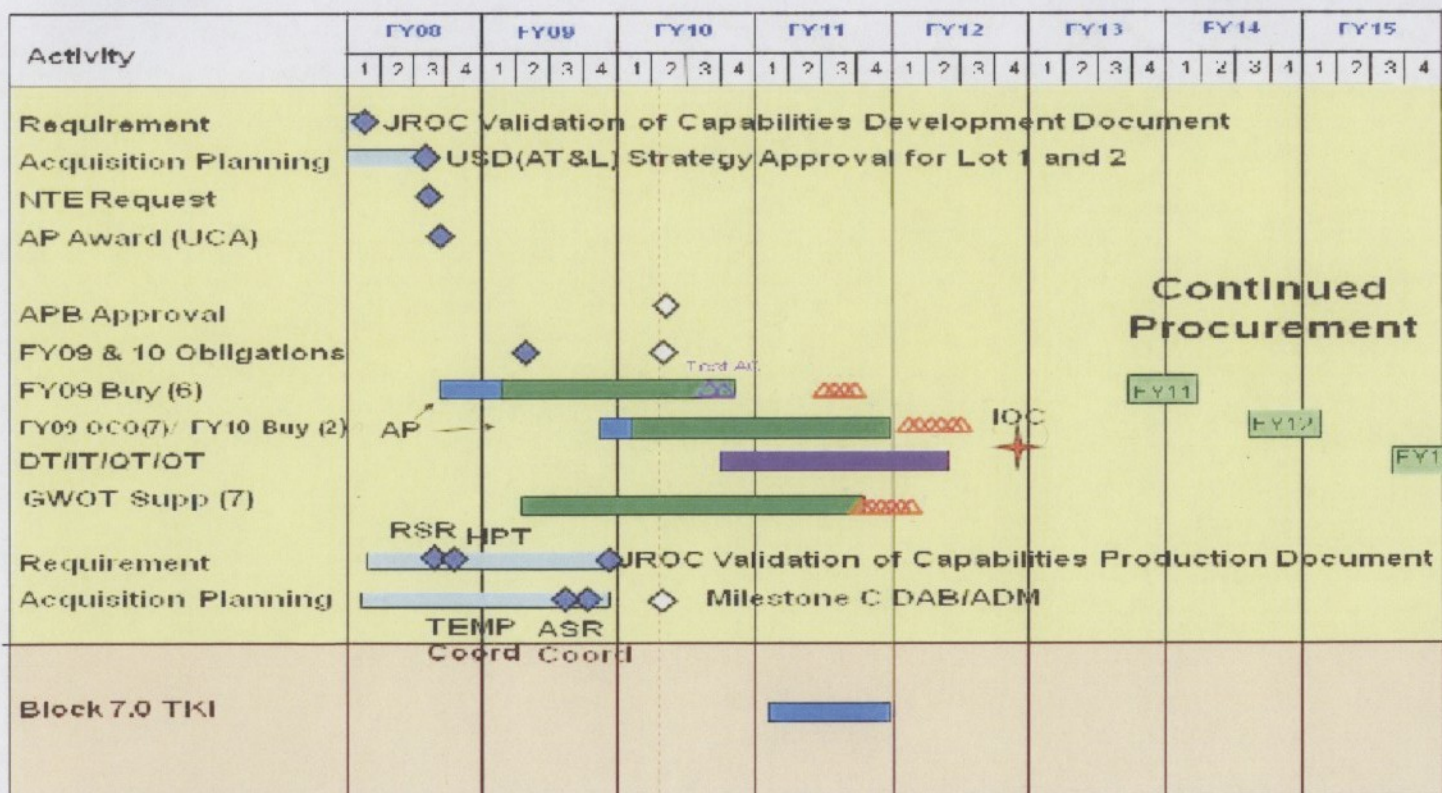
PE 0605278F: HC/MC-130 Recap

PROJECT

655249: HC/MC-130 Recap



HC/MC-130 Recap Program Schedule



Continued Procurement

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0605278F: *HC/MC-130 Recap*

PROJECT

655249: *HC/MC-130 Recap*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Systems Engineering and Integration	1	2009	4	2011
Block 7.0 Integration	1	2011	4	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	14.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
655370: <i>Joint SIAP Program Executive Office</i>	0.000	14.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.877

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: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	34.877	0.000	0.000	0.000
Current President's Budget	0.000	14.877	0.000	0.000	0.000
Total Adjustments	0.000	-20.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-20.000	0.000	0.000	0.000

Change Summary Explanation

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>	PROJECT 655370: <i>Joint SIAP Program Executive Office</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655370: <i>Joint SIAP Program Executive Office</i>	0.000	14.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.877
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>	PROJECT 655370: <i>Joint SIAP Program Executive Office</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Joint Track Manager Engineering and Development <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Joint Track Manager Engineering and Development <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	9.453	0.000	0.000	0.000
MAJOR THRUST: Joint Track Manager Testing <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: Joint Track Manager Testing <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A		0.000	4.273	0.000	0.000	0.000
MAJOR THRUST: JPEO Managment		0.000	1.151	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>	PROJECT 655370: <i>Joint SIAP Program Executive Office</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2009 Accomplishments:</i> In FY 2009: N/A					
<i>FY 2010 Plans:</i> In FY 2010: JPEO Management					
<i>FY 2011 Base Plans:</i> In FY 2011: N/A					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	0.000	14.877	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207451F: <i>RDT&E, AF</i>	46.663	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0603327A: <i>RDT&E, A</i>	1.296	4.536	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

The JTM will continue ongoing development to implement capability into Service combat systems.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>				PROJECT 655370: <i>Joint SIAP Program Executive Office</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Track Manager Engineering	Various/ Various	Various Various	0.000	9.453	Apr 2010	0.000		0.000		0.000	0.000	9.453	9.453
Subtotal			0.000	9.453		0.000		0.000		0.000	0.000	9.453	9.453

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>	PROJECT 655370: <i>Joint SIAP Program Executive Office</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Track Manager Testing	Various	Various Various	0.000	4.273	Apr 2010	0.000		0.000		0.000	0.000	4.273	4.273
Subtotal			0.000	4.273		0.000		0.000		0.000	0.000	4.273	4.273

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JPEO Management	Various	Various Various	0.000	1.151	Oct 2009	0.000		0.000		0.000	0.000	1.151	1.151
Subtotal			0.000	1.151		0.000		0.000		0.000	0.000	1.151	1.151

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	14.877		0.000		0.000		0.000	0.000	14.877	14.877

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

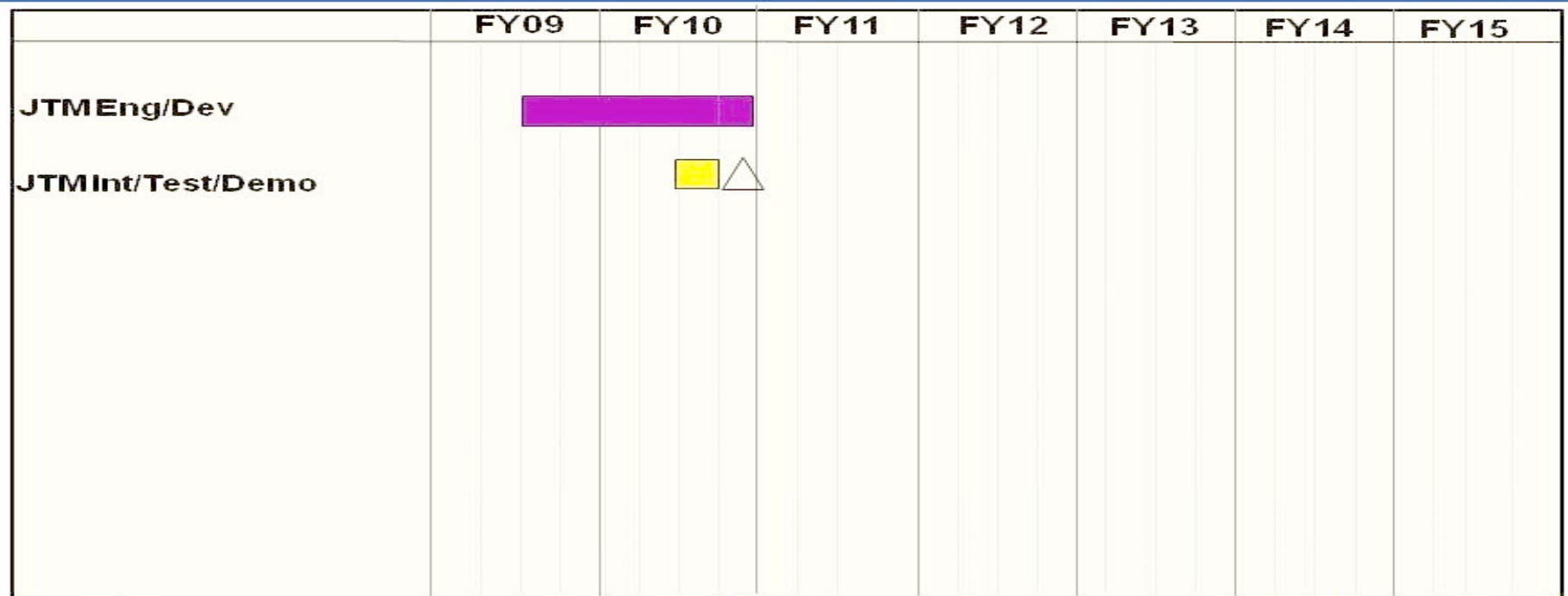
PE 0605452F: *Joint SIAP Program Executive Office*

PROJECT

655370: *Joint SIAP Program Executive Office*



JPEO JTM Schedule



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

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605452F: <i>Joint SIAP Program Executive Office</i>	PROJECT 655370: <i>Joint SIAP Program Executive Office</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Joint Track Manager Engineering and Development	3	2009	4	2010
Joint Track Manager Integration/Test/Demonstration	3	2010	4	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	278.961	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
655050: <i>TDL System Integration</i>	50.973	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
655262: <i>Family of Gateways</i>	227.988	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note

In FY 2010, Projects 655050, TDL System Integration, and 655262, Family of Gateways, efforts transferred to PE 0604281F, Tactical Data Networks Enterprise, in order to create a new PE.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	
<p>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).</p> <p>The Air Force is leading the effort to develop a materiel solution to satisfy a CENTCOM Joint Urgent Operational Need (JUON) within the time parameters specified by the DEPSECDEF. The Battlefield Airborne Communications Node (BACN) JUON calls for 24/7 operation of the BACN payload to support current operations. BACN provides interoperability between disparate Tactical Data Links (TDLs) by receiving the various signals, bridging and forwarding them via an array of waveforms. This functionality permits single network operations and translation between Link 16 and Situational Awareness Data Link (SADL), as well as beyond line-of-sight (BLOS) connectivity. BACN enhances this capability by connecting to the airborne IP network allowing information exchange. The BACN payload is an airborne data processing and communications system that integrates a suite of commercial off-the-shelf (COTS) processor, storage and information technology (IT) equipment and existing military airborne communications systems. The BACN payload also integrates existing and newly developed applications and services to provide range extension and connectivity for dissimilar communications systems that process, translate, transmit and store critical data for end users (e.g., Combined Air Operations Center, Tactical Air Control Parties, Special Operations forces, and airborne command and control and tactical platforms. A prototype BACN equipped BD-700 has been operating in theater since December 2008 per Deployment Order issued 29 August 2008. The BACN JUON is comprised of the BACN payload integrated onto two BD-700s and two Global Hawk Block 20 air vehicles operating as a system.</p> <p>Common Link Integration Processing (CLIP) is an Air Force program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne maritime, and fixed-site systems.</p> <p>Activities also include studies and analysis to support both current program planning and execution and future program planning.</p> <p>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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	192.460	0.000	0.000	0.000	0.000
Current President's Budget	278.961	65.619	0.000	0.000	0.000
Total Adjustments	86.501	65.619	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		65.619			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	86.501	0.000	0.000	0.000	0.000

Change Summary Explanation

FY09 OCO reprogrammed \$61.0M for BACN JUON
 Received FY09 OMNIBUS Adjustment \$31.5M for BACN JUON
 Received FY 10 \$79.3M Congressional Increase for BACN

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655050: <i>TDL System Integration</i>	50.973	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2010, Project 655050, TDL System Integration transferred to PE 0604281F (Tactical Data Networks Enterprise).

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>
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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 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: TDN MANAGEMENT AND INITIAL FIELDING	23.424	0.000	0.000	0.000	0.000
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Joint Interface Control Officer Support System (JSS) completed production representative development and system testing (DT&E, OT&E) required for FY09 Milestone C decision. TDL Integration, Fielding and Support: provided initial fielding support for units/platforms fielding a data link capability. This support consisted of organic and contractor teams that provided Tactics, Techniques & Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL operations and field installations. Developed TDL architectures for implementation at AF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supported AF and Joint TDL experiments.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A Efforts moved to PE 0604281F</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A Efforts moved to PE 0604281F</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: BACN (JUON) extends BACN DEPORD and JUON development, test, and integration efforts began on BD-700 and Global Hawk aircraft.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A Any efforts related to the JUON will move to PE 0604281F</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	50.973	65.619	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207445F: <i>Fighter TDL, (RDT&E)</i>	55.069	66.872	85.492	0.000	85.492	169.748	118.655	0.000	0.000	0.000	0.000
• PE 0207446F: <i>Bomber TDL, (RDT&E)</i>	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207448F: <i>C2ISR TDL, (RDT&E)</i>	1.671	1.659	1.584	0.000	1.584	1.608	1.633	1.658	1.682	0.000	0.000
• PE 0401839F: <i>Airlift TDL, (RDT&E)</i>	7.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0604281F: <i>TDN Enterprise, (RDT&E)</i>	0.000	87.444	102.941	0.000	102.941	67.790	40.507	43.037	34.930	0.000	0.000
	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207434F: <i>Link 16 Sup & Sus, (APAF)</i>											
• PE 0207445F (1): <i>Fighter TDL, (APAF)</i>	5.788	9.585	0.929	0.000	0.929	7.695	6.925	7.043	12.785	0.000	0.000
• PE 0207446F (2): <i>Bomber TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.339	0.337	0.368	0.972	0.000	0.000
• PE 0207448F (3): <i>C2ISR TDL, (APAF)</i>	0.000	0.000	0.000	0.000	0.000	0.959	0.912	0.927	1.729	0.000	0.000
• PE 0207434F (4): <i>Link 16 Sup & Sus, (O&M)</i>	131.597	0.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0207445F (5): <i>Fighter TDL, (O&M)</i>	0.208	0.198	0.219	0.000	0.219	0.221	0.257	0.258	0.268	0.000	0.000
• PE 0401839F (6): <i>Airlift TDL, (O&M)</i>	1.574	8.175	7.857	0.000	7.857	3.629	1.634	1.666	2.944	0.000	0.000
• PE 0604281F (7): <i>TDN Enterprise, (O&M)</i>	0.000	33.727	31.382	0.000	31.382	19.165	17.303	20.026	21.534	0.000	0.000
• PE 0207434F (8): <i>Link 16 Sup & Sus, (OPAF)</i>	16.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0604281F (9): <i>TDN Enterprise, (OPAF)</i>	0.000	32.343	21.742	0.000	21.742	9.270	0.337	0.311	0.240	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>				PROJECT 655050: <i>TDL System Integration</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
-- JICO Support System	C/CPFF	Northrop Grumman San Diego, CA	14.607	0.000		0.000		0.000		0.000	0.000	14.607	0.000
-- Initial Fielding Support	Various/ Various	Various Various	4.346	0.000		0.000		0.000		0.000	0.000	4.346	0.000
- Network Centric Transformation (TTNT, NEW, Link 16 enhancements, FAST, Link 16 network centric enhancements)	Various/ Various	Various Various	12.378	0.000		0.000		0.000		0.000	0.000	12.378	0.000
- TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various/ Various	Various Various	7.150	0.000		0.000		0.000		0.000	0.000	7.150	0.000
-TDL Acquisition Management (Coalition Interoperability)	Various/ Various	Various Various	0.599	0.000		0.000		0.000		0.000	0.000	0.599	0.000
- BACN JUON A/B Kit Development, Aircraft modifications, flight testing, supplemental type certifications, ground test equipment checkout.	SS/CPFF	Various Various	0.000	65.619	Feb 2010	0.000		0.000		0.000	0.000	65.619	0.000
Subtotal			39.080	65.619		0.000		0.000		0.000	0.000	104.699	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>				PROJECT 655050: <i>TDL System Integration</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Above listed activities for TDN Management and Initial Fielding

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
-Various Test Centers	Various/ Various	Various Various	5.586	0.000		0.000		0.000		0.000	0.000	5.586	0.000
Subtotal			5.586	0.000		0.000		0.000		0.000	0.000	5.586	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
-Program Office and Contractor Support	Various/ Various	Various Various	6.307	0.000		0.000		0.000		0.000	0.000	6.307	0.000
Subtotal			6.307	0.000		0.000		0.000		0.000	0.000	6.307	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	50.973	65.619	0.000	0.000	0.000	0.000	116.592	0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0207434F: Link 16 Support and Sustainment

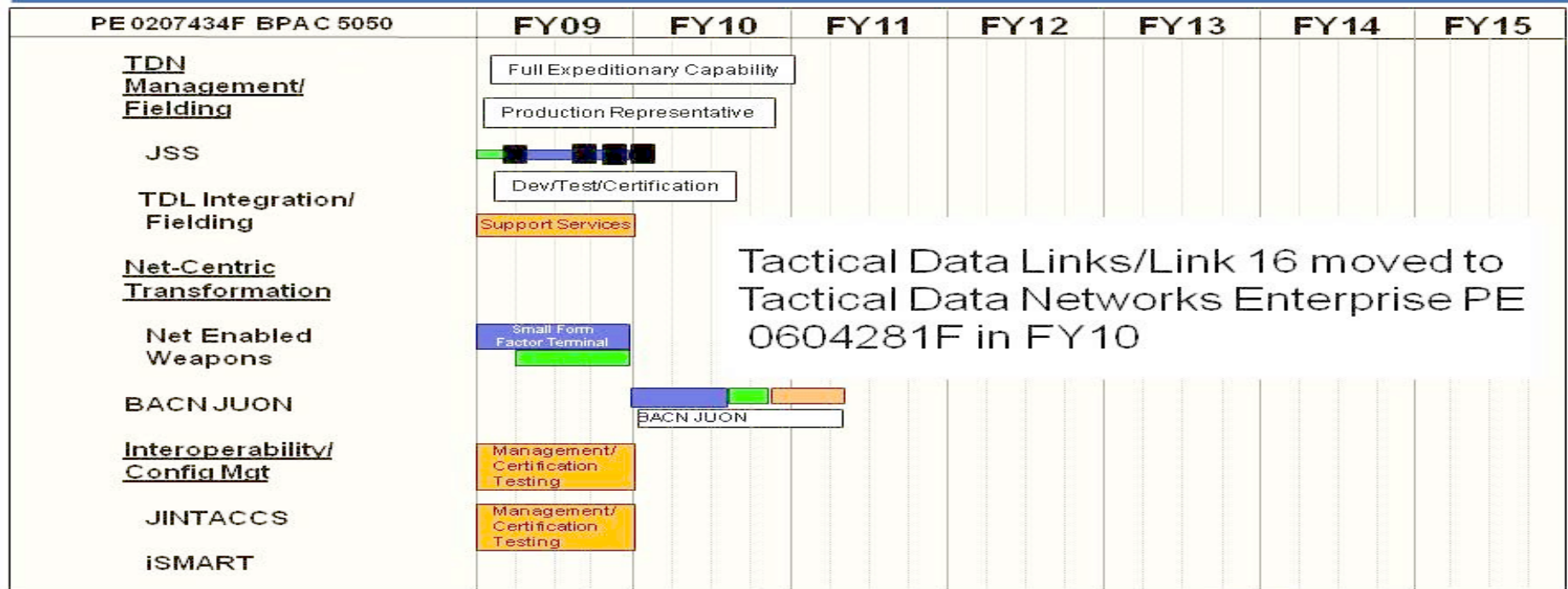
PROJECT

655050: TDL System Integration



Tactical Data Links / Link 16 Schedules

4 December 2009



As of 4 Dec 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 Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655050: <i>TDL System Integration</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
JSS Development, Test & Certification	1	2009	1	2010
BACN Development	3	2009	1	2011
BACN Test	2	2010	2	2011
BACN Integration Fielding	3	2010	4	2011
TDL Integration & Fielding Support	1	2009	4	2009
Network Enabled Weapons Development	1	2009	4	2009
Network Enabled Weapons Test & Certification	2	2009	4	2009
JINTACCS Management/Certification Testing	1	2009	4	2009
iSMART Management/Certification Testing	1	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655262: <i>Family of Gateways</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655262: <i>Family of Gateways</i>	227.988	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY 2010, Project 655262, Family of Gateways, efforts transferred to PE 0604281F (Tactical Data Networks Enterprise).

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 Air Force is leading the effort to develop a materiel solution to satisfy the CENTCOM Joint Urgent Operational Need (JUON) within the time parameters specified by the DEPSECDEF. The Battlefield Airborne Communications Node (BACN) JUON calls for 24/7 operation of the BACN payload to support current operations. The BACN payload provides interoperability between disparate Tactical Data Links (TDLs) by receiving the various signals, bridging and forwarding them via an array of waveforms. This functionality permits single network operations and translation between Link 16 and Situational Awareness Data Link (SADL), as well as beyond line-of-sight (BLOS) connectivity. BACN enhances this capability by connecting to the airborne IP network allowing information exchange. The BACN payload is an airborne data processing and communications system that integrates a suite of commercial off-the-shelf (COTS) processor, storage and information technology (IT) equipment and existing military airborne communications systems. The BACN payload also integrates existing and newly developed applications and services to

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655262: <i>Family of Gateways</i>
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provide range extension and connectivity for dissimilar communications systems that process, translate, transmit and store critical data for end users (e.g., Combined Air Operations Center, Tactical Air Control Parties, Special Operations forces, and airborne command and control and tactical platforms). A prototype BACN equipped BD-700 has been operating in theater since December 2008 per Deployment Order issued 29 August 2008. The BACN JUON is comprised of the BACN payload integrated onto two BD-700s and two Global Hawk Block 20 air vehicles operating as a system.

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. 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

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Major Thrust: Common Link Integration Processing (CLIP)	26.519	0.000	0.000	0.000	0.000
<i>FY 2009 Accomplishments:</i> In FY 2009: Continued CLIP development and integration of extensible tactical data link message processing on the B-1 and B-52.					
<i>FY 2010 Plans:</i> In FY 2010: N/A This effort will move to PE 0604281F					
<i>FY 2011 Base Plans:</i> In FY 2011: N/A This effort will move to PE 0604281F					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force							DATE: February 2010				
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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
Major Thrust: TACTICAL DATA LINK ACQUISITION MANAGEMENT						15.916	0.000	0.000	0.000	0.000	
<i>FY 2009 Accomplishments:</i> In FY 2009: Includes the 653rd Electronic Systems Group (653rs ELSG) program management support, coalition interoperability management, A&AS and MITRE support.											
<i>FY 2010 Plans:</i> In FY 2010: N/A This effort will move to PE 0604281F											
<i>FY 2011 Base Plans:</i> In FY 2011: N/A This effort will move to PE 0604281F											
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
Accomplishments/Planned Programs Subtotals						227.988	0.000	0.000	0.000	0.000	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

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<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655262: <i>Family of Gateways</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655262: <i>Family of Gateways</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
-Various Test Centers	Various/ Various	Various Various	3.128	0.000		0.000		0.000		0.000	0.000	3.128	0.000
Subtotal			3.128	0.000		0.000		0.000		0.000	0.000	3.128	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office and Contractor Support	Various/ Various	Various Various	15.916	0.000		0.000		0.000		0.000	0.000	15.916	0.000
Subtotal			15.916	0.000		0.000		0.000		0.000	0.000	15.916	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	227.988	0.000		0.000		0.000		0.000	0.000	227.988	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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R-1 Line Item #90

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0207434F: Link 16 Support and Sustainment

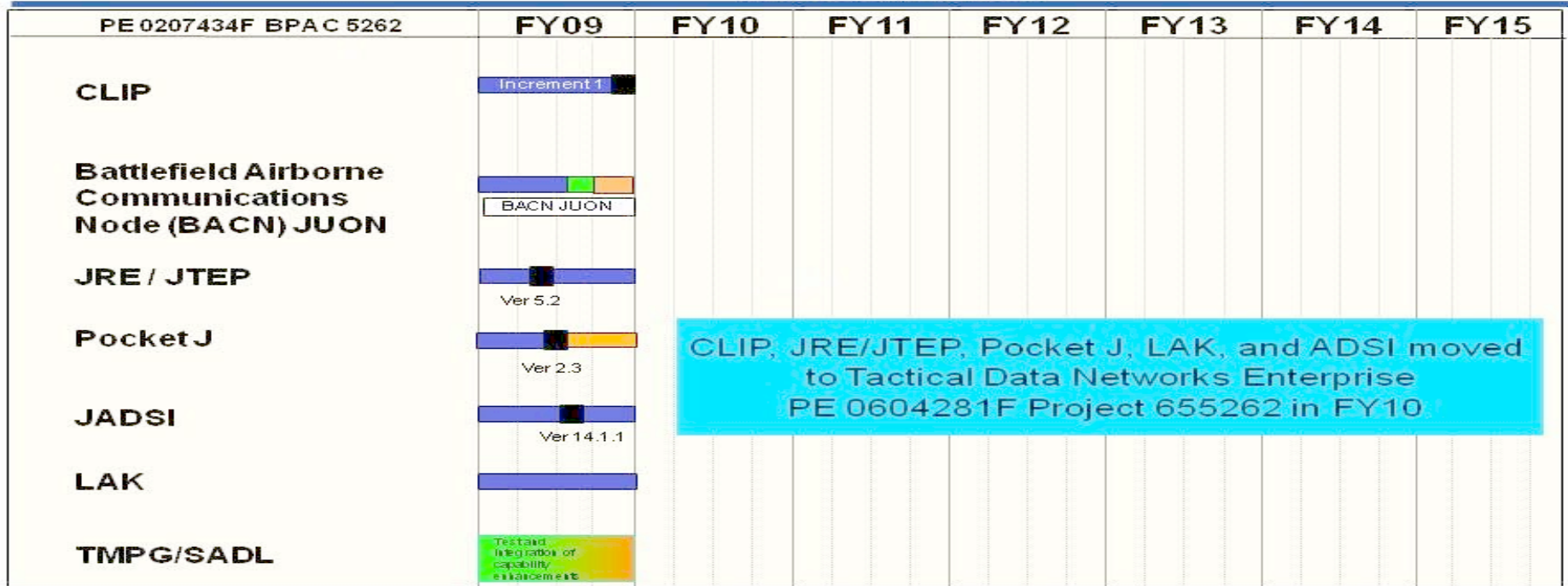
PROJECT

655262: Family of Gateways



Tactical Data Links / Link 16 Family of Gateways Schedules

4 December 2009



CLIP, JRE/JTEP, Pocket J, LAK, and ADSI moved to Tactical Data Networks Enterprise PE 0604281F Project 655262 in FY10

As of 4 Dec 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 Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207434F: <i>Link 16 Support and Sustainment</i>	PROJECT 655262: <i>Family of Gateways</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CLIP Development	1	2009	4	2009
CLIP Product Delivery	4	2009	4	2009
BACN Development	3	2009	4	2009
JRE/JTEP Development & Integration	1	2009	4	2009
JRE/JTEP Product Delivery	2	2009	2	2009
Pocket J Development	1	2009	2	2009
Pocket J Product Delivery	2	2009	2	2009
Pocket J Integration/Fielding	2	2009	4	2009
JADSI Development	1	2009	4	2009
JADSI Product Delivery	3	2009	3	2009
LAK	1	2009	4	2009
TMPG/SADL capability enhancements	1	2009	4	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	49.564	13.399	1.832	0.000	1.832	0.000	0.000	0.000	0.000	Continuing	Continuing
655232: <i>Air Force Single Integrated Air Picture</i>	4.343	13.399	1.832	0.000	1.832	0.000	0.000	0.000	0.000	0.000	18.262
655275: <i>Joint SIAP Engineering and Development</i>	45.221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	43.867

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 product of fused data from multiple sensors - a "System of System" (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. The Army and Navy, with the help of the other services and MDA, are to harvest any usable components/capabilities from the IABM to aid in the development of a Joint Track Manager (JTM) for use in their weapon systems.

The core set of SIAP SoS requirements are outlined in the SIAP Capabilities Development Document (CDD) generated by the US Joint Forces Command and validated by the JROC in Sep 2007. The SIAP CDD requirements will be achieved through the development and implementation of the SIAP SoS.

The Air Force is applying expertise in various AF program offices to assist with defining the JTM 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 JTM related engineering efforts including AF staff that works directly with the Joint SIAP Program Executive Office (JPEO) to help define and develop the functional content of the JTM. The Army and Navy, with the help from the other services and MDA, will conduct a JTM Demonstration to illustrate the results of their work.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	66.663	13.466	0.000	0.000	0.000
Current President's Budget	49.564	13.399	1.832	0.000	1.832
Total Adjustments	-17.099	-0.067	1.832	0.000	1.832
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-17.099	-0.067	1.832	0.000	1.832

Change Summary Explanation

In FY09, in accordance with Public Law 111-32, The Supplemental Appropriations Act, 2009, \$20M reduced from the previous President's budget.
 In FY11, the change between the President's previous and current budget is due to a reprogramming action to meet higher Air Force priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655232: <i>Air Force Single Integrated Air Picture</i>	4.343	13.399	1.832	0.000	1.832	0.000	0.000	0.000	0.000	0.000	18.262
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 product of fused data from multiple sensors - a "System of System" (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. The Army and Navy, with the help of the other services and MDA, are to harvest any usable components/capabilities from the IABM to aid in the development of a Joint Track Manager (JTM) for use in their weapon systems.

The core set of SIAP SoS requirements are outlined in the SIAP Capabilities Development Document (CDD) generated by the US Joint Forces Command and validated by the JROC in Sep 2007. The SIAP CDD requirements will be achieved through the development and implementation of the SIAP SoS.

The Air Force is applying expertise in various AF program offices to assist with defining the JTM 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 JTM related engineering efforts including AF staff that works directly with the Joint SIAP Program Executive Office (JPEO) to help define and develop the functional content of the JTM. The Army and Navy, with the help from the other services and MDA, will conduct a JTM Demonstration to illustrate the results of their work.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Integration Resource Center (Dev & Risk Reduction)	1.500	5.316	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Funding was provided in support of the System Architecture & Demonstration (JAWG) effort as defined in SIAP Architecture Design, Integration & Demonstration for the Advanced Technology Support Program.</p> <p><i>FY 2010 Plans:</i> In FY 2010: JTM Demo/Studies (planned obligation for April 2010).</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Integration and Implementation</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Funds were provided for classified communication support in DISN-LES services with TRS/Fullerton and BAE/Burlington sites.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		0.107	0.000	0.000	0.000	0.000
<p>MAJOR THRUST: Engineering Support</p>		0.299	3.245	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: PMA, Travel, GPC, MITRE, PASS, SCS Contract Mgmt, TDC Telephone Support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: PMA, Travel, PASS Contract Support.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: PMA.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	4.343	13.399	1.832	0.000	1.832

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (1388): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

The Air Force Joint Track Manager (JTM) Program Office will continue ongoing development to implement capability into AF combat systems and support the JTM demonstration.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration Resource Center (Dev & Risk Reduction)	C/CPFF	Raytheon Hanscom AFB MA	1.500	5.316	Nov 2009	0.000		0.000		0.000	0.000	6.816	6.816
MDA Integration and Implementation	C/CPIF	Thales-Raytheon Systems Fullerton CA	0.107	0.000		0.000		0.000		0.000	0.000	0.107	0.107
Subtotal			1.607	5.316		0.000		0.000		0.000	0.000	6.923	6.923

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ESC Engineering Support	C/CPFF	Jacobs Technology GCIC, 300 Exp. Way, Hampton, VA	0.299	3.245	Oct 2009	0.000		0.000		0.000	0.000	3.544	3.544
Subtotal			0.299	3.245		0.000		0.000		0.000	0.000	3.544	3.544

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>				PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T&E	TBD/TBD	ESC HAFB CEIF or Contractor Involvement	0.000	2.933	Oct 2009	0.000		0.000		0.000	0.000	2.933	2.933
Subtotal			0.000	2.933		0.000		0.000		0.000	0.000	2.933	2.933

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	C/CPFF	PE Systems, Engility, C2 Kinetics, Lawrence Battelle, IDS Hanscom AFB MA	2.437	1.905	Feb 2010	1.832	Feb 2011	0.000		1.832	0.000	6.174	6.174
Subtotal			2.437	1.905		1.832		0.000		1.832	0.000	6.174	6.174

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.343	13.399	1.832	0.000	1.832	0.000	19.574	19.574

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

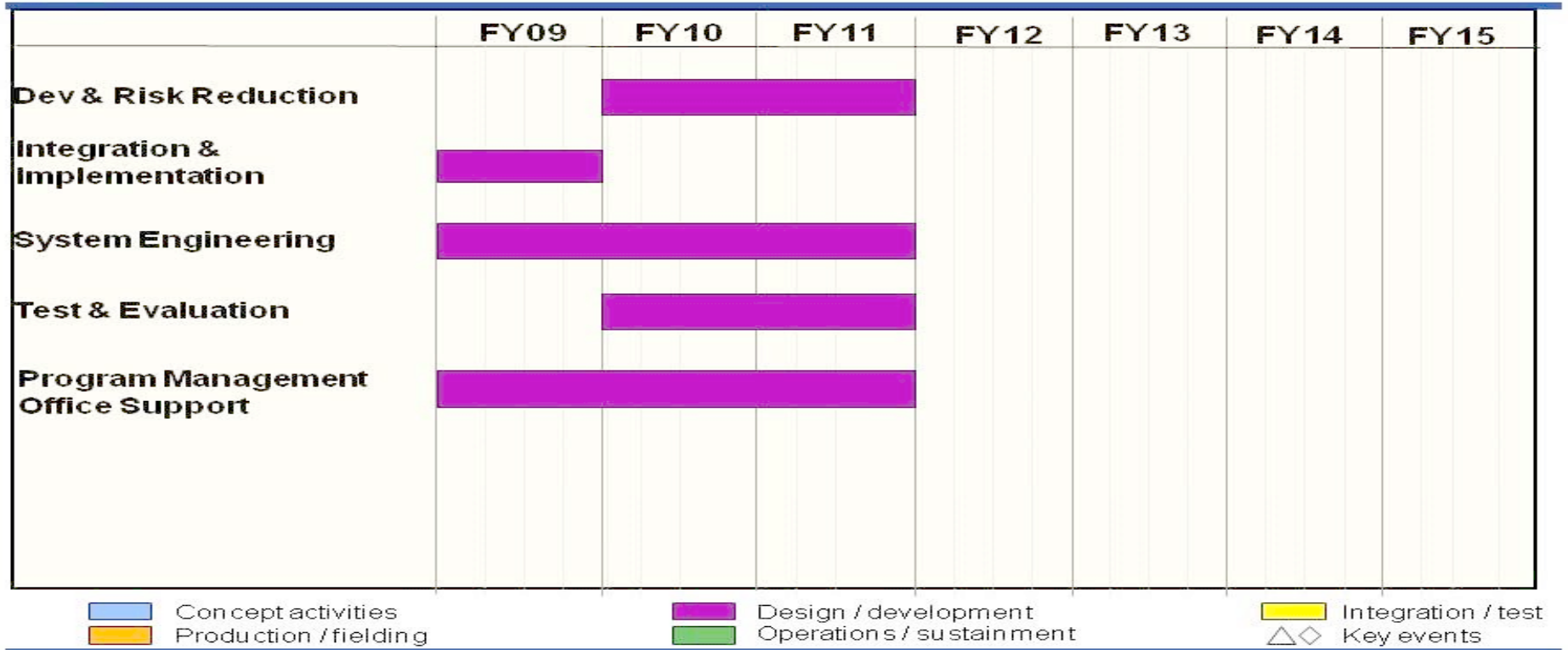
PE 0207451F: *Single Integrated Air Picture (SIAP)*

PROJECT

655232: *Air Force Single Integrated Air Picture*



Air Force JTM Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655232: <i>Air Force Single Integrated Air Picture</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Dev & Risk Reduction	1	2010	4	2011
Integration & Implementation	1	2009	4	2009
System Engineering	1	2009	4	2011
Test & Evaluation	1	2010	4	2011
Program Management Office Support	1	2009	4	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655275: <i>Joint SIAP Engineering and Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655275: <i>Joint SIAP Engineering and Development</i>	45.221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	43.867
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In fiscal year 2010, the work was transferred to program element 0605452F, Joint SIAP Program Executive Office.

A. Mission Description and Budget Item Justification

For fiscal year 2011, this project has no requirement.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development - Architecture, Specification and Behavior Model <i>FY 2009 Accomplishments:</i> In FY 2009: IABM Timebox 47 support. <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	16.738	0.000	0.000	0.000	0.000
MAJOR THRUST: System Engineering	5.019	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655275: <i>Joint SIAP Engineering and Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: IABM Timebox 47 support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Product Support</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: IABM Timebox 47 support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		3.430	0.000	0.000	0.000	0.000
<p>MAJOR THRUST: SoS Customer Support (Technical Analysis and Implementation)</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: IABM Timebox 47 support.</p>		3.159	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force						DATE: February 2010					
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>			PROJECT 655275: <i>Joint SIAP Engineering and Development</i>					
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
MAJOR THRUST: Acquisition Infrastructure (RDT&E facilities and equipment)						4.261	0.000	0.000	0.000	0.000	
<i>FY 2009 Accomplishments:</i> In FY 2009: IABM Timebox 47 support.											
<i>FY 2010 Plans:</i> In FY 2010: N/A											
<i>FY 2011 Base Plans:</i> In FY 2011: N/A											
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
Accomplishments/Planned Programs Subtotals						45.221	0.000	0.000	0.000	0.000	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0605452F: <i>Joint SIAP Program Executive Office, (RTD&E, AF)</i>	0.000	34.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D. Acquisition Strategy N/A											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655275: <i>Joint SIAP Engineering and Development</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655275: <i>Joint SIAP Engineering and Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System of Systems Engineering	C/CPFF	JHU/APL Laurel, MD	3.540	0.000		0.000		0.000		0.000	0.000	3.540	3.540
System of Systems Engineering (1)	C/CPFF	SAIC McLean, VA	1.539	0.000		0.000		0.000		0.000	0.000	1.539	1.539
Architecture, Specification and Behavior Model	C/CPFF	BAH McLean, VA	3.596	0.000		0.000		0.000		0.000	0.000	3.596	3.596
Architecture, Specification and Behavior Model (2)	C/CPFF	CSC Lanham, MD	1.772	0.000		0.000		0.000		0.000	0.000	1.772	1.772
Architecture, Specification and Behavior Model (3)	C/CPFF	Sparta Laguna Hills, CA	2.946	0.000		0.000		0.000		0.000	0.000	2.946	2.946
Architecture, Specification and Behavior Model (4)	C/CPFF	Raytheon Laguna Beach, CA	1.082	0.000		0.000		0.000		0.000	0.000	1.082	1.082
Architecture, Specification and Behavior Model (5)	C/CPFF	BAE Nashua, NH	2.878	0.000		0.000		0.000		0.000	0.000	2.878	2.878
Architecture, Specification and Behavior Model (6)	Various/ Various	Various Various	4.464	0.000		0.000		0.000		0.000	0.000	4.464	4.464
Subtotal			21.817	0.000		0.000		0.000		0.000	0.000	21.817	21.817

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207451F: <i>Single Integrated Air Picture (SIAP)</i>	PROJECT 655275: <i>Joint SIAP Engineering and Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product/Customer Support	Various/ Various	Various Various	6.589	0.000		0.000		0.000		0.000	0.000	6.589	6.589
Subtotal			6.589	0.000		0.000		0.000		0.000	0.000	6.589	6.589

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product and SoS T&E	C/CPFF	SPA Alexandria VA	3.108	0.000		0.000		0.000		0.000	0.000	3.108	3.108
SoS T&E	MIPR	JITC Ft Huachuca AZ	1.825	0.000		0.000		0.000		0.000	0.000	1.825	1.825
Product T&E	SS/FFP	RhinoCorps (8a) Albuquerque, NM	1.160	0.000		0.000		0.000		0.000	0.000	1.160	1.160
SoS T&E (1)	C/CPFF	JHU/APL Laurel, MD	1.442	0.000		0.000		0.000		0.000	0.000	1.442	1.442
Product and SoS T&E (2)	C/CPFF	Northrop Grumman-IT McLean, VA	2.928	0.000		0.000		0.000		0.000	0.000	2.928	2.928
Product and SoS T&E (3)	Various/ Various	Various Various	3.465	0.000		0.000		0.000		0.000	0.000	3.465	3.465

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0207451F: Single Integrated Air Picture (SIAP)	PROJECT 655275: Joint SIAP Engineering and Development
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			13.928	0.000		0.000		0.000		0.000	0.000	13.928	13.928

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	Westar Huntsville, AL	0.938	0.000		0.000		0.000		0.000	0.000	0.938	0.938
JPEO Management Support	Various/ Various	Various Various	1.949	0.000		0.000		0.000		0.000	0.000	1.949	1.949
Subtotal			2.887	0.000		0.000		0.000		0.000	0.000	2.887	2.887

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	45.221	0.000		0.000		0.000		0.000	0.000	45.221	45.221

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

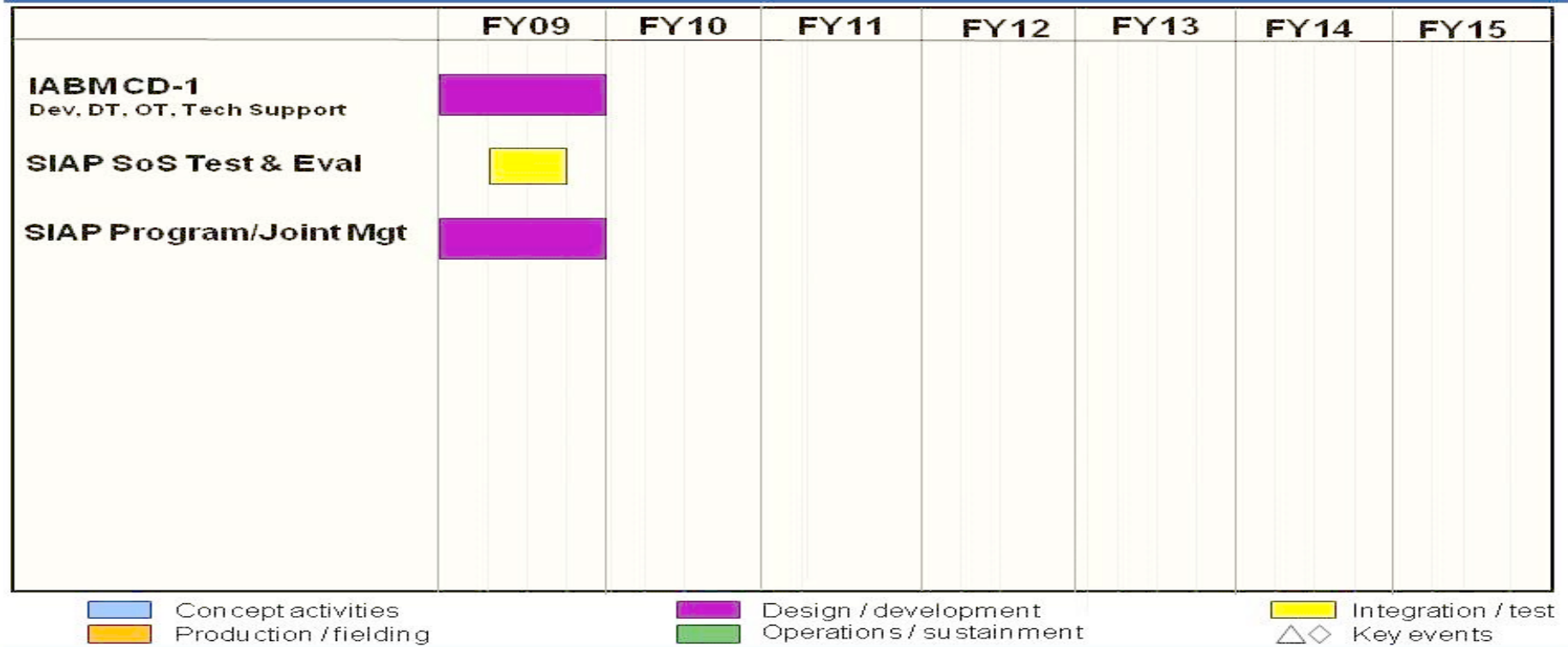
PE 0207451F: *Single Integrated Air Picture (SIAP)*

PROJECT

655275: *Joint SIAP Engineering and Development*



Joint SIAP Eng & Dev Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0207451F: *Single Integrated Air Picture (SIAP)*

PROJECT

655275: *Joint SIAP Engineering and Development*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
IABM CD-1/Dev, DT & Tech Support	1	2009	4	2009
SoS T&E	2	2009	3	2009
Program/Joint Management	1	2009	4	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	77.362	79.807	57.393	0.000	57.393	34.838	40.573	28.361	27.486	Continuing	Continuing
655012: <i>Full Combat Mission Training</i>	77.362	21.850	14.154	0.000	14.154	14.039	14.449	14.740	15.139	Continuing	Continuing
655354: <i>F-16 Block 40/50 MTC</i>	0.000	57.957	43.239	0.000	43.239	20.799	26.124	13.621	12.347	Continuing	Continuing

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).

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	135.152	89.568	0.000	0.000	0.000
Current President's Budget	77.362	79.807	57.393	0.000	57.393
Total Adjustments	-57.790	-9.761	57.393	0.000	57.393
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-57.790	-9.761	57.393	0.000	57.393

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R-1 Line Item #92

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0207701F: *Full Combat Mission Training*

Change Summary Explanation

FY09:

Decreased by Air Force Reprogramming action for higher priorities

FY10:

Increased to fully fund F-16 trainer development and to integrate additional platforms and networks

Decreased by Congressional Program Reduction

FY11:

N/A

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R-1 Line Item #92

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655012: <i>Full Combat Mission Training</i>	77.362	21.850	14.154	0.000	14.154	14.039	14.449	14.740	15.139	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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. FY11 FCMT funding provides research in areas benefiting the AF DMO/LVC environment as a whole. 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Development, demonstration and insertion of multi-level security capability. <i>FY 2009 Accomplishments:</i> In FY 2009: Cross Domain Solution (CDS) for F-16 MTC <i>FY 2010 Plans:</i> In FY 2010: CDS for F-15E <i>FY 2011 Base Plans:</i> In FY 2011: Continue CDS for F-15E	2.950	3.785	1.872	0.000	1.872

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A						
<p>MAJOR THRUST: Research and development to provide for the integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Includes but is not limited to studies, demonstrations 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.---Connected two A-10, one RC-135, one F-22 and the USAFE Warrior Prep Center</p> <p><i>FY 2010 Plans:</i> In FY 2010: Study and demonstrate DMO network conversion to the GIG</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue study and demonstration of the DMO network conversion to the GIG</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>		25.841	3.167	1.968	0.000	1.968
<p>MAJOR THRUST: 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 ...</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Begin development of F-16 flight simulators</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p>		34.914	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> In FY 2011: N/A					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
MAJOR THRUST: Program Office support <i>FY 2009 Accomplishments:</i> In FY 2009: Program Office support <i>FY 2010 Plans:</i> In FY 2010: Program Office support <i>FY 2011 Base Plans:</i> In FY 2011: Program Office support <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A	5.707	4.955	1.656	0.000	1.656
Accomplishments/Planned Programs Subtotals	77.362	21.850	14.154	0.000	14.154

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0207701F: <i>Full Combat Mission Training, Aircraft Procurement, AF</i>	40.703	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	143.942	189.518	212.588	0.000	212.588	194.324	244.178	272.178	271.396	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207701F (1): <i>Full Combat Mission Training, O & M, AF</i>											

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>				PROJECT 655012: <i>Full Combat Mission Training</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
677 AESG AFMC	C/Various	677 AESG AFMC Wright Patterson AFB, OH	111.210	9.102		8.832		0.000		8.832	Continuing	Continuing	0.000
478 AESW (F-22)	SS/CPIF	478 AESW AFMC Wright Patterson AFB, OH	69.300	0.200		0.200		0.000		0.200	0.000	69.700	0.000
507 MASSG (B-52)	SS/FFP	507 MASSG Hill AFB, UT	4.800	0.200		0.200		0.000		0.200	0.000	5.200	0.000
677 AESG/SYCB (B-1, B-2 & Joint Terminal Control Training and Rehearsal System [JTC TRS])	SS/CPIF	677 AESG/SYCB AFMC Wright Patterson AFB, OH	22.800	4.393		0.200		0.000		0.200	0.000	27.393	0.000
Subtotal			208.110	13.895		9.432		0.000		9.432			0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
- Air Force Research Lab Human Effectiveness Directorate	C/CPFF	AFRL/HEA Mesa, AZ	14.402	3.000		3.066		0.000		3.066	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			14.402	3.000		3.066		0.000		3.066			0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
No text provided	TBD/TBD	No text provided No text provided	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	C/Various	677 AESG AFMC	25.077	4.955		1.656		0.000		1.656	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>				PROJECT 655012: <i>Full Combat Mission Training</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Wright Patterson AFB, OH											
Subtotal			25.077	4.955		1.656		0.000		1.656			0.000

Remarks

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	247.589	21.850	14.154	0.000	14.154			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

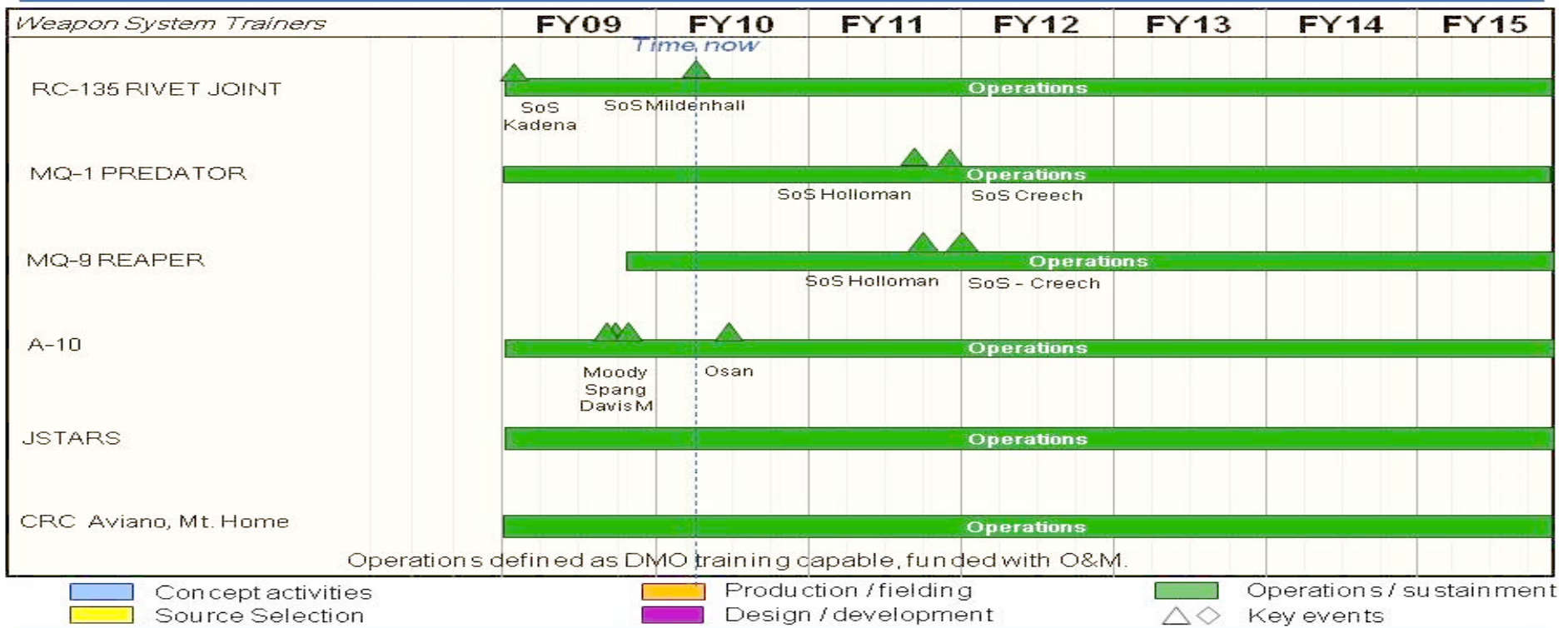
PE 0207701F: *Full Combat Mission Training*

PROJECT

655012: *Full Combat Mission Training*



DMO CAF Schedule AF Owned Systems II



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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

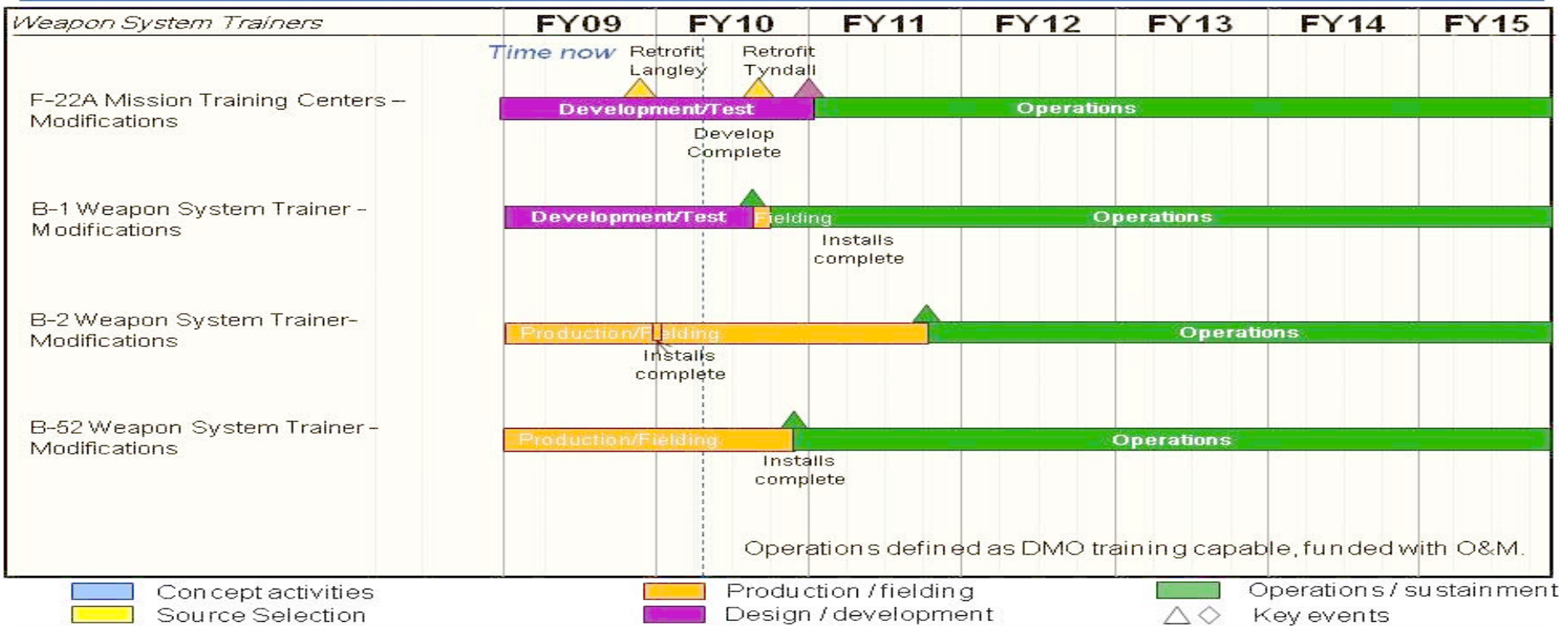
PE 0207701F: Full Combat Mission Training

PROJECT

655012: Full Combat Mission Training



DMO CAF Schedule AF Owned Systems I



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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
 BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

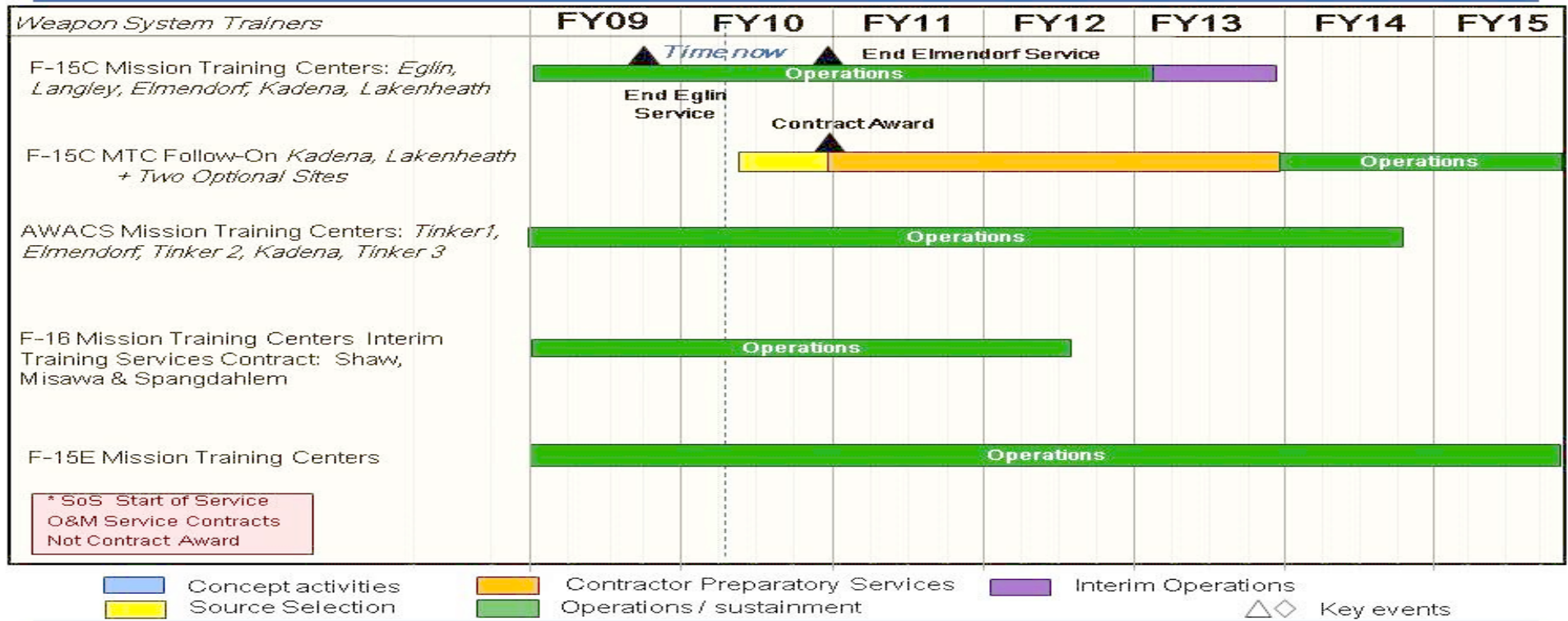
PE 0207701F: *Full Combat Mission Training*

PROJECT

655012: *Full Combat Mission Training*



DMO CAF Schedule Training Service Contracts



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R-1 Line Item #92

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655012: <i>Full Combat Mission Training</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
F-22 DMO Development Complete	4	2010	4	2010
F-22 Retrofit: Langley	4	2009	4	2009
F-22 Retrofit: Tyndall	3	2010	3	2010
B-1 Mod kits installed	3	2010	3	2010
B-2 Mod kits installed	4	2009	4	2009
B-2 Operations begin	4	2011	4	2011
B-52 Mod kits installed	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>				PROJECT 655354: <i>F-16 Block 40/50 MTC</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
655354: <i>F-16 Block 40/50 MTC</i>	0.000	57.957	43.239	0.000	43.239	20.799	26.124	13.621	12.347	Continuing	Continuing	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
Note FY08 and FY09 funding contained in BPAC 655012. Separate BPAC, 655354, F-16 Block 40/50 MTC was established as a separate program on the Non-Space programs list.												
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.												
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
Major Thrust: Research and development of DMO capable flight simulators to replace training capability which has been provided by training simulation service contracts. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: F-16 MTC Training System Support Center development. Includes, but is not limited to, the development and support of F-16 flight simulators.						0.000	56.564	41.239	0.000	41.239		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655354: <i>F-16 Block 40/50 MTC</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continue F-16 MTC development, test and fielding</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
<p>Major Thrust: Program Office support</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY2010: Program office support</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Program office support</p> <p><i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A</p>	0.000	1.393	2.000	0.000	2.000
Accomplishments/Planned Programs Subtotals	0.000	57.957	43.239	0.000	43.239

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655354: <i>F-16 Block 40/50 MTC</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0207701F: <i>F-16 Block 40/50 MTC; Aircraft Procurement, AF</i>	0.000	51.814	53.953	0.000	53.953	49.358	6.561	1.774	1.811	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>					PROJECT 655354: <i>F-16 Block 40/50 MTC</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
L3 Comm	C/Various	LINK SIMULATION & TRAINING Arlington, TX	0.000	56.564		41.239		0.000		41.239	Continuing	Continuing	0.000
Subtotal			0.000	56.564		41.239		0.000		41.239			0.000

Remarks
FY 08 & FY09 Funding contained in BPAC 655012.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	TBD/TBD	677 AESG AFMC Wright Patterson AFB, OH	0.000	1.393		2.000		0.000		2.000	Continuing	Continuing	0.000
Subtotal			0.000	1.393		2.000		0.000		2.000			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0207701F: <i>Full Combat Mission Training</i>	PROJECT 655354: <i>F-16 Block 40/50 MTC</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	57.957	43.239	0.000	43.239			0.000

Remarks
Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

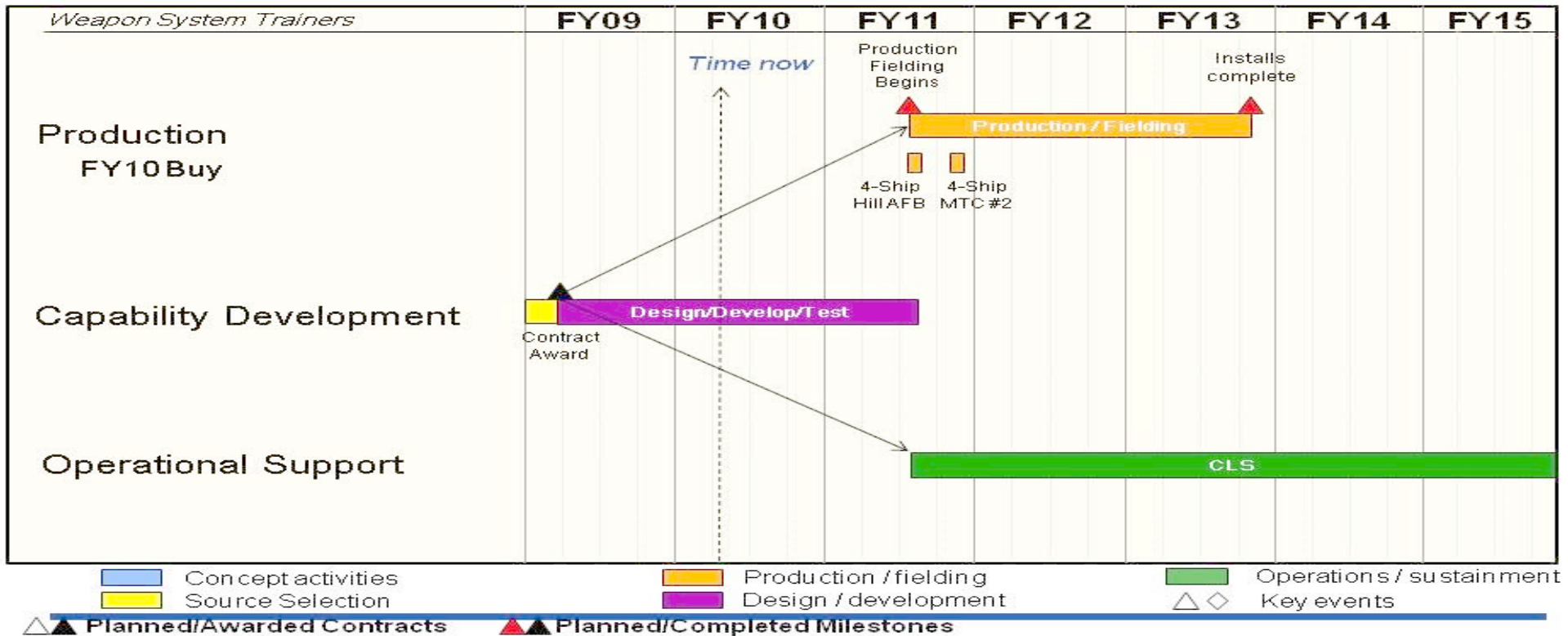
PE 0207701F: Full Combat Mission Training

PROJECT

655354: F-16 Block 40/50 MTC



F-16 Block 40/50 MTC Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 5: *Development & Demonstration (SDD)*

R-1 ITEM NOMENCLATURE

PE 0207701F: *Full Combat Mission Training*

PROJECT

655354: *F-16 Block 40/50 MTC*

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
F-16 Mission Training Center Recompete Contract Award	1	2009	1	2009
Hill AFB UT Fielded	3	2011	3	2011
F-16 MTC #2 Fielded	4	2011	4	2011

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R-1 Line Item #92

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
654522: <i>CSAR EMD</i>	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.341

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 support equipment, four UHF Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features 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 being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. In FY06, Congress reprogrammed funds for the development of Block 2 improvements, including Terminal Area Communication and Terminal Area Guidance (TAC/TAG). FY08 funds were programmed to complete Block 1B and TAC/TAG development efforts. FY 2009 reflects a \$12.5 million reprogramming from OPAF, approved by Congress in March 2009, for development of the Portable Combat Search and Rescue Interrogator Unit (PCIU), as part of the continuing development of Block 2 upgrades. PCIU will allow rescue forces to send text messages to TAC-enabled CSEL radios and the older HOOK-2 radios. Block 2 also includes development of the CSEL Interrogator Module (CIM) , which will allow rescue aircraft to communicate with TAC-enabled CSEL radios.

This program is in Budget Activity 5, System Development and Demonstration, because it funds the development of Block upgrades.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	12.500	0.000	0.000	0.000	0.000
Total Adjustments	12.500	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	12.500	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2009 reflects \$12.5 million of OPAF reprogramming, approved by Congress in March 2009, to develop PCIU, and includes continued Block upgrade development.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654522: <i>CSAR EMD</i>	12.500	0.000	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	0		

Note
FY2009 reflects \$12.5 million reprogramming from OPAF approved by Congress in March 2009.

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 support equipment, four UHF Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features 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 being developed in an evolutionary fashion per the Operational Requirements Document (ORD) approved in February 2000. In FY06, Congress reprogrammed funds for the development of Block 2 improvements, including Terminal Area Communication and Terminal Area Guidance (TAC/TAG). FY08 funds were programmed to complete Block 1B and TAC/TAG development efforts. FY 2009 reflects a \$12.5 million reprogramming from OPAF, approved by Congress in March 2009, for development of the Portable Combat Search and Rescue Interrogator Unit (PCIU), as part of the continuing development of Block 2 upgrades. PCIU will allow rescue forces to send text messages to TAC-enabled CSEL radios and the older HOOK-2 radios. Block 2 also includes development of the CSEL Interrogator Module (CIM), which will allow rescue aircraft to communicate with TAC-enabled CSEL radios.

This program is in Budget Activity 5, System Development and Demonstration, because it funds the development of Block upgrades.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST - CSEL Engineering and Manufacturing Development	12.500	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Initiated development of the Portable Combat Search and Rescue Interrogator Unit (PCIU), a device to provide rescue forces secure text messaging communication with currently-fielded radios and CSEL radios. PCIU is part of the CSEL Block 2 development program.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	12.500	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0305176F: <i>Other Procurement, Air Force - WSC 837170 (Budget Activity 3)</i>	7.313	34.923	34.925	0.000	34.925	37.596	6.036	0.000	0.000	0.000	0.000

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-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>				PROJECT 654522: <i>CSAR EMD</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Boeing	SS/CPFF	Huntington Beach CA	113.617	0.000		0.000		0.000		0.000	0.000	113.617	0.000
SMC (COBRA)	Various	TBD TBD	4.000	0.000		0.000		0.000		0.000	0.000	4.000	0.000
Subtotal			117.617	0.000		0.000		0.000		0.000	0.000	117.617	0.000

Remarks

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPAWAR	MIPR	San Diego CA	3.289	0.000		0.000		0.000		0.000	0.000	3.289	0.000
PRC/ARINC/BD Systems	C/CPAF	TBD TBD	3.304	0.000		0.000		0.000		0.000	0.000	3.304	0.000
FFRDC (MITRE/ Aerospace)	FFRDC	TBD TBD	8.898	0.000		0.000		0.000		0.000	0.000	8.898	0.000
A&AS (Quantech)	TM	Bedford MA	0.067	0.000		0.000		0.000		0.000	0.000	0.067	0.000
MANTECH	C/CPAF	Alliant Tech Systems Hopkins	0.600	0.000		0.000		0.000		0.000	0.000	0.600	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>				PROJECT 654522: <i>CSAR EMD</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		MN											
SMC	TBD/CPAF	Los Angeles CA	0.777	0.000		0.000		0.000		0.000	0.000	0.777	0.000
JPRA	MIPR	Ft. Belvoir VA	0.200	0.000		0.000		0.000		0.000	0.000	0.200	0.000
Miscellaneous	Various	Various Various	0.801	0.000		0.000		0.000		0.000	0.000	0.801	0.000
Subtotal			17.936	0.000		0.000		0.000		0.000	0.000	17.936	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFOTEC	MIPR	Kirtland AFB NM	0.357	0.000		0.000		0.000		0.000	0.000	0.357	0.000
746TS	MIPR	Kitrland AFB NM	1.308	0.000		0.000		0.000		0.000	0.000	1.308	0.000
18FTS	TBD/TBD	TBD TBD	1.700	0.000		0.000		0.000		0.000	0.000	1.700	0.000
SMC Test Support	TBD/CPAF	Los Angeles AFB	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader</i> <i>Locator</i>				PROJECT 654522: <i>CSAR EMD</i>					

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		CA											
Joint Spectrum Center	TBD/CPAF	IIT Research Institute Chicago IL	0.514	0.000		0.000		0.000		0.000	0.000	0.514	0.000
ESC (TBMCS SPO)	TBD/CPAF	Lockheed Martin Colorado Springs CO	0.500	0.000		0.000		0.000		0.000	0.000	0.500	0.000
46 TS	PO	TBD TBD	0.500	0.000		0.000		0.000		0.000	0.000	0.500	0.000
EPG	MIPR	Ft. Huachuca AZ	3.017	0.000		0.000		0.000		0.000	0.000	3.017	0.000
JITC	MIPR	Multiple No text provided	1.107	0.000		0.000		0.000		0.000	0.000	1.107	0.000
DISA	MIPR	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
CECOM	MIPR	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
SPAWAR	MIPR	San Diego CA	0.077	0.000		0.000		0.000		0.000	0.000	0.077	0.000
Army Research Labs	MIPR	White Sands NM	0.030	0.000		0.000		0.000		0.000	0.000	0.030	0.000
GCCS-A (Integration Support)	MIPR	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
GCCS-M	MIPR	SPAWAR San Diego	0.200	0.000		0.000		0.000		0.000	0.000	0.200	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		CA											
PRMS	MIPR	TBD TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
Subtotal			9.310	0.000		0.000		0.000		0.000	0.000	9.310	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	144.863	0.000		0.000		0.000		0.000	0.000	144.863	0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0305176F: Combat Survivor Evader
Locator

PROJECT

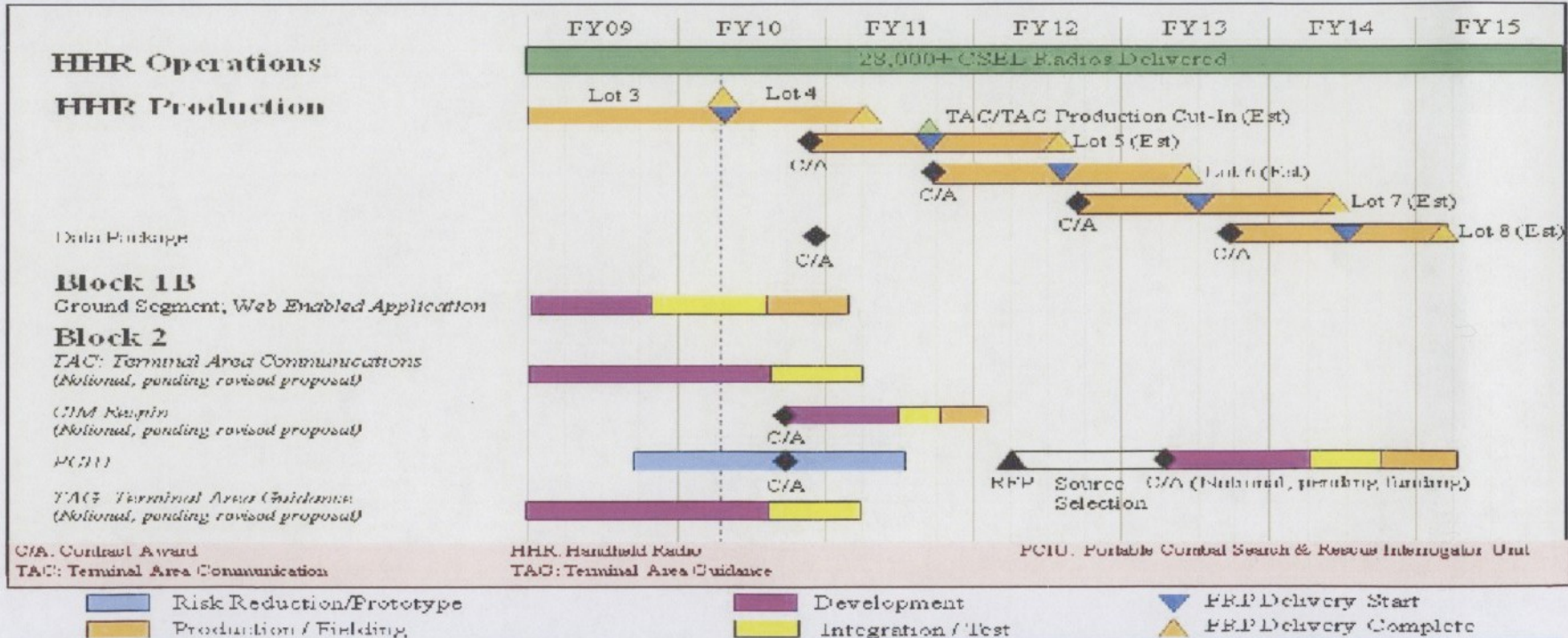
654522: CSAR EMD



U.S. AIR FORCE



CSEL Schedule



Integrity - Service - Excellence

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Lot 5 Contract Award	4	2010	4	2010
Lot 5 Delivery Start	3	2011	3	2011
Lot 6 Contract Award	3	2011	3	2011
Block 1B development	1	2009	4	2009
Block 1B Integration and Test Phase 1	4	2009	4	2009
Block 1B Integration and Test Phase 2	1	2010	3	2010
Block 1B Event 5 Combined Test	3	2010	3	2010
Block 1B fielding decision	3	2010	3	2010
Block 1B Upgrade complete	1	2011	1	2011
TAC Development Phase 1	1	2009	4	2009
TAC Development Phase 2	1	2010	3	2010
TAC Integration and Test Phase 1	3	2010	4	2010
TAC Integration and Test Phase 2	1	2011	1	2011
CIM Respin Development contract award	3	2010	3	2010
CIM Respin Development Phase 1	4	2010	4	2010
CIM Respin Development Phase 2	1	2011	2	2011
CIM Respin Integration and Test	3	2011	3	2011
CIM Respin Production/Fielding	4	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0305176F: <i>Combat Survivor Evader Locator</i>	PROJECT 654522: <i>CSAR EMD</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
TAG Development Phase 1	1	2009	4	2009
TAG Development Phase 2	1	2010	3	2010
TAG Integration and Test Phase 1	3	2010	4	2010
TAG Integration and Test Phase 2	1	2011	1	2011
PCIU Prototype Contract Award	3	2010	3	2010
PCIU Risk Reduction/Prototype Phase 1	4	2009	4	2009
PCIU Risk Reduction/Prototype Phase 2	1	2010	4	2010
PCIU Risk Reduction/Prototype Phase 3	1	2011	2	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	16.271	9.353	26.407	0.000	26.407	18.920	6.501	0.000	0.000	Continuing	Continuing
655259: <i>Joint Cargo Aircraft (JCA)</i>	16.271	9.353	26.407	0.000	26.407	18.920	6.501	0.000	0.000	0.000	111.901

A. Mission Description and Budget Item Justification

The C-27J is a medium-size airlift aircraft that will provide flexible and responsive delivery of time sensitive and mission critical (TS/MC) equipment, supplies, and personnel to austere operating locations during contingency operations abroad, and in support of domestic homeland security and disaster response operations.

The C-27J acquisition program began in FY07 as an Army-led joint program to acquire a commercial derivative aircraft capable of providing direct support airlift of TS/MC cargo to Army ground forces. A joint Army-Air Force source selection team chose the C-27J to provide this capability, and the Army awarded a firm fixed price (FFP) aircraft production and support contract to L3 Communications (L3Com) in June 2007.

In FY10, the Air Force assumed full responsibility for the direct support airlift mission and sole responsibility for managing the C-27J acquisition program. Thirteen C-27J aircraft procured by the Army in FY07-09 will be transferred to the Air Force as part of the transition from a joint program to an Air Force-only program.

FY11 Budget Justification:

Provides for technical studies and analyses to investigate and recommend solutions for: 1) aircraft deficiencies identified during initial Product Qualification Testing (PQT), Live Fire Test & Evaluation (LFT&E), and Multi-Service Operational Test & Evaluation (MOT&E); 2) operational capability requirements identified by Air Mobility Command (AMC); 3) new technologies that could enhance C-27J operational effectiveness, survivability, and sustainability

Provides for follow-on qualification testing and operational evaluation of aircraft design/configuration changes installed on C-27J aircraft

Provides for updates to, and maintenance of C-27J aircraft airworthiness certifications

Provides for the development of aircrew and maintenance training devices necessary to support C-27J pilot and loadmaster mission qualification training, and to support training of C-27J maintenance personnel

Provides for program management office support of test and evaluation activities

Funding for the C-27J acquisition program is contained in Budget Activity 05, as the C-27J is a new weapon system that has not been fully fielded.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	16.271	9.353	0.000	0.000	0.000
Current President's Budget	16.271	9.353	26.407	0.000	26.407
Total Adjustments	0.000	0.000	26.407	0.000	26.407
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	26.407	0.000	26.407

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
655259: <i>Joint Cargo Aircraft (JCA)</i>	16.271	9.353	26.407	0.000	26.407	18.920	6.501	0.000	0.000	0.000	111.901
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The C-27J is a medium-size airlift aircraft that will provide flexible and responsive delivery of time sensitive and mission critical (TS/MC) equipment, supplies, and personnel to austere operating locations during contingency operations abroad, and in support of domestic homeland security and disaster response operations.

The C-27J acquisition program began in FY07 as an Army-led joint program to acquire a commercial derivative aircraft capable of providing direct support airlift of TS/MC cargo to Army ground forces. A joint Army-Air Force source selection team chose the C-27J to provide this capability, and the Army awarded a firm fixed price (FFP) aircraft production and support contract to L3 Communications (L3Com) in June 2007.

In FY10, the Air Force assumed full responsibility for the direct support airlift mission and sole responsibility for managing the C-27J acquisition program. Thirteen C-27J aircraft procured by the Army in FY07-09 will be transferred to the Air Force as part of the transition from a joint program to an Air Force-only program.

FY11 Budget Justification:

Provides for technical studies and analyses to investigate and recommend solutions for: 1) aircraft deficiencies identified during initial Product Qualification Testing (PQT), Live Fire Test & Evaluation (LFT&E), and Multi-Service Operational Test & Evaluation (MOT&E); 2) operational capability requirements identified by Air Mobility Command (AMC); 3) new technologies that could enhance C-27J operational effectiveness, survivability, and sustainability

Provides for follow-on qualification testing and operational evaluation of aircraft design/configuration changes installed on C-27J aircraft

Provides for updates to, and maintenance of C-27J aircraft airworthiness certifications

Provides for the development of aircrew and maintenance training devices necessary to support C-27J pilot and loadmaster mission qualification training, and to support training of C-27J maintenance personnel

Provides for program management office support of test and evaluation activities

Funding for the C-27J acquisition program is contained in Budget Activity 05, as the C-27J is a new weapon system that has not been fully fielded.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Complete C-27J test and evaluation activities and develop aircrew and maintenance training systems/devices. <i>FY 2009 Accomplishments:</i> In FY 2009: Conducted Live Fire Test and Evaluation (LFT&E) and initial Product Qualification Test (PQT) events on the C-27J weapon system. Conducted business case analyses (BCA) to assess long-term training and sustainment options for the C-27J. Funded various program management activities and mission support requirements, including initial airworthiness certification activities. <i>FY 2010 Plans:</i> In FY 2010: Completed LFT&E, initial PQT, and Multi-Service Operational Test and Evaluation (MOT&E) on the C-27J weapon system. Completed BCA and initial airworthiness certification activities. <i>FY 2011 Base Plans:</i> In FY 2011: Initiate development of aircrew and maintenance training systems/devices, including a cockpit procedures trainer, an avionics system management trainer, a loadmaster part-task trainer, and computer-based interactive multimedia instruction systems for C-27J maintenance personnel. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A	16.271	9.353	26.407	0.000	26.407
Accomplishments/Planned Programs Subtotals	16.271	9.353	26.407	0.000	26.407

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0401138F: <i>Aircraft Procurement, Air Force</i>	0.000	318.032	351.200	0.000	351.200	574.729	19.045	21.942	29.395	0.000	0.000
	2.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0203744A: <i>Aircraft Modifications, Army</i>											
• PE A11000: <i>Aircraft Procurement, Army</i>	263.381	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Technical Studies & Analyses: Exercise FFP contract line item number (CLIN) for L3Com engineering support services (ESS). Analysis requirements will be determined by the government and may include evaluation of: product quality deficiency reports (PQDR), Federal Aviation Administration (FAA) airworthiness directives/service bulletins, AMC operational capability requirements, communication-navigation-surveillance and air traffic management (CNS/ATM) requirements, component obsolescence/technology refresh requirements, and business case analysis results/recommendations.

Test & Evaluation: Provide funding to Air Force qualification and operational test organizations, other government agencies, and the prime contractor (L3Com) as necessary to verify and evaluate aircraft design/configuration changes against contract and operational requirements, and FAA airworthiness standards.

Airworthiness Certification: Provide funding to the Air Force Aeronautical Systems Center (ASC), Air Force test agencies, other government agencies (e.g., FAA), and the prime contractor (L3Com) as necessary to update and maintain C-27J airworthiness certifications following the installation and verification of aircraft design/configuration changes.

Training System Development: Negotiate contract modifications for the development and delivery of the following C-27J training devices: one cockpit procedures trainer (CPT), one avionics system management trainer (ASMT), one loadmaster part-task trainer (LMPTT), and computer-based interactive multimedia instruction (IMI) maintenance training systems. These training systems will be developed and incrementally funded over a two-year timeframe (FY11-12), with the delivery of each device occurring in FY12.

Program Office/Mission Support: Fund task orders on existing program office advisory and assistance services contracts for support of program test and evaluation activities. Provide funding to other government agencies as necessary to support program office operations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System/Device Development	C/FFP	L3Com Waco, TX	0.000	0.000		22.645	Jan 2011	0.000		22.645	21.204	43.849	43.849
Mission Planning System Development	C/FFP	L3Com Waco, TX	1.745	0.000		0.000		0.000		0.000	0.000	1.745	0.000
Subtotal			1.745	0.000		22.645		0.000		22.645	21.204	45.594	43.849

Remarks

FY11 funds initiate development of the CPT, ASMT, LMPTT, and IMIs; effort continues/completes in FY12

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Support Services	C/FFP	L3Com Waco, TX	11.496	1.577		1.937		0.000		1.937	0.522	15.532	0.000
Business Case Analyses	C/FFP	Belzon Huntsville, AL	4.086	0.510		0.000		0.000		0.000	0.000	4.596	0.000
Airworthiness Certification	MIPR	Various Various	2.150	0.130		0.100		0.000		0.100	0.230	2.610	0.000
Subtotal			17.732	2.217		2.037		0.000		2.037	0.752	22.738	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Qualification and Operational Test & Evaluation	MIPR	Various Various	14.010	6.796		1.500		0.000		1.500	3.000	25.306	0.000
Subtotal			14.010	6.796		1.500		0.000		1.500	3.000	25.306	0.000

Remarks

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office/Mission Support	Various/ Various	Various Various	8.248	0.340		0.225		0.000		0.225	0.465	9.278	0.000
Air Force Reprogramming Action	TBD/TBD	TBD TBD	4.000	0.000		0.000		0.000		0.000	0.000	4.000	0.000
Subtotal			12.248	0.340		0.225		0.000		0.225	0.465	13.278	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.735	9.353	26.407	0.000	26.407	25.421	106.916	43.849

Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 5: Development & Demonstration (SDD)

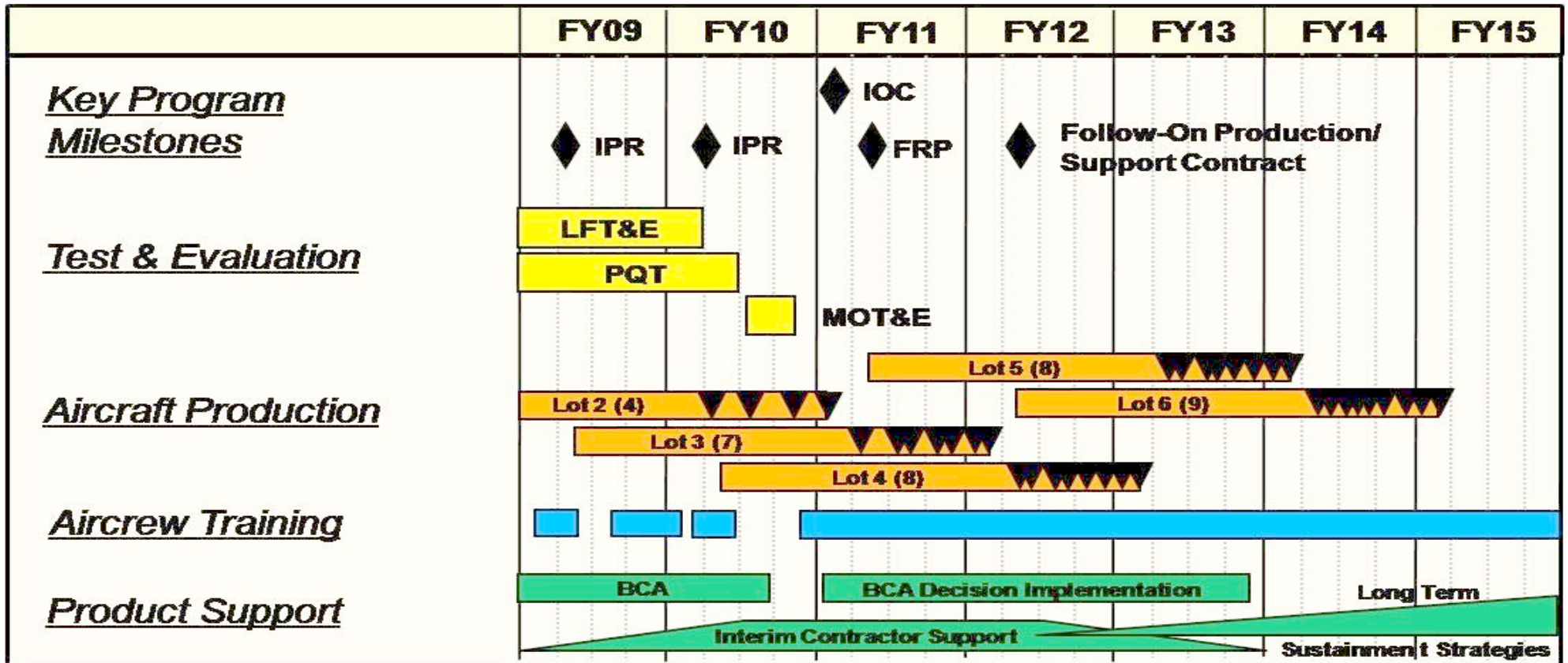
R-1 ITEM NOMENCLATURE

PE 0401138F: Joint Cargo Aircraft

PROJECT

655259: Joint Cargo Aircraft (JCA)

C-27J Program Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401138F: <i>Joint Cargo Aircraft</i>	PROJECT 655259: <i>Joint Cargo Aircraft (JCA)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
OSD Interim Program Review (IPR)	2	2009	2	2010
Initial Operational Capability (IOC)	1	2011	1	2011
Full-Rate Production (FRP) Decision Review	2	2011	2	2011
Live Fire Test & Evaluation (LFT&E)	1	2009	1	2010
Product Qualification Test (PQT)	1	2009	2	2010
Multi-Service Operational Test & Evaluation (MOT&E)	3	2010	4	2010
Business Case Analyses (BCA)	1	2009	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	17.992	19.640	18.270	0.000	18.270	21.983	18.277	18.237	37.891	Continuing	Continuing
654103: CV-22	17.992	19.640	18.270	0.000	18.270	21.983	18.277	18.237	37.891	Continuing	Continuing

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, weapons, 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 improved brakes, communications, situational awareness, software, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is developing 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 unique 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, testing and fielding proposed solutions to emerging warfighter issues.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	18.512	19.640	0.000	0.000	0.000
Current President's Budget	17.992	19.640	18.270	0.000	18.270
Total Adjustments	-0.520	0.000	18.270	0.000	18.270
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.520	0.000			
• Other Adjustments	0.000	0.000	18.270	0.000	18.270

Change Summary Explanation

FY 2009: SBIR/STTR Transfer

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22	PROJECT 654103: CV-22
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
654103: CV-22	17.992	19.640	18.270	0.000	18.270	21.983	18.277	18.237	37.891	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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, weapons, 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 improved brakes, communications, situational awareness, software, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is developing 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 unique 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, testing and fielding proposed solutions to emerging warfighter issues.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop, test, and evaluate additional capabilities for the CV-22 aircraft. The V-22 Joint Program Office is developing improved operational safety, suitability, and effectiveness.	17.992	19.640	18.270	0.000	18.270

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22	PROJECT 654103: CV-22
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009, RDT&E activities continued on Block 20. Block 20 development includes, but is not limited to communications, situational awareness, software, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. Initiate Block 20 Increment 2 and continue Increment 1 efforts.</p> <p><i>FY 2010 Plans:</i> In FY 2010, RDT&E activities will continue on Block 20. Block 20 development includes, but is not limited to improved brakes, communications, software, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. Initiate Block 20 Increment 3 and continue Increment 1 & 2 efforts.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011, RDT&E activities will continue on Block 20. Block 20 development includes, but is not limited to improved brakes, communications, software, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. Continue Increment 1, 2 & 3 efforts.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A</p>					
Accomplishments/Planned Programs Subtotals	17.992	19.640	18.270	0.000	18.270

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 1160421BB: <i>RDT&E</i>	30.970	12.687	14.476	0.000	14.476	9.589	0.000	0.000	0.000	0.000	518.719
<i>Defense-wide</i>											
• PE 1160421BB (1): <i>Procurement</i>	155.030	114.553	124.648	0.000	124.648	108.679	114.998	84.848	6.366	0.000	0.000
<i>Defense-wide</i>											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22	PROJECT 654103: CV-22
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0401318F: <i>Aircraft Procurement Air Force</i>	494.800	597.331	529.275	0.000	529.275	470.789	427.633	334.108	135.913	0.000	0.000

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 fixed fee contract with the prime contractor in Dec 2007 for Block 20 development and test. Future Block 20 increments will use a similar acquisition strategy but will use a cost plus incentive fee contract.

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0401318F: CV-22				PROJECT 654103: CV-22					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interim Contractor Support	SS/CPAF	Bell Boeing Amarillo TX	26.889	0.000		0.000		0.000		0.000	0.000	26.889	0.000
Contractor Logistics Support for Test Aircraft	Various	Various Various	6.775	2.543	Dec 2009	3.958	Dec 2010	0.000		3.958	Continuing	Continuing	0.000
Subtotal			33.664	2.543		3.958		0.000		3.958			0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	SS/CPFF	Bell Boeing Amarillo TX	20.631	1.231	Feb 2010	3.374	Feb 2011	0.000		3.374	Continuing	Continuing	0.000
Test & Evaluation Technical Support	MIPR	Various Various	3.539	0.000		0.000		0.000		0.000	0.000	3.539	0.000
Subtotal			24.170	1.231		3.374		0.000		3.374			0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0401318F: CV-22				PROJECT 654103: CV-22					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Management Support	MIPR	TBD Lakehurst NJ	2.119	0.000		0.000		0.000		0.000		0.000	2.119	0.000
Subtotal			2.119	0.000		0.000		0.000		0.000		0.000	2.119	0.000

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	316.751	19.640		18.270		0.000		18.270			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

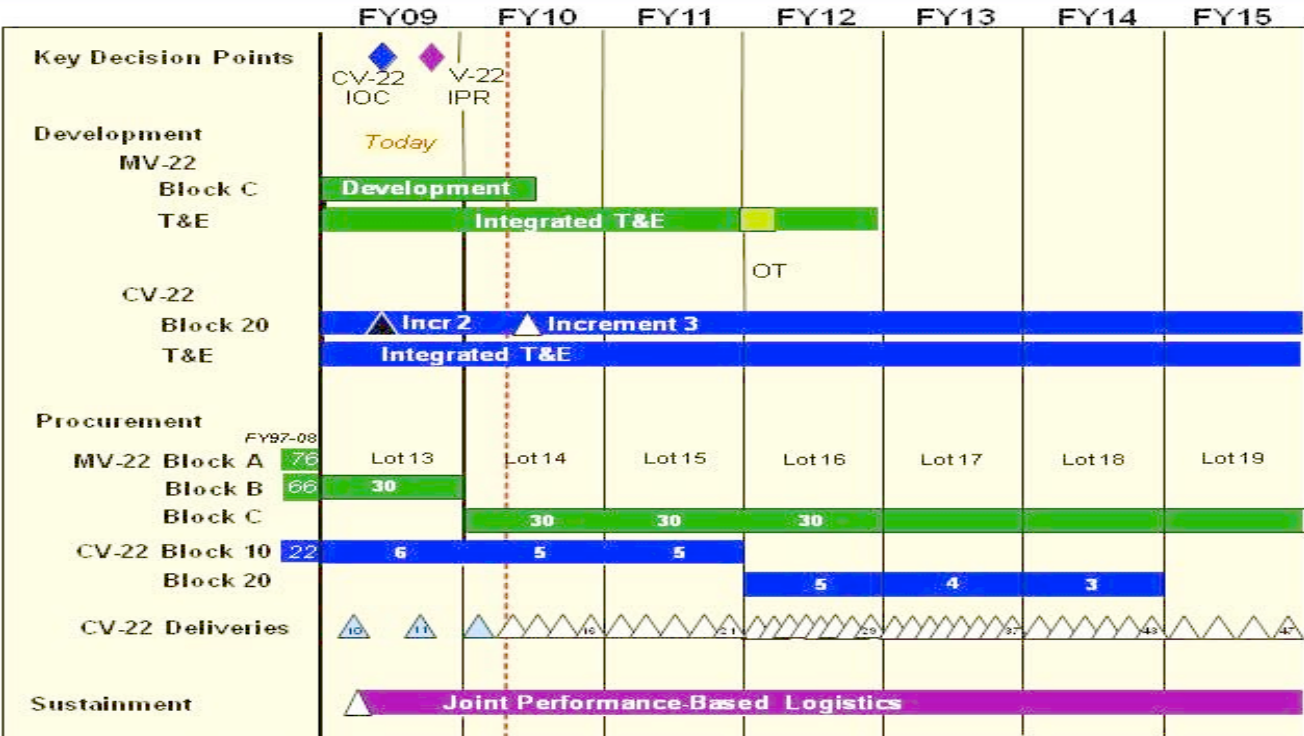
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22	PROJECT 654103: CV-22



CV-22 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401318F: CV-22	PROJECT 654103: CV-22

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Block 20 Development/Test	1	2009	4	2011
Aircraft Deliveries	1	2009	4	2011
CV-22 IOC	2	2009	2	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.906	19.976	15.826	0.000	15.826	3.627	0.000	0.000	0.000	Continuing	Continuing
665273: <i>SLC3S-A Standard Communications Package</i>	1.906	19.976	15.826	0.000	15.826	3.627	0.000	0.000	0.000	0.000	0.000

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. The SLC3S-A Communications Program 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1.906	20.056	0.000	0.000	0.000
Current President's Budget	1.906	19.976	15.826	0.000	15.826
Total Adjustments	0.000	-0.080	15.826	0.000	15.826
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	-0.080			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	15.826	0.000	15.826

Change Summary Explanation

FY10 funding begins the SLC3S-A Communications Program System Design and Development (SDD) phase.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
665273: <i>SLC3S-A Standard Communications Package</i>	1.906	19.976	15.826	0.000	15.826	3.627	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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. The SLC3S-A Communications Program 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
	1.906	19.976	15.826	0.000	15.826

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Develop command, control, communications system to provide voice, video, and data communications for airborne platforms for Senior Leaders.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Complete the development of the SLC3S-A Communications Program (SCP) requirements and perform program management.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Begin the development, testing, certification, data items, and training of the SCP for Aircraft Variants 1 and 2 and perform program management.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Complete development, test certification, data items, and training of the SCP for Aircraft Variant 1, continue the development, testing, and certification of the SCP for Aircraft Variant 2, and perform SCP program management.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	1.906	19.976	15.826	0.000	15.826

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0401845F: <i>SLC3S-A (APAF)</i>	7.330	0.196	33.037	0.000	33.037	32.017	10.632	10.824	11.018	0.000	0.000

D. Acquisition Strategy

Competitive award of a single contract vehicle. Emphasize off-the-shelf technology and maximize use of non-developmental items (NDIs).

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering, Software Development, Certifications	TBD/TBD	TBD TBD	0.000	15.382	Feb 2010	12.959	Dec 2010	0.000		12.959	0.000	28.341	0.000
Develop SCP associated data items and training	TBD/TBD	TBD TBD	6.806	2.420	Feb 2010	1.500	Dec 2010	0.000		1.500	0.000	10.726	0.000
Subtotal			6.806	17.802		14.459		0.000		14.459	0.000	39.067	0.000

Remarks

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government test and eval	PO	Various Various	0.548	0.650	Jan 2010	0.250	Jan 2011	0.000		0.250	0.000	1.448	0.000
Subtotal			0.548	0.650		0.250		0.000		0.250	0.000	1.448	0.000

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>				PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>					

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SCP Program Management	TM	Various Various	6.602	1.524	Jan 2010	1.117	Jan 2011	0.000		1.117	0.000	9.243	0.000
Subtotal			6.602	1.524		1.117		0.000		1.117	0.000	9.243	0.000

Remarks

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.956	19.976		15.826		0.000		15.826	0.000	49.758	0.000

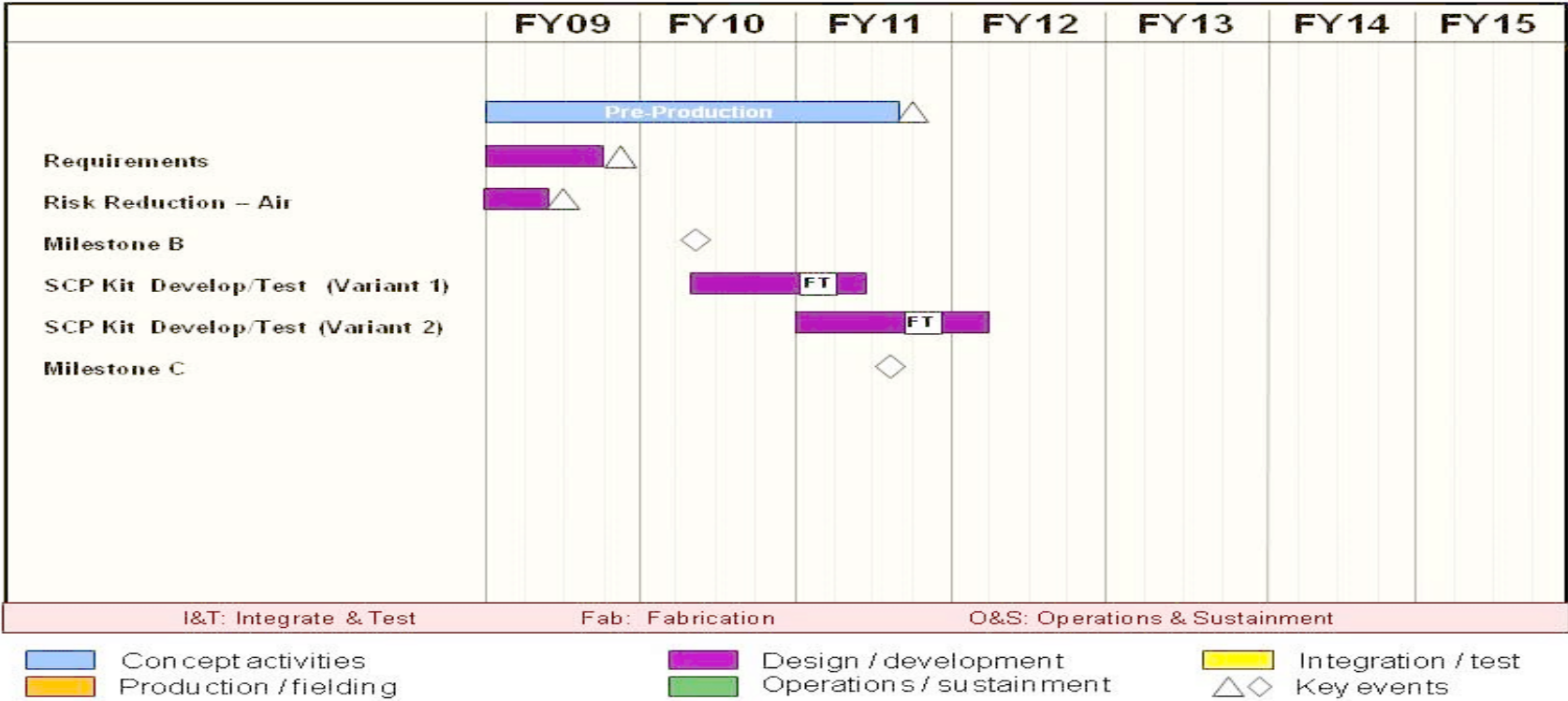
Remarks

Total Prior Years Cost may include only FY 2009 data.

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0401845F: <i>SLC3S-A (Senior Leader C3S)</i>	PROJECT 665273: <i>SLC3S-A Standard Communications Package</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Pre-production activities complete	3	2011	3	2011
Requirements development complete	4	2009	4	2009
Risk Reduction - Air complete	2	2009	2	2009
MS-B	2	2010	2	2010
SCP Kit Development/Test/Cert,Aircraft Variant 1	2	2010	2	2011
SCP Kit Development/Test/Cert, Aircraft Variant 2	1	2011	4	2011
MS-C	3	2011	3	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	33.951	23.331	21.245	0.000	21.245	22.495	23.337	23.546	22.699	Continuing	Continuing
662907: <i>Electronic Combat Intel Support</i>	2.159	2.206	2.215	0.000	2.215	2.250	2.284	2.319	2.354	Continuing	Continuing
663321: <i>Electronic Warfare Ground Test Resources</i>	24.119	13.508	11.441	0.000	11.441	12.544	13.761	14.318	13.958	Continuing	Continuing
667500: <i>Foreign Materiel Acquisition/Analysis</i>	7.673	7.617	7.589	0.000	7.589	7.701	7.292	6.909	6.387	Continuing	Continuing

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. This PE also provides funding for planning, budgetary management, and technical support of the Air Force for corporate-level implementation of the EW Test Process, improvement and modernization (I&M) activities and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. Additionally, this PE provides funding to support the acquisition and analysis 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	33.951	27.789	0.000	0.000	0.000
Current President's Budget	33.951	23.331	21.245	0.000	21.245
Total Adjustments	0.000	-4.458	21.245	0.000	21.245
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-4.458			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	21.245	0.000	21.245

Change Summary Explanation

FY10: Revised Economic Assumptions \$4.458M.

FY11: The FY2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>	PROJECT 662907: <i>Electronic Combat Intel Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>662907: Electronic Combat Intel Support</i>	2.159	2.206	2.215	0.000	2.215	2.250	2.284	2.319	2.354	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Supports Foreign Materiel Operational Test and Evaluation (FMOT&E) <i>FY 2009 Accomplishments:</i> In FY 2009: Conducted foreign materiel operational analysis (FMOA) for fighter and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of blue system effectiveness.	2.159	2.206	2.215	0.000	2.215

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>	PROJECT 662907: <i>Electronic Combat Intel Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Conduct foreign materiel operational analysis (FMOA) for fighter and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of blue system effectiveness.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue to conduct foreign materiel operational analysis (FMOA) for fighter and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of blue system effectiveness.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable</p>					
Accomplishments/Planned Programs Subtotals	2.159	2.206	2.215	0.000	2.215

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (138): <i>Not Applicable</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>				PROJECT 663321: <i>Electronic Warfare Ground Test Resources</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
663321: <i>Electronic Warfare Ground Test Resources</i>	24.119	13.508	11.441	0.000	11.441	12.544	13.761	14.318	13.958	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 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).

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force							DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>			R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>			PROJECT 663321: <i>Electronic Warfare Ground Test Resources</i>					
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY2011 OCO: Not applicable.											
MAJOR THRUST: Electronic Combat (EC) Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. <i>FY 2009 Accomplishments:</i> In FY 2009: Provided Systems Engineering / Technical Assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure. <i>FY 2010 Plans:</i> In FY 2010: Continue to provide Systems Engineering / Technical Assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure. <i>FY 2011 Base Plans:</i> In FY 2011: Continue to provide Systems Engineering / Technical Assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.							0.993	1.147	1.191	0.000	1.191
Accomplishments/Planned Programs Subtotals							24.119	13.508	11.441	0.000	11.441
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604759F: <i>Major T&E Investment.</i>	67.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>	PROJECT 663321: <i>Electronic Warfare Ground Test Resources</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0605807F: <i>T&E Support.</i>	756.327	749.756	759.868	0.000	759.868	758.259	732.288	748.855	777.809	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>	PROJECT 667500: <i>Foreign Materiel Acquisition/Analysis</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
667500: <i>Foreign Materiel Acquisition/Analysis</i>	7.673	7.617	7.589	0.000	7.589	7.701	7.292	6.909	6.387	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 and data for threat systems 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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Supports USAF Foreign Materiel Program Requirements through the acquisition and analysis of foreign materiel. <i>FY 2009 Accomplishments:</i> In FY 2009: Funded acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.	7.673	7.617	7.589	0.000	7.589

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604256F: <i>Threat Simulator Development</i>	PROJECT 667500: <i>Foreign Materiel Acquisition/Analysis</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Fund acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continue to fund acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	7.673	7.617	7.589	0.000	7.589

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (326): <i>Not Applicable</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	67.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	Continuing	Continuing
664597: <i>Air Force Test Investments</i>	67.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	Continuing	Continuing

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 and develop 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 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; provides the liaison function for coordinating and scheduling all US Air Force test operations at White Sands Missile Range; and executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>
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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.

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. APA focuses on evaluation of the vehicle airframe, propulsion system, and avionics systems, as well as overall systems integration testing. It encompasses both ground test facilities and open-air range infrastructure, including instrumentation and data processing.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>
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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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	67.898	60.824	0.000	0.000	0.000
Current President's Budget	67.898	67.797	61.587	0.000	61.587
Total Adjustments	0.000	6.973	61.587	0.000	61.587
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		7.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.027	61.587	0.000	61.587

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 664597: *Air Force Test Investments*

Congressional Add: *Holloman High-Speed Test Track / Maglev, FPS-16 Radar Mobilization Upgrade, and Eglin AFB Range Operations Control Center Upgrade*

Congressional Add Subtotals for Project: 664597

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
Congressional Add Subtotals for Project: 664597	7.433	7.000
Congressional Add Totals for all Projects	7.433	7.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: *Research, Development, Test & Evaluation, Air Force*
BA 6: *RDT&E Management Support*

R-1 ITEM NOMENCLATURE

PE 0604759F: *Major T&E Investment*

Change Summary Explanation

FY10 Congressional Increases: Eglin AFB Range Operation Control Center Upgrade \$2.0M, Holloman High Speed Test Track \$5.0M.

FY11: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>				PROJECT 664597: <i>Air Force Test Investments</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
664597: <i>Air Force Test Investments</i>	67.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>	PROJECT 664597: <i>Air Force Test Investments</i>
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>		PROJECT 664597: <i>Air Force Test Investments</i>		
<p>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.</p> <p>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.</p> <p>B. Accomplishments/Planned Program (\$ in Millions)</p>						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Improvement and modernization of the AF capability to test and evaluate Airframe/ Propulsion/Avionics</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Supported - AFFTC Real-Time & Post-Flight System Upgrade (ARPSU) to improve flight telemetry data processing; AFFTC Time Space Position Information (TSPI) Systems Upgrade (ATSU) to provide enhancements to aircraft mounted GPS-based TSPI systems; AFFTC Range Systems Upgrade (ARSU) to provide upgrades to overcome near-term obsolescence; Joint Airborne Instrumentation Integration (JAI) to provide T&E updates for instrumented airborne platforms; Telemetry Systems Integration & Support (TSIS) to improve telemetry acquisition systems; von Karman Gas Dynamics Facility (VKF) Plant Modernization upgrades supersonic and hypersonic wind tunnels; Tunnel 4T Modernization upgrades to flex nozzle actuators & control systems; Tunnels ABC Modernization to provide superior wind tunnel operations; Advanced Large Military Engine Capability upgrades T3 for testing of advanced high speed air-breathing engines; Ultra High Accuracy Reference System (UHARS) to develop a high-accuracy inertial-based TSPI; Holloman High-Speed Test Track (HHSTT)/Rainfield Enhanced Testing to provide increased control and measurement of rain environments during sled tests; T&E Board of Directors coordinates Tri-Service investment and Joint T&E Reliance efforts.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continue to support-ARPSU improvements to flight telemetry data processing; ATSU enhancements to GPS-based TSPI systems; ARSU upgrades to overcome near-term obsolescence;</p>		36.234	38.809	43.507	0.000	43.507

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>		PROJECT 664597: <i>Air Force Test Investments</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: N/A</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>								
Accomplishments/Planned Programs Subtotals				60.465	60.797	61.587	0.000	61.587
				FY 2009	FY 2010			
<p>Congressional Add: Holloman High-Speed Test Track / Maglev, FPS-16 Radar Mobilization Upgrade, and Eglin AFB Range Operations Control Center Upgrade</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Supported - Holloman High-Speed Test Track / Maglev development of a magnetically levitated rocket sled test capability at Holloman AFB, NM 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, and warheads; FPS-16 Radar Mobilization Upgrade project transformation of a fixed radar platform to a transportable system to extend range instrumentation and tracking coverage into the Gulf of Mexico at Eglin AFB, FL; Range Operations Control Center Upgrade project to implement new technologies to improve range control for a planned increase in flight operations and ground missions to include improved command/control network, flight safety and display systems, Eglin AFB, FL.</p>				7.433	7.000			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604759F: <i>Major T&E Investment</i>	PROJECT 664597: <i>Air Force Test Investments</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<p><i>FY 2010 Plans:</i> In FY 2010: Continue to support - Holloman High-Speed Test Track / Maglev to develop a magnetically levitated rocket sled test capability at Holloman AFB, NM 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, and warheads; Range Operations Control Center Upgrade project implementation of new technologies to improve range control for a planned increase in flight operations and ground missions to include improved command/control network, flight safety and display systems, Eglin AFB, FL.</p>		
Congressional Adds Subtotals	7.433	7.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0604256F: <i>Threat Simulator Development</i>	33.951	23.331	21.245	0.000	21.245	22.495	23.337	23.546	22.699	0.000	0.000
• PE 0605807F: <i>Test and Evaluation Support</i>	756.327	749.756	759.868	0.000	759.868	758.259	732.288	748.855	777.809	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605101F: <i>RAND Project Air Force</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	37.674	29.101	26.752	0.000	26.752	26.794	27.356	27.968	28.591	Continuing	Continuing
661110: <i>Project Air Force</i>	37.674	29.101	26.752	0.000	26.752	26.794	27.356	27.968	28.591	Continuing	Continuing

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; force modernization employment; 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 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 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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605101F: <i>RAND Project Air Force</i>
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and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	29.891	27.501	0.000	0.000	0.000
Current President's Budget	37.674	29.101	26.752	0.000	26.752
Total Adjustments	7.783	1.600	26.752	0.000	26.752
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.080	0.000			
• Other Adjustments	7.703	0.000	26.752	0.000	26.752

Change Summary Explanation

In FY09: Below Threshold Reprogramming (BTR) in support of ongoing studies.

In FY10: Congressional increase.

In FY11: The FY2010 President's Budget submittal did not reflect FY2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605101F: <i>RAND Project Air Force</i>	PROJECT 661110: <i>Project Air Force</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
661110: <i>Project Air Force</i>	37.674	29.101	26.752	0.000	26.752	26.794	27.356	27.968	28.591	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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; force modernization employment; 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 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 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

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and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--strategy and doctrine. <i>FY 2009 Accomplishments:</i> In FY09: Continue Strategy and Doctrine <i>FY 2010 Plans:</i> In FY10: Continue Strategy and Doctrine <i>FY 2011 Base Plans:</i> In FY11: Continue Strategy and Doctrine <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.	9.046	7.225	6.594	0.000	6.594
	7.946	6.425	5.794	0.000	5.794

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--force development employment.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Continue Force Development Employment</p> <p><i>FY 2010 Plans:</i> In FY10: Continue Force Development Employment</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue Force Development Employment</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
<p>MAJOR THRUST: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Continue Manpower, Personnel, and Training</p> <p><i>FY 2010 Plans:</i> In FY10: Continue Manpower, Personnel, and Training</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue Manpower, Personnel, and Training</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>	7.946	6.425	5.794	0.000	5.794
	9.045	7.425	6.994	0.000	6.994

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--resource management.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Continue Resource Management</p> <p><i>FY 2010 Plans:</i> In FY10: Continue Resource Management</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue Resource Management</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Continue Integrative Research/Direct Support</p> <p><i>FY 2010 Plans:</i> In FY10: Continue Integrative Research/Direct Support</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue Integrative Research/Direct Support</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		3.691	1.601	1.576	0.000	1.576
Accomplishments/Planned Programs Subtotals		37.674	29.101	26.752	0.000	26.752

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (806): <i>N/A</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605712F: <i>Initial Operational Test & Evaluation</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	29.085	25.833	20.665	0.000	20.665	17.826	16.239	15.562	14.673	Continuing	Continuing
660191: <i>Initial Operational Test & Eval</i>	29.085	25.833	20.665	0.000	20.665	17.826	16.239	15.562	14.673	Continuing	Continuing

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, 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 Integrated Developmental Test/Operational Test (IDT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies. This is a level of effort program element.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605712F: <i>Initial Operational Test & Evaluation</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	29.085	25.833	0.000	0.000	0.000
Current President's Budget	29.085	25.833	20.665	0.000	20.665
Total Adjustments	0.000	0.000	20.665	0.000	20.665
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	20.665	0.000	20.665

Change Summary Explanation

FY11: The FY 2010 President's Budget submittal did not reflect FY 2010 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0605712F: <i>Initial Operational Test & Evaluation</i>				PROJECT 660191: <i>Initial Operational Test & Eval</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
660191: <i>Initial Operational Test & Eval</i>	29.085	25.833	20.665	0.000	20.665	17.826	16.239	15.562	14.673	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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, 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 Integrated Developmental Test/Operational Test (IDT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies. This is a level of effort program element.

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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605712F: <i>Initial Operational Test & Evaluation</i>	PROJECT 660191: <i>Initial Operational Test & Eval</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<ul style="list-style-type: none"> - Joint Counter Radio-Controlled Improvised Explosive Device EW (JCREW): Conduct MOT&E - Joint Mission Planning System (JMPS): Conduct IOT&E - Other systems <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	29.085	25.833	20.665	0.000	20.665

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (1058): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i>			PE 0605807F: <i>Test and Evaluation Support</i>								
BA 6: <i>RDT&E Management Support</i>											
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	756.327	749.756	759.868	0.000	759.868	758.259	732.288	748.855	777.809	Continuing	Continuing
6606TG: <i>46 Test Group</i>	30.715	28.949	31.009	0.000	31.009	32.828	36.888	37.635	37.606	Continuing	Continuing
6606TS: <i>Test and Evaluation Support</i>	725.612	720.807	728.859	0.000	728.859	725.431	695.400	711.220	740.203	Continuing	Continuing

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).

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	756.327	736.488	0.000	0.000	0.000
Current President's Budget	756.327	749.756	759.868	0.000	759.868
Total Adjustments	0.000	13.268	759.868	0.000	759.868
• Congressional General Reductions		-0.023			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		10.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	3.291	759.868	0.000	759.868

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 6606TG: *46 Test Group*

Congressional Add: *Assist with contractor to civilian conversion.*

Congressional Add Subtotals for Project: 6606TG

Project: 6606TS: *Test and Evaluation Support*

Congressional Add: *Assist with contractor to civilian conversion.*

Congressional Add Subtotals for Project: 6606TS

Congressional Add Totals for all Projects

		FY 2009	FY 2010
		0.000	0.531
	Congressional Add Subtotals for Project: 6606TG	0.000	0.531
		0.000	9.469
	Congressional Add Subtotals for Project: 6606TS	0.000	9.469
	Congressional Add Totals for all Projects	0.000	10.000

Change Summary Explanation

FY10:

\$10.0M Congressional add for civ pay for the contractor to civilian conversion

\$3.3M for fuel

The price for fuel in this program element is calculated using the FY 2010 President's Budget of \$89.46 versus the current fuel composite rate of \$118.02. This would require \$4.313M ; \$3.291M is requested in the FY10 supplemental and \$1.022M will be funded through an anticipated reprogramming.

FY11:

The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TG: <i>46 Test Group</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
6606TG: <i>46 Test Group</i>	30.715	28.949	31.009	0.000	31.009	32.828	36.888	37.635	37.606	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Provide infrastructure at the 46th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.	30.715	28.418	31.009	0.000	31.009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TG: <i>46 Test Group</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: Total consists of utilities, contractor services, civilian pay, and aircraft flying costs. 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 repairable (DLR); fuel and related support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Total consists of utilities, contractor services, civilian pay, and aircraft flying costs. Contractor Services (in-house contract support activities) decrease in FY 2010 due to contractor to civilian conversions. Increase in civilian pay due to conversions.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Total consists of utilities, contractor services, civilian pay, and aircraft flying costs. Increase in civilian pay due to contractor to civilian conversions.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	30.715	28.418	31.009	0.000	31.009

	FY 2009	FY 2010
<p>Congressional Add: Assist with contractor to civilian conversion.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A.</p>	0.000	0.531

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TG: <i>46 Test Group</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2010 Plans:</i> In FY 2010: Additional civilian pay conversion funding.		
Congressional Adds Subtotals	0.000	0.531

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0604256F: <i>Threat Simulator Development</i>	33.951	23.331	21.245	0.000	21.245	22.495	23.337	23.546	22.699	0.000	0.000
• PE 0604759F: <i>Major Test and Evaluation Investment</i>	69.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	0.000	0.000
• PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	0.000	0.000
• PE 0606978F: <i>Facility Sustainment - T&E Support</i>	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	0.000	0.000

D. Acquisition Strategy

Not applicable

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>				PROJECT 6606TS: <i>Test and Evaluation Support</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
6606TS: <i>Test and Evaluation Support</i>	725.612	720.807	728.859	0.000	728.859	725.431	695.400	711.220	740.203	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TS: <i>Test and Evaluation Support</i>
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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 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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Provide infrastructure to support testing of DoD, other Government Agencies, FMS and commercial weapon systems at Arnold Engineering and Development Center (AEDC).</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Total consists of utilities, contractor services, civilian pay, an aircraft flying costs. Aircraft flying costs include test, test support, and pilot proficiency for sustained readiness. Costs include programmed depot maintenance (PDM), engine overhauls, petroleum, oils, and lubricants (POL), depot level repairables (DLR), fuel and related support.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Total consists of utilities, contractor services, civilian pay, an aircraft flying costs. Decrease in contractor services in FY 2010 due to contractor to civilian conversion.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Total consists of utilities, contractor services, civilian pay, an aircraft flying costs. Increase in FY 2011 due to civilian pay with contractor to civilian conversion.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>	166.551	172.467	176.910	0.000	176.910

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TS: <i>Test and Evaluation Support</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Total consists of utilities, contractor services, civilian pay, an aircraft flying costs. Decrease in contractor services in FY 2010 due to contractor to civilian conversion.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Total consists of utilities, contractor services, civilian pay, an aircraft flying costs. Increase in FY 2011 due to civilian pay with contractor to civilian conversion.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>T&E Civilian Pay. Increase in FY11 due to contractor to civilian conversions.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Not Applicable.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Not Applicable.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Not Applicable.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		0.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		725.612	711.338	728.859	0.000	728.859
		FY 2009	FY 2010			
		0.000	9.469			

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605807F: <i>Test and Evaluation Support</i>	PROJECT 6606TS: <i>Test and Evaluation Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Add: Assist with contractor to civilian conversion. <i>FY 2009 Accomplishments:</i> In FY 2009: N/A. <i>FY 2010 Plans:</i> In FY 2010: Additional civilian pay conversion funding.		
Congressional Adds Subtotals	0.000	9.469

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604256F: <i>Threat Simulator Development</i>	33.951	23.331	21.245	0.000	21.245	22.495	23.337	23.546	22.699	0.000	0.000
• PE 0604759F: <i>Major Test and Evaluation Investment</i>	69.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	0.000	0.000
• PE 0605976F: <i>Facility Restoration and Modernization-T&E</i>	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	0.000	0.000
• PE 0606978F: <i>Facility Sustainment - T&E Support</i>	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	0.000	0.000

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605860F: <i>Rocket Systems Launch Program (RSLP)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	16.853	14.637	23.551	0.000	23.551	24.029	16.794	17.049	17.309	Continuing	Continuing
661023: <i>Rocket System Launch Program (RSLP)</i>	16.853	14.637	23.551	0.000	23.551	24.029	16.794	17.049	17.309	Continuing	Continuing

A. Mission Description and Budget Item Justification

Rocket Systems Launch Program (RSLP) is tasked to provide responsive space and 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 responsive space and 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), Operationally Responsive Space (ORS), Defense Advanced Research Project Agency (DARPA), 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., Minotaur IV third stage gas generator diffuser modification). 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.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605860F: <i>Rocket Systems Launch Program (RSLP)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	14.855	14.637	0.000	0.000	0.000
Current President's Budget	16.853	14.637	23.551	0.000	23.551
Total Adjustments	1.998	0.000	23.551	0.000	23.551
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	1.998	0.000	23.551	0.000	23.551

Change Summary Explanation

FY 2009: Air Force Below Threshold Reprogramming (BTR) (+\$1.99M) for Minotaur IV Mission Assurance.

Note: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>			R-1 ITEM NOMENCLATURE PE 0605860F: <i>Rocket Systems Launch Program (RSLP)</i>				PROJECT 661023: <i>Rocket System Launch Program (RSLP)</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
661023: <i>Rocket System Launch Program (RSLP)</i>	16.853	14.637	23.551	0.000	23.551	24.029	16.794	17.049	17.309	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Rocket Systems Launch Program (RSLP) is tasked to provide responsive space and 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 responsive space and 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), Operationally Responsive Space (ORS), Defense Advanced Research Project Agency (DARPA), 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., Minotaur IV third stage gas generator diffuser modification). 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.

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Storage and refurbishment of deactivated Minuteman, Peacekeeper and other missile flight test assets <i>FY 2009 Accomplishments:</i> In FY2009: Continue storage and refurbishment of deactivated Minuteman, Peacekeeper and other missile flight test assets and perform research and development support operations as required;	8.349	9.323	8.944	0.000	8.944

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605860F: <i>Rocket Systems Launch Program (RSLP)</i>	PROJECT 661023: <i>Rocket System Launch Program (RSLP)</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY2011: Begin placing retired ICBM components into standard supply system and demil of unusable retired ICBM components</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>						
<p>MAJOR THRUST: Perform aging surveillance-related activities on stored motors</p> <p><i>FY 2009 Accomplishments:</i> In FY2009: Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors; Continue program office support and related support activities such as, but not limited to mission support, special studies, SETA, FFRDC, etc</p> <p><i>FY 2010 Plans:</i> In FY2010: Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors; Continue program office support and related support activities such as, but not limited to mission support, special studies, SETA, FFRDC, etc</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors; Continue program office support and related support activities such as, but not limited to mission support, special studies, SETA, FFRDC, etc</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>		6.491	5.314	5.507	0.000	5.507

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605860F: <i>Rocket Systems Launch Program (RSLP)</i>	PROJECT 661023: <i>Rocket System Launch Program (RSLP)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	16.853	14.637	23.551	0.000	23.551

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (1663): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605864F: <i>Space Test Program</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	44.707	46.721	47.623	0.000	47.623	48.377	50.108	50.810	51.583	Continuing	Continuing
662617: <i>Free-Flyer Spacecraft Missions</i>	44.707	46.721	47.623	0.000	47.623	48.377	50.108	50.810	51.583	Continuing	Continuing

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 60 experiments approved by the SERB in 2009.

(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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605864F: <i>Space Test Program</i>
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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. STP efforts enabled the successful flight of 12 experiments in FY09 and the planned launch of 43 experiments in FY10.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	47.654	47.215	0.000	0.000	0.000
Current President's Budget	44.707	46.721	47.623	0.000	47.623
Total Adjustments	-2.947	-0.494	47.623	0.000	47.623
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-2.947	-0.494	47.623	0.000	47.623

Change Summary Explanation

FY 2009: BTR (-\$1.675M) for Minotaur IV Mission Assurance, SBIR (-1.272M)

Note: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0605864F: <i>Space Test Program</i>				PROJECT 662617: <i>Free-Flyer Spacecraft Missions</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
662617: <i>Free-Flyer Spacecraft Missions</i>	44.707	46.721	47.623	0.000	47.623	48.377	50.108	50.810	51.583	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 60 experiments approved by the SERB in 2009.

(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

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605864F: <i>Space Test Program</i>	PROJECT 662617: <i>Free-Flyer Spacecraft Missions</i>
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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. STP efforts enabled the successful flight of 12 experiments in FY09 and the planned launch of 43 experiments in FY10.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions <i>FY 2009 Accomplishments:</i> In FY2009: Funded effort to develop ESPA Standard Service for Medium Launch Vehicle <i>FY 2010 Plans:</i> In FY2010: Provide support for secondary payloads on first ESPA mission <i>FY 2011 Base Plans:</i> In FY2011: Provide support for secondary payloads on ESPA missions <i>FY 2011 OCO Plans:</i> In FY2011 OCO: N/A	1.450	1.400	1.081	0.000	1.081
MAJOR THRUST: Initiate, develop, and continue integration of payloads onto piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions. <i>FY 2009 Accomplishments:</i> In FY2009: Funded spacecraft acquisition and SERB payload integration, payload integration for ISS pallet	28.188	21.959	27.962	0.000	27.962

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605864F: <i>Space Test Program</i>	PROJECT 662617: <i>Free-Flyer Spacecraft Missions</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (1927): <i>Related Procurement:</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	Continuing	Continuing
6606MC: <i>Facility Restoration and Modernization - T&E</i>	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	Continuing	Continuing

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).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	47.339	52.409	0.000	0.000	0.000
Current President's Budget	47.339	54.809	46.327	0.000	46.327
Total Adjustments	0.000	2.400	46.327	0.000	46.327
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	46.327	0.000	46.327

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 6606MC: *Facility Restoration and Modernization - T&E*

Congressional Add: *Inter-Base Facility Energy Independence (ANG Project).*

	<u>FY 2009</u>	<u>FY 2010</u>
	0.000	2.400
Congressional Add Subtotals for Project: 6606MC	0.000	2.400
Congressional Add Totals for all Projects	0.000	2.400

Change Summary Explanation

FY10: Congressional Add: \$2.4M for Internal Base Energy Independence (ANG project).

FY11: The FY2010 President's Budget submittal did not reflect FY 2011 through FY2015. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>			R-1 ITEM NOMENCLATURE PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>				PROJECT 6606MC: <i>Facility Restoration and Modernization - T&E</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
6606MC: <i>Facility Restoration and Modernization - T&E</i>	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Facility restoration and modernization at the 46 TG.	0.812	0.762	0.462	0.000	0.462
<i>FY 2009 Accomplishments:</i> In FY 2009: The 46 TG had various test facility restoration/modernization projects. 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>		PROJECT 6606MC: <i>Facility Restoration and Modernization - T&E</i>	
B. Accomplishments/Planned Program (\$ in Millions)					
and spacecraft test and evaluation. FY10 includes approximately \$5M for one time R&M projects to support engine testing and wind tunnel analysis.					
<i>FY 2010 Plans:</i> In FY 2010: AEDC projects continue revitalizing of 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) 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. FY10 includes approximately \$5M for one time R&M projects to support engine testing and wind tunnel analysis.					
<i>FY 2011 Base Plans:</i> In FY 2011: AEDC projects continue revitalizing of 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) 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.					
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.					
MAJOR THRUST: Facility restoration and modernization at AFFTC.					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
	4.134	4.006	3.696	0.000	3.696

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>	PROJECT 6606MC: <i>Facility Restoration and Modernization - T&E</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
<i>FY 2009 Accomplishments:</i> In FY 2009: N/A.		
<i>FY 2010 Plans:</i> In FY 2010: Inter-Base Facility Energy Independence (ANG Project).		
Congressional Adds Subtotals	0.000	2.400

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604256F: <i>Threat Simulator Development.</i>	33.951	23.331	21.245	0.000	21.245	22.495	23.337	23.546	22.699	0.000	0.000
• PE 0604759F: <i>Major T&E Investment.</i>	69.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	0.000	0.000
• PE 0605807F: <i>Test and Evaluation Support.</i>	756.327	749.756	759.868	0.000	759.868	758.259	732.288	748.855	777.809	0.000	0.000
• PE 0605978F: <i>Facility Sustainment - T&E support.</i>	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	0.000	0.000

D. Acquisition Strategy

Not applicable

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605978F: <i>Facility Sustainment - T&E Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	Continuing	Continuing
6606MR: <i>Facility Sustainment - T&E Support</i>	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	Continuing	Continuing

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).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605978F: <i>Facility Sustainment - T&E Support</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	29.618	29.683	0.000	0.000	0.000
Current President's Budget	29.618	29.683	27.579	0.000	27.579
Total Adjustments	0.000	0.000	27.579	0.000	27.579
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	27.579	0.000	27.579

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 6606MR: *Facility Sustainment - T&E Support*

Congressional Add: *Low Profile Arresting Gear testing at Robins AFB, GA.*

Congressional Add Subtotals for Project: 6606MR

Congressional Add Totals for all Projects

	<u>FY 2009</u>	<u>FY 2010</u>
	0.798	0.000
	0.798	0.000
	0.798	0.000

Change Summary Explanation

FY11: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605978F: <i>Facility Sustainment - T&E Support</i>	PROJECT 6606MR: <i>Facility Sustainment - T&E Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
6606MR: <i>Facility Sustainment - T&E Support</i>	29.618	29.683	27.579	0.000	27.579	28.046	28.174	28.603	29.038	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, wast 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).

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Facility sustainment at the 46 TG. <i>FY 2009 Accomplishments:</i> In FY 2009: Sustainment of test unique infrastructure located at the 46th TG located at Holloman AFB, NM.	0.381	0.320	0.302	0.000	0.302

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605978F: <i>Facility Sustainment - T&E Support</i>	PROJECT 6606MR: <i>Facility Sustainment - T&E Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: continue sustainment of test unique infrastructure in AFFTC Electronic Warfare, Range, and other T&E facilities located at Edwards AFB, CA.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>					
Accomplishments/Planned Programs Subtotals	28.820	29.683	27.579	0.000	27.579

	FY 2009	FY 2010
<p>Congressional Add: Low Profile Arresting Gear testing at Robins AFB, GA.</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: Low Profile Arresting Gear testing at Robins AFB, GA.</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A.</p>	0.798	0.000
Congressional Adds Subtotals	0.798	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0604256F: <i>Threat Simulator Development</i>	33.951	23.331	21.245	0.000	21.245	22,495.000	23.337	23.546	22.699	0.000	0.000
• PE 0604759F: <i>Major T&E Investment</i>	69.898	67.797	61.587	0.000	61.587	62.413	62.553	62.029	61.250	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605978F: <i>Facility Sustainment - T&E Support</i>	PROJECT 6606MR: <i>Facility Sustainment - T&E Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0605807F: <i>Test and Evaluation Support</i>	756.327	749.756	759.868	0.000	759.868	758.259	732.288	748.855	777.809	0.000	0.000
• PE 0605976F: <i>Facility Restoration and Modernization - T&E</i>	47.339	54.809	46.327	0.000	46.327	47.073	48.148	49.020	46.560	0.000	0.000

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	18.901	0.000	18.901	0.000	0.000	0.000	0.000	Continuing	Continuing
668101: <i>MSSE and JIAMD Capability Initiative</i>	0.000	0.000	18.901	0.000	18.901	0.000	0.000	0.000	0.000	0.000	0.000

Note

In FY 2011, this is a new PE. In FY 2010, PE 0605452F Joint Single Integrated Air Picture (SIAP) Program Executive Office efforts come to a close. This new PE (0606323F) includes follow-on efforts under the Joint Integrated Air and Missile Defense (JIAMD) initiative. FY 2011 efforts in this PE include Multi-Service Systems Engineering (MSSE), Joint Track Manager Capability (JTMC) demonstrations, and Joint Operational requirements definition.

A. Mission Description and Budget Item Justification

The near term objectives of the PE are two fold. The first is to use cross-service System Engineering (SE) expertise to develop, test and field Joint Integrated Air and Missile Defense (JIAMD) capabilities. This effort will define the incremental capability improvements toward the objective architecture and provide technical recommendations to Department of Defense (DoD) leadership on specific changes to developmental and fielded air and missile defense weapon and sensor systems necessary to achieve the war fighter desired JIAMD capability. A concerted attempt will be made to ensure minimal disruption to on-going Programs of Record (PoRs) while developing these recommendations and capability enhancements. The second objective is the development of Joint Track Management Capability.

Joint Track Management Capability

The Services, under JPEO oversight, developed a consolidated plan for Joint Track Management Capability (JTMC) for FYs 2010 and 2011. This plan will lay the foundation for the incremental fielding of JTMC to the war fighter. The intent is to define the SE process necessary to achieve JTMC and incorporate those efforts into the top-level JTMC schedule with associated deliverables. By working collaboratively with the Service PoRs, the effort will serve as a risk reduction activity on the path to fielding an initial capability in FY 2014. The SIAP/JTM Capability Development Document (CDD) which is being revised and updated in FY2010, will provide the key performance parameters (KPPs) by which success will be measured.

The initial engineering efforts will focus on the bridging of Army IAMD Integrated Fire Control Network and the Cooperative Engagement Capability (CEC) Net onboard Navy platforms. The Missile Defense Agency, Air Force and Marine Corps are exploring how they will actively participate in the requirement maturation process and system engineering efforts associated with the JTMC development.

JTMC Demonstration

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>	
<p>To evaluate and assess progress toward achieving the JTMC, a demonstration will be conducted in FY 2011. The objectives of the demonstration are to demonstrate the ability to exchange and process Associated Measurement Reports (AMRs) across dissimilar bridged networks, specifically Army IFCN and Navy CEC. Additional data that is expected to be examined include:</p> <ul style="list-style-type: none">- Characterize the ability to create composite tracks from AMRs derived from multiple-service sensors- Characterize data registration capability- Characterize track state commonality and consistency <p>The purpose of the bridging demonstration is not to assess performance, but to characterize bridge interface and functionality required as part of a JTMC proof of concept.</p> <p>There are a number of key milestones on the path to success. Some of these include the Milestone B for Army IAMD (16 December 2010) and subsequent contract award, the updated SIAP/JTM CDD in July 2010, prototype bridge development late in FY 2010, and architecture product delivery in June of 2011. During this period the Services will be going through their individual program review cycle of Critical Design Reviews (CDRs), System Readiness Reviews (SRRs) and System Design Reviews (SDRs) as well as developing test plans and conducting work-ups in preparation for the demonstration.</p> <p>The tasks associated with this effort have been divided into five categories. These categories are:</p> <ul style="list-style-type: none">- Requirements- Architecture- System Design- Demo Planning and Execution- Integration and Coordination <p>Specific tasks are defined under each of the categories and the associated deliverables are tied to that tasking. Examples of the deliverables include publishing JTMC requirements, development of CONOPs, delivery of architectural views, a system engineering plan, and a demonstration report and presentation.</p> <p>This program is categorized as Budget Activity 6 because it involves system engineering and demonstrations.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	18.901	0.000	18.901
Total Adjustments	0.000	0.000	18.901	0.000	18.901
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	18.901	0.000	18.901

Change Summary Explanation

In FY 2011, this is a new PE. In FY 2010, PE 0605452F Joint Single Integrated Air Picture (SIAP) Program Executive Office come to a close. This new PE (0606323F) includes follow-on efforts under the Joint Integrated Air and Missile Defense (JIAMD) initiative. FY 2011 efforts in this PE include Multi-Service Systems Engineering (MSSE), Joint Track Manager Capability (JTMC) demonstrations, and Joint Operational requirements definition.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>	PROJECT 668101: <i>MSSE and JIAMD Capability Initiative</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
668101: <i>MSSE and JIAMD Capability Initiative</i>	0.000	0.000	18.901	0.000	18.901	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	0		

Note

In FY 2011, this is a new PE. In FY 2010, PE 0605452F Joint Single Integrated Air Picture (SIAP) Program Executive Office efforts come to a close. This new PE (0606323F) includes follow-on efforts under the Joint Integrated Air and Missile Defense (JIAMD) initiative. FY 2011 efforts in this PE include Multi-Service Systems Engineering (MSSE), Joint Track Manager Capability (JTMC) demonstrations, and Joint Operational requirements definition.

A. Mission Description and Budget Item Justification

The near term objectives of the PE are two fold. The first is to use cross-service System Engineering (SE) expertise to develop, test and field Joint Integrated Air and Missile Defense (JIAMD) capabilities. This effort will define the incremental capability improvements toward the objective architecture and provide technical recommendations to Department of Defense (DoD) leadership on specific changes to developmental and fielded air and missile defense weapon and sensor systems necessary to achieve the war fighter desired JIAMD capability. A concerted attempt will be made to ensure minimal disruption to on-going Programs of Record (PoRs) while developing these recommendations and capability enhancements. The second objective is the development of Joint Track Management Capability.

Joint Track Management Capability

The Services, under JPEO oversight, developed a consolidated plan for Joint Track Management Capability (JTMC) for FYs 2010 and 2011. This plan will lay the foundation for the incremental fielding of JTMC to the war fighter. The intent is to define the SE process necessary to achieve JTMC and incorporate those efforts into the top-level JTMC schedule with associated deliverables. By working collaboratively with the Service PoRs, the effort will serve as a risk reduction activity on the path to fielding an initial capability in FY 2014. The SIAP/JTM Capability Development Document (CDD) which is being revised and updated in FY2010, will provide the key performance parameters (KPPs) by which success will be measured.

The initial engineering efforts will focus on the bridging of Army IAMD Integrated Fire Control Network and the Cooperative Engagement Capability (CEC) Net onboard Navy platforms. The Missile Defense Agency, Air Force and Marine Corps are exploring how they will actively participate in the requirement maturation process and system engineering efforts associated with the JTMC development.

JTMC Demonstration

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>	PROJECT 668101: <i>MSSE and JIAMD Capability Initiative</i>
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To evaluate and assess progress toward achieving the JTMC, a demonstration will be conducted in FY 2011. The objectives of the demonstration are to demonstrate the ability to exchange and process Associated Measurement Reports (AMRs) across dissimilar bridged networks, specifically Army IFCN and Navy CEC. Additional data that is expected to be examined include:

- Characterize the ability to create composite tracks from AMRs derived from multiple-service sensors
- Characterize data registration capability
- Characterize track state commonality and consistency

The purpose of the bridging demonstration is not to assess performance, but to characterize bridge interface and functionality required as part of a JTMC proof of concept.

There are a number of key milestones on the path to success. Some of these include the Milestone B for Army IAMD (16 December 2010) and subsequent contract award, the updated SIAP/JTM CDD in July 2010, prototype bridge development late in FY 2010, and architecture product delivery in June of 2011. During this period the Services will be going through their individual program review cycle of Critical Design Reviews (CDRs), System Readiness Reviews (SRRs) and System Design Reviews (SDRs) as well as developing test plans and conducting work-ups in preparation for the demonstration.

The tasks associated with this effort have been divided into five categories. These categories are:

- Requirements
- Architecture
- System Design
- Demo Planning and Execution
- Integration and Coordination

Specific tasks are defined under each of the categories and the associated deliverables are tied to that tasking. Examples of the deliverables include publishing JTMC requirements, development of CONOPs, delivery of architectural views, a system engineering plan, and a demonstration report and presentation.

This program is categorized as Budget Activity 6 because it involves system engineering and demonstrations.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Engineering Activity (Multi-Service Systems Engineering)	0.000	0.000	11.100	0.000	11.100

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>		PROJECT 668101: <i>MSSE and JIAMD Capability Initiative</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Will finalize system architecture for JTMC demo, process engineering change documents with programs of record, acquire final Tactical Component Network licensing.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>								
<p>MAJOR THRUST: Joint Track Manager Capability Demonstration</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: N/A</p> <p><i>FY 2010 Plans:</i> In FY 2010: N/A</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Will conduct bridge demonstration between Navy's Cooperative Engagement Capability (CEC) and Army Integrated Air Missile Defense Integrated Fire Control Network (AIAMD IFCN) PoRs. Develop test plans in support of demo.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>				0.000	0.000	6.000	0.000	6.000
<p>MAJOR THRUST: Joint Operational Requirements</p>				0.000	0.000	1.801	0.000	1.801

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>	PROJECT 668101: <i>MSSE and JIAMD Capability Initiative</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2009 Accomplishments:</i> In FY 2009: N/A <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: Will socialize revised JROC-approved SIAP/JTM Capability Development Document (CDD) changes to JIAMD community. <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	18.901	0.000	18.901

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (2681): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Joint Track Management (JTM) will continue development in FY 2010 to establish networking capability with Service combat systems and the ability to provide a Joint Integrated Air Picture. The Milestone Decision Authority directed Joint Systems Engineering efforts to continue in FY 2011 and out in support of an enterprise realization of an Integrated Air Picture (IAP) Capability for the Services. This continuing effort will be performed by a new Program Element, MSSE and JIAMD Initiative (PE 0606323F) starting in FY 2011. The PE will continue to assist the pathfinder Services to develop, field and demonstrate incremental improvements for the Services' Programs of Record (PoRs).

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0606323F: <i>Multi-Service Systems Engineering</i>	PROJECT 668101: <i>MSSE and JIAMD Capability Initiative</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>			PE 0702806F: <i>Acquisition and Command Support</i>								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	41.053	18.865	24.968	0.000	24.968	24.575	21.751	20.538	20.739	Continuing	Continuing
66ACSI: <i>Acquisition and Command Support</i>	41.053	18.865	24.968	0.000	24.968	24.575	21.751	20.538	20.739	0.000	0.000

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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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0702806F: <i>Acquisition and Command Support</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	37.014	18.947	0.000	0.000	0.000
Current President's Budget	41.053	18.865	24.968	0.000	24.968
Total Adjustments	4.039	-0.082	24.968	0.000	24.968
• Congressional General Reductions		-0.082			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	4.039	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	24.968	0.000	24.968

Change Summary Explanation

FY09: Increase for studies, analysis and IT Infrastructure Development.

FY11: The FY2010 President's Budget submittal did not reflect FY 2011 through FY2015. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0702806F: <i>Acquisition and Command Support</i>				PROJECT 66ACSI: <i>Acquisition and Command Support</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
66ACSI: <i>Acquisition and Command Support</i>	41.053	18.865	24.968	0.000	24.968	24.575	21.751	20.538	20.739	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0702806F: <i>Acquisition and Command Support</i>		PROJECT 66ACSI: <i>Acquisition and Command Support</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MAJOR THRUST: Supporting Congressional and SECDEF mandates. Program funding provides the framework for Air Force business and acquisition.</p> <p><i>FY 2009 Accomplishments:</i> In FY09: Initiated acquisition/engineering process research/cost estimating.</p> <p><i>FY 2010 Plans:</i> In FY10: Continue acquisition/engineering process research/cost estimating.</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue development of acquisition/engineering process research/cost estimating.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>				6.300	4.785	5.250	0.000	5.250
<p>MAJOR THRUST: Initiating performance measures for capability-based planning constructs</p> <p><i>FY 2009 Accomplishments:</i> In FY09: 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.</p> <p><i>FY 2010 Plans:</i> In FY10: Continue performance measures for capability-based planning constructs, aligning relevant science and technology areas with operational requirements to include systems integration modeling and architecture analysis.</p> <p><i>FY 2011 Base Plans:</i> In FY11: Continue development of system integration modeling/architecture analysis.</p>				5.000	3.357	4.399	0.000	4.399

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0702806F: <i>Acquisition and Command Support</i>	PROJECT 66ACSI: <i>Acquisition and Command Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY11: Continue activities to recruit, develop, and manage the technical workforce.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	41.053	18.865	24.968	0.000	24.968

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (2879): <i>Not Applicable</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Contracts will be awarded through full and open competition.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.215	1.450	1.544	0.000	1.544	1.581	1.298	1.362	1.382	Continuing	Continuing
664980: <i>Research and Development of Computer Forensic Analyst Tools</i>	1.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665297: <i>Technical Training Information Systems</i>	0.000	1.450	1.544	0.000	1.544	1.581	1.298	1.362	1.382	0.000	0.000

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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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1.215	1.450	0.000	0.000	0.000
Current President's Budget	1.215	1.450	1.544	0.000	1.544
Total Adjustments	0.000	0.000	1.544	0.000	1.544
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	1.544	0.000	1.544

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>	PROJECT 664980: <i>Research and Development of Computer Forensic Analyst Tools</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
664980: <i>Research and Development of Computer Forensic Analyst Tools</i>	1.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Testing and Evaluation <i>FY 2009 Accomplishments:</i> In FY 2009: Continuation of above activities <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A	1.215	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>	PROJECT 664980: <i>Research and Development of Computer Forensic Analyst Tools</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	1.215	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE 0804731F: <i>Other Procurement</i>	0.290	0.298	0.609	0.000	0.609	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>	PROJECT 665297: <i>Technical Training Information Systems</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
665297: <i>Technical Training Information Systems</i>	0.000	1.450	1.544	0.000	1.544	1.581	1.298	1.362	1.382	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop plans/policies/procedures for cybercrime issues <i>FY 2009 Accomplishments:</i> In FY 2009: N/A	0.000	1.450	1.544	0.000	1.544

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0804731F: <i>GENERAL SKILL TRAINING</i>	PROJECT 665297: <i>Technical Training Information Systems</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> In FY 2010: Electronic forensics and cyber investigations (Digital evidence processing, special investigation services, etc)</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: processing, special investigation services, etc</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>					
Accomplishments/Planned Programs Subtotals	0.000	1.450	1.544	0.000	1.544

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</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>
• PE Not Provided (3088): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Not applicable

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0909990F: <i>Cancelled/Upward Obligation Adjustments</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
190JFR: AC-130U CLAIM	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification

AC-130U CLAIM.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.072	0.000	0.000	0.000	0.000
Total Adjustments	0.072	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.072	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2009: AC-130U CLAIM.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 0909990F: <i>Cancelled/Upward Obligation Adjustments</i>				PROJECT 190JFR: <i>AC-130U CLAIM</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
190JFR: <i>AC-130U CLAIM</i>	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
A. Mission Description and Budget Item Justification AC-130U CLAIM.												
B. Accomplishments/Planned Program (\$ in Millions)												
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
MAJOR THRUST: AC-130U CLAIM <i>FY 2009 Accomplishments:</i> In FY 2009: AC-130U CLAIM <i>FY 2010 Plans:</i> In FY 2010: N/A <i>FY 2011 Base Plans:</i> In FY 2011: N/A <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: N/A							0.072	0.000	0.000	0.000	0.000	
Accomplishments/Planned Programs Subtotals							0.072	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0909990F: <i>Cancelled/Upward Obligation Adjustments</i>	PROJECT 190JFR: <i>AC-130U CLAIM</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (3220): <i>N/A</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 1001004F: <i>International Activities</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	3.789	3.748	3.764	0.000	3.764	3.811	3.861	3.920	3.977	Continuing	Continuing
664645: <i>International Cooperative Research & Development</i>	3.789	3.748	3.764	0.000	3.764	3.811	3.861	3.920	3.977	Continuing	Continuing

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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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 1001004F: <i>International Activities</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	3.789	3.748	0.000	0.000	0.000
Current President's Budget	3.789	3.748	3.764	0.000	3.764
Total Adjustments	0.000	0.000	3.764	0.000	3.764
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	3.764	0.000	3.764

Change Summary Explanation

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>				R-1 ITEM NOMENCLATURE PE 1001004F: <i>International Activities</i>				PROJECT 664645: <i>International Cooperative Research & Development</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
664645: <i>International Cooperative Research & Development</i>	3.789	3.748	3.764	0.000	3.764	3.811	3.861	3.920	3.977	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: ESEP/APEP - Funds the USAF execution and management oversight of ESEP and APEP agreements.	0.190	0.300	0.290	0.000	0.290

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 1001004F: <i>International Activities</i>		PROJECT 664645: <i>International Cooperative Research & Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>								
<p>MAJOR THRUST: Cyberspace Cooperation -</p> <p><i>FY 2009 Accomplishments:</i> In FY 2009: 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.</p> <p><i>FY 2010 Plans:</i> In FY 2010: Continuation of above listed activities.</p> <p><i>FY 2011 Base Plans:</i> In FY 2011: Continuation of above listed activities.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable.</p>				0.044	0.000	0.050	0.000	0.050
Accomplishments/Planned Programs Subtotals				3.789	3.748	3.764	0.000	3.764

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 1001004F: <i>International Activities</i>	PROJECT 664645: <i>International Cooperative Research & Development</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE Not Provided (3502): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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