

**UNCLASSIFIED**

Supporting Data FY 2008/2009 Budget Estimate – February 2007

**DESCRIPTIVE SUMMARIES OF THE**



**RESEARCH, DEVELOPMENT, TEST AND EVALUATION  
Army Appropriation, Budget Activities 6 and 7**

Department of the Army  
Office of the Secretary of the Army (Financial Management and Comptroller)

*Persuasive in Peace, Invincible in War*

**VOLUME III**

**UNCLASSIFIED**

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**DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS  
OF THE  
RESEARCH, DEVELOPMENT, TEST AND  
EVALUATION, ARMY  
FY 2008/2009  
BUDGET ESTIMATE  
FEBRUARY 2007**

**VOLUME III  
Budget Activities 6 and 7**

**Department of the Army  
Office of the Assistant Secretary of the Army (Financial Management and Comptroller)**

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**FY 2008/2009 RDT&E, ARMY  
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

**1. General.** The purpose of this document is to provide summary information concerning the Research, Development, Test and Evaluation, Army program. The Descriptive Summaries are comprised of R-2 (Army RDT&E Budget Item Justification – program element level), R-2A (Army RDT&E Budget Item Justification – project level), R-3 (Army RDT&E Cost Analysis), R-4 (Schedule Profile), R-4A (Schedule Profile Detail) and R-5 (Termination Liability Funding for MDAPs) Exhibits, which provide narrative information on all RDT&E program elements and projects for FY 2006 through FY 2009.

**2. Relationship of the FY 2008/2009 Budget Submission to the FY 2007 Budget Submitted to Congress.** This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

**A. Program Element Restructures.** Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

<b>OLD <u>PE/PROJECT</u></b>	<b><u>NEW PROJECT TITLE</u></b>	<b>NEW <u>PE/PROJECT</u></b>
0604645A/F52	FCS Reconnaissance Platforms	0604662A/FC3
0604645A/F53	FCS Unmanned Ground Vehicles	0604663A/FC4
0604645A/F54	FCS Unattended Ground Sensors	0604664A/FC5
0604645A/F55	FCS System of Systems Engineering & Program Management	0604661A/FC2
0604645A/F57	FCS Manned Ground Vehicles & Common Ground Vehicle	0604660A/FC1
0604645A/F61	FCS System of Systems Engineering & Program Management	0604661A/FC2
	FCS Network Hardware & Software	0604665A/FC6
	FCS – Spin Out Technology/Capability Integration	0604666A/FC7
0203802A/781	Joint Air-to-Ground Missile (JAGM)	0603460A/JA2

**B. Developmental Transitions.** Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

**C. Establishment of New FY 2008/2009 Program Elements/Projects.** There are no major system new starts. Minor new initiatives for FY 2008/2009 are shown below.

**UNCLASSIFIED**

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
Vertical Lift Research Center of Excellence	0601104A/J17
Joint Air-to-Ground Missile (JAGM)	0603460A/JA2
FCS Reconnaissance Platforms	0604662A/FC3
FCS Unmanned Ground Vehicles	0604663A/FC4
FCS Unattended Ground Sensors	0604664A/FC5
FCS System of Systems Engineering & Program Management	0604661A/FC2
FCS Manned Ground Vehicles & Common Ground Vehicle	0604660A/FC1
FCS Network Hardware & Software	0604665A/FC6
FCS – Spin Out Technology/Capability Integration	0604666A/FC7
Counter-Rocket, Artillery & Mortar (C-RAM) Development	0604741A/149

**D. FY 2008/2009 programs for which funding existed in the FY 2007 President's Budget Submit (February 2006), but which are no longer funded in FY 2008/2009.**

<b><u>PE/PROJECT</u></b>	<b><u>TITLE</u></b>	<b><u>BRIEF EXPLANATION</u></b>
0603809A/1TR	Future Transport Rotorcraft (FTR)	Program Terminated
0604802A/705	Advanced Precision Kill Weapon System (APKWS)	Program Terminated
0604827A/S57	Land Warrior	Program Terminated

**3. Classification.** This document contains no classified data. Classified/Special Access Programs that are submitted offline are listed below.

0203808A	0603020A
0301359A	0603322A
0602122A	0603710A/C65
0603005A/C66	0604328A
0603009A	

**4. Performance Metrics.** Performance metrics used in the preparation of this justification book may be found in the FY 2009/2009 Army Performance Budget Justification Book, dated March 2007.

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

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities	FY 2006	Thousands of Dollars		FY 2009
		FY 2007	FY 2008	
Basic Research	364,043	365,898	305,819	315,808
Applied Research	1,183,723	1,203,823	686,237	670,883
Advanced Technology Development	1,846,927	1,263,268	735,935	714,890
Advanced Component Development and Prototypes	509,014	537,361	871,342	758,936
System Development and Demonstration	5,146,327	5,039,846	5,222,457	4,772,821
Management Support	1,359,946	1,204,309	1,140,246	1,107,873
Operational System Development	1,263,097	1,345,228	1,623,297	1,449,381
Total RDT&E, Army	11,673,077	10,959,733	10,585,333	9,790,592

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities				Thousands of Dollars			
				FY 2006	FY 2007	FY 2008	FY 2009
Basic Research							
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	21,651	19,187	19,266	19,790
2	0601102A	01	DEFENSE RESEARCH SCIENCES	172,510	170,122	137,676	141,423
3	0601103A	01	UNIVERSITY RESEARCH SCIENCES (H)	73,707	80,841	64,843	66,781
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	96,175	95,748	84,034	87,814
Total: Basic Research				364,043	365,898	305,819	315,808
Applied Research							
5	0602105A	02	MATERIALS TECHNOLOGY	34,423	60,102	18,614	19,029
6	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	49,951	48,575	39,826	41,017
7	0602122A	02	TRACTOR HIP	7,540	8,373	4,367	3,298
8	0602211A	02	AVIATION TECHNOLOGY	38,073	40,156	42,567	42,051
9	0602270A	02	EW TECHNOLOGY	28,746	30,972	16,411	16,605
10	0602303A	02	MISSILE TECHNOLOGY	75,149	77,276	53,038	48,324
11	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	34,485	24,061	19,342	19,791
12	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	25,848	25,001	16,654	17,131
13	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	81,693	91,483	53,342	49,321
14	0602618A	02	BALLISTICS TECHNOLOGY	50,152	58,568	55,014	55,736
15	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	9,856	12,762	2,235	2,301
16	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	6,449	6,178	7,008	7,571
17	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	123,684	118,331	40,469	30,663
18	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	92,221	81,773	43,391	45,365
19	0602709A	02	NIGHT VISION TECHNOLOGY	30,464	36,203	24,391	25,662
20	0602712A	02	COUNTERMINE SYSTEMS	26,698	27,135	21,795	21,922
21	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	27,549	40,902	17,426	17,169
22	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	17,570	19,605	15,809	15,223
23	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	45,044	48,412	22,215	24,046
24	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	4,447	6,719	5,368	5,510
25	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	48,789	51,278	51,120	52,118
26	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	14,171	16,021	16,208	16,458
27	0602786A	02	LOGISTICS TECHNOLOGY	47,214	44,044	23,083	21,988
28	0602787A	02	MEDICAL TECHNOLOGY	263,507	229,893	76,544	72,584
Total: Applied Research				1,183,723	1,203,823	686,237	670,883
Advanced Technology Development							
29	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	75,067	65,632	47,065	47,055
30	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	293,791	299,017	53,274	54,863
31	0603003A	03	AVIATION ADVANCED TECHNOLOGY	100,095	96,575	53,890	57,615

UNCLASSIFIED

Page - 2 of 7

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities				Thousands of Dollars			
				FY 2006	FY 2007	FY 2008	FY 2009
32	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	106,558	92,054	59,389	74,072
33	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	212,115	204,383	131,436	108,554
34	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLOGY	11,964	11,997	12,255	9,235
35	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY	9,796	9,200	6,783	6,871
36	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	52,236	53,129	49,199	51,213
37	0603009A	03	TRACTOR HIKE	8,446	9,221	12,633	14,641
38	0603015A	03	NEXT GENERATION TRAINING & SIMULATION SYSTEMS	24,855	20,863	18,723	19,002
39	0603020A	03	TRACTOR ROSE	4,750	5,125	6,526	6,650
40	0603100A	03	IED DEFEAT TECHNOLOGY DEVELOPMENT	546,478			
41	0603103A	03	EXPLOSIVE DEMILITARIZATION TECHNOLOGY	20,459	25,640	10,349	10,632
42	0603105A	03	MILITARY HIV RESEARCH	12,839	12,897	6,998	7,162
43	0603125A	03	COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT FOR	9,528	8,503	13,061	13,148
44	0603238A	03	GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	5,722	12,852		
45	0603270A	03	EW TECHNOLOGY	21,564	25,280	17,419	18,864
46	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	113,079	62,940	60,353	64,398
47	0603322A	03	TRACTOR CAGE	14,796	18,981	18,448	12,437
48	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	26,915	30,218	25,315	30,935
49	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	7,971	8,112	8,097	8,856
50	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	91,213	75,615	35,892	40,114
51	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	15,306	17,098	14,982	16,449
52	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	20,868	27,688	6,837	7,676
53	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	40,516	70,248	67,011	34,448
Total: Advanced Technology Development				1,846,927	1,263,268	735,935	714,890
Advanced Component Development and Prototypes							
54	0603024A	04	UNIQUE ITEM IDENTIFICATION (UID)	1,438	4,074	668	653
55	0603305A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	78,756	88,001	14,389	14,034
56	0603308A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	32,188	38,740	17,421	20,065
57	0603327A	04	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	96,877	136,890	176,142	135,260
58	0603460A	04	JOINT AIR-TO-GROUND MISSILE (JAGM)			53,500	
59	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV		8,346	24,737	29,423
60	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	4,381	5,426	19,449	3,865
61	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	8,050	2,572	44,578	45,733
62	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	35,360	8,569	142,486	108,709
63	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	33,232	4,330	4,787	4,912
64	0603766A	04	TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	18,027	19,855	14,423	9,879
65	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	6,401	5,278	3,454	2,605

UNCLASSIFIED

Page - 3 of 7

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities				Thousands of Dollars			
				FY 2006	FY 2007	FY 2008	FY 2009
66	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	34,252	24,194	6,149	5,389
67	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	91,968	121,798	222,296	278,893
68	0603790A	04	NATO RESEARCH AND DEVELOPMENT	4,548	4,891	4,959	5,074
69	0603801A	04	AVIATION - ADV DEV	5,384	9,536	6,481	7,503
70	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	12,195	10,103	27,499	22,237
71	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	10,046	8,549	19,054	17,893
72	0603807A	04	MEDICAL SYSTEMS - ADV DEV	22,104	23,608	12,479	21,452
73	0603827A	04	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	11,084	11,478	18,178	14,119
74	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	2,723	1,123	38,213	11,238
Total: Advanced Component Development and Prototypes				509,014	537,361	871,342	758,936
System Development and Demonstration							
75	0604201A	05	AIRCRAFT AVIONICS	9,898	48,554	57,786	71,880
76	0604220A	05	ARMED, DEPLOYABLE OH-58D	88,509	131,315	82,310	13,027
77	0604270A	05	EW DEVELOPMENT	33,158	45,053	55,716	39,974
78	0604280A	05	JOINT TACTICAL RADIO SYSTEM	131,681			270,560
79	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	13,177	6,888	5,384	5,465
80	0604328A	05	TRACTOR CAGE	15,455	15,879	17,821	16,909
81	0604329A	05	COMMON MISSILE	24,920	24,724		
82	0604601A	05	INFANTRY SUPPORT WEAPONS	49,954	43,165	45,229	32,585
83	0604604A	05	MEDIUM TACTICAL VEHICLES	18,006	12,881	1,994	1,942
84	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV		5,239	1,347	5,639
85	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	20,937	13,311	1,947	2,920
86	0604633A	05	AIR TRAFFIC CONTROL	6,307	4,477	8,956	14,268
87	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	9,192	4,450	82,300	22,220
88	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	2,870,086	2,956,921		
89	0604646A	05	NON LINE OF SIGHT LAUNCH SYSTEM	216,668	320,650	253,410	199,064
90	0604647A	05	NON LINE OF SIGHT CANNON	132,223	110,998	137,802	89,189
91	0604660A	05	FCS MANNED GRD VEHICLES & COMMON GRD VEHICLE			696,333	772,458
92	0604661A	05	FCS SYSTEMS OF SYSTEMS ENGR & PROGRAM MGMT			1,589,466	1,407,410
93	0604662A	05	FCS RECONNAISSANCE (UAV) PLATFORMS			41,164	34,220
94	0604663A	05	FCS UNMANNED GROUND VEHICLES			90,667	96,666
95	0604664A	05	FCS UNATTENDED GROUND SENSORS			10,999	12,942
96	0604665A	05	FCS SUSTAINMENT & TRAINING R&D			678,781	536,387
97	0604666A	05	MODULAR BRIGADE ENHANCEMENT			64,796	32,442
98	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	27,753	41,161	44,619	28,795
99	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	3,224	2,984	2,501	2,515

UNCLASSIFIED

Page - 4 of 7

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities					Thousands of Dollars			
					FY 2006	FY 2007	FY 2008	FY 2009
100	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV		53,859	124,068	35,992	17,493
101	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTEL - ENG		49,264	21,516	21,513	22,552
102	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT		38,576	39,563	31,962	26,379
103	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT		2,160	8,046	18,025	23,728
104	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN		28,192	20,418	16,594	16,181
105	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT)		41,139	38,471	37,035	29,652
106	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM		4,695	5,129	2,786	679
107	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV		110,817	121,427	55,368	32,344
108	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV		14,790	42,330	45,009	35,971
109	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV		309,036	13,037	10,047	9,858
110	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM		15,890	24,536	15,823	35,190
111	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV		103,399	92,237	142,315	89,105
112	0604814A	05	ARTILLERY MUNITIONS - EMD		101,957	101,422	63,039	78,532
113	0604817A	05	COMBAT IDENTIFICATION		2,193	39	11,362	3,404
114	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE		77,381	59,901	99,202	65,082
115	0604820A	05	RADAR DEVELOPMENT		4,775	2,499	7,067	
116	0604822A	05	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEB)		68,372	21,751	53,559	50,237
117	0604823A	05	FIREFINDER		43,711	54,542	77,279	31,424
118	0604827A	05	SOLDIER SYSTEMS - WARRIOR DEM/VAL		63,251	28,826		
119	0604854A	05	ARTILLERY SYSTEMS - EMD		5,222	1,632	24,221	24,073
120	0604869A	05	PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)		274,339	325,945	372,146	408,182
121	0604870A	05	NUCLEAR ARMS CONTROL MONITORING SENSOR NETWORK			7,346	7,300	7,300
122	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT		62,161	96,515	103,485	55,978
Total: System Development and Demonstration					5,146,327	5,039,846	5,222,457	4,772,821
Management Support								
123	0604256A	06	THREAT SIMULATOR DEVELOPMENT		27,598	23,517	21,887	21,482
124	0604258A	06	TARGET SYSTEMS DEVELOPMENT		11,446	12,785	13,499	13,570
125	0604759A	06	MAJOR T&E INVESTMENT		61,626	65,325	66,921	65,004
126	0605103A	06	RAND ARROYO CENTER		20,382	21,234	16,342	16,444
127	0605301A	06	ARMY KWAJALEIN ATOLL		156,212	176,916	182,136	166,772
128	0605326A	06	CONCEPTS EXPERIMENTATION		37,283	25,293	34,004	28,440
129	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH		273,546			
130	0605601A	06	ARMY TEST RANGES AND FACILITIES		349,783	385,498	357,964	343,030
131	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS		54,039	80,467	74,391	75,067
132	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS		39,518	43,544	40,343	41,111
133	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY		16,940	16,438	2,801	2,840

UNCLASSIFIED

Page - 5 of 7

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities				Thousands of Dollars			
				FY 2006	FY 2007	FY 2008	FY 2009
134	0605606A	06	AIRCRAFT CERTIFICATION	2,694	4,530	4,688	5,024
135	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	7,810	8,477	8,346	8,313
136	0605706A	06	MATERIEL SYSTEMS ANALYSIS	15,210	16,344	16,526	16,987
137	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	4,487	4,938	3,291	3,530
138	0605712A	06	SUPPORT OF OPERATIONAL TESTING	74,044	80,163	75,293	72,974
139	0605716A	06	ARMY EVALUATION CENTER	49,882	59,465	61,694	63,400
140	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	3,945	5,380	5,342	5,360
141	0605801A	06	PROGRAMWIDE ACTIVITIES	52,036	71,418	73,718	73,596
142	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	48,552	47,356	41,607	43,140
143	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS & SAFETY	36,413	36,914	19,606	20,992
144	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	3,838	4,370	4,958	5,158
145	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	12,647	13,937	14,889	15,639
146	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	15			
Total: Management Support				1,359,946	1,204,309	1,140,246	1,107,873
Operational System Development							
147	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	109,955	74,672	54,055	60,003
148	0603820A	07	WEAPONS CAPABILITY MODIFICATIONS UAV	2,876	1,582	3,900	
149	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	99,851	242,781	481,251	353,983
150	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	16,150	18,191	16,837	15,912
151	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	23,737	14,380	27,615	6,020
152	0203740A	07	MANEUVER CONTROL SYSTEM	36,602	34,590	43,961	28,166
153	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	304,408	303,491	325,643	417,911
154	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	1,982	851	476	331
155	0203758A	07	DIGITIZATION	12,878	14,709	9,737	11,056
156	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2	18,535	26,083	32,446	13,666
157	0203764A	07	TACTICAL WHEELED VEHICLE IMPROVEMENT PROGRAM	13,418			
158	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	15,516	10,651	30,219	38,115
159	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	25,105	22,554	1,897	1,537
160	0203808A	07	TRACTOR CARD	6,514	7,162	16,573	19,727
161	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	22,909	5,740	1,536	926
162	0208053A	07	JOINT TACTICAL GROUND SYSTEM	12,358	14,878	23,462	7,954
163	0208058A	07	JOINT HIGH SPEED VESSEL (JHSV)	3,126	20,172	5,148	2,955
164	0301359A	07	SPECIAL ARMY PROGRAM				
165	0301555A	07	CLASSIFIED PROGRAMS				
166	0301556A	07	SPECIAL PROGRAM				
167	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	7,976	8,327		

UNCLASSIFIED

Page - 6 of 7

UNCLASSIFIED  
Department of the Army  
FY 2008 RDT&E Program  
FY 2008/2009 Budget Estimate  
Summary

Exhibit R-1

February 2007

Summary Recap of Budget Activities					Thousands of Dollars			
					FY 2006	FY 2007	FY 2008	FY 2009
168	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	51,831	25,466	28,332	26,720	
169	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	65,960	47,986	129,689	105,567	
170	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	48,015	32,420	107,849	106,999	
171	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	16,122	12,065	24,836	14,112	
172	0303158A	07	JOINT COMMAND AND CONTROL - ARMY	1,626	4,013	10,415	10,386	
173	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	144,801	153,227	97,947	62,836	
174	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	5,321	1,001			
175	0305208A	07	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS (JMIP)	92,841	134,313	81,580	73,974	
176	0702239A	07	AVIONICS COMPONENT IMPROVEMENT PROGRAM	953	1,020	1,024	1,030	
177	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	101,170	112,223	66,869	69,495	
178	1001018A	07	NATO JOINT STARS	561	680			
Total: Operational system development				1,263,097	1,345,228	1,623,297	1,449,381	
				11,673,077	10,959,733	10,585,333	9,790,592	
Total: RDT&E, Army								

## Table of Contents - RDT&E Volume III

Line No.	PE	Program Element Title	Page
#6 - Management support			
125	0604256A	THREAT SIMULATOR DEVELOPMENT .....	1
126	0604258A	TARGET SYSTEMS DEVELOPMENT .....	4
127	0604759A	Major T&E Investment .....	9
128	0605103A	Rand Arroyo Center .....	17
129	0605301A	ARMY KWAJALEIN ATOLL .....	20
130	0605326A	Concepts Experimentation .....	23
132	0605601A	ARMY TEST RANGES AND FACILITIES .....	28
133	0605602A	Army Technical Test Instrumentation and Targets .....	31
134	0605604A	Survivability/Lethality Analysis .....	40
135	0605605A	DOD High Energy Laser Test Facility .....	44
136	0605606A	AIRCRAFT CERTIFICATION .....	46
137	0605702A	Meteorological Support to RDT&E Activities .....	48
138	0605706A	MATERIEL SYSTEMS ANALYSIS .....	51
139	0605709A	EXPLOITATION OF FOREIGN ITEMS .....	54
140	0605712A	Support of Operational Testing .....	56
141	0605716A	Army Evaluation Center .....	60
142	0605718A	Simulation & Modeling for Acq, Rqts, & Tng (SMART) .....	63
143	0605801A	Programwide Activities .....	68
144	0605803A	Technical Information Activities .....	81
145	0605805A	Munitions Standardization, Effectiveness & Safety .....	92
146	0605857A	Environmental Quality Technology Mgmt Support .....	104
147	0605898A	Management Headquarters (Research and Development) .....	111
#7 - Operational system development			
149	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM .....	113
150	0603820A	Weapons Capability Modifications UAV .....	137
151	0102419A	Joint Land Attack Cruise Missiles Defense (JLENS) .....	143
152	0203726A	Adv Field Artillery Tactical Data System .....	152
153	0203735A	Combat Vehicle Improvement Programs .....	159
154	0203740A	Maneuver Control System .....	168
155	0203744A	Aircraft Modifications/Product Improvement Program .....	176
157	0203758A	Digitization .....	213

## Table of Contents - RDT&E Volume III

Line No.	PE	Program Element Title	Page
158	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2) .....	217
160	0203801A	Missile/Air Defense Product Improvement Program .....	224
161	0203802A	Other Missile Product Improvement Programs .....	232
163	0208010A	Joint Tactical Communications Program (TRI-TAC) .....	240
164	0208053A	Joint Tactical Ground System .....	249
165	0208058A	Joint High Speed Vessel (JHSV) .....	256
168	0303140A	Information Systems Security Program .....	263
169	0303141A	Global Combat Support System .....	280
170	0303142A	SATCOM Ground Environment (SPACE) .....	298
171	0303150A	WWMCCS/Global Command and Control System .....	321
172	0303158A	Joint Command and Control - Army .....	330
173	0305204A	Tactical Unmanned Aerial Vehicles .....	338
175	0305208A	Distributed Common Ground/Surface Systems (JMIP) .....	370
176	0702239A	Avionics Component Improvement Program .....	400
177	0708045A	End Item Industrial Preparedness Activities .....	407

## Alphabetic Listing - RDT&E Volume III

Program Element Title	PE	Line No.	Page
Adv Field Artillery Tactical Data System	0203726A	152.....	152
AIRCRAFT CERTIFICATION	0605606A	136.....	46
Aircraft Modifications/Product Improvement Program	0203744A	155.....	176
Army Evaluation Center	0605716A	141.....	60
ARMY KWAJALEIN ATOLL	0605301A	129.....	20
Army Technical Test Instrumentation and Targets	0605602A	133.....	31
ARMY TEST RANGES AND FACILITIES	0605601A	132.....	28
Avionics Component Improvement Program	0702239A	176.....	400
Combat Vehicle Improvement Programs	0203735A	153.....	159
Concepts Experimentation	0605326A	130.....	23
Digitization	0203758A	157.....	213
Distributed Common Ground/Surface Systems (JMIP)	0305208A	175.....	370
DOD High Energy Laser Test Facility	0605605A	135.....	44
End Item Industrial Preparedness Activities	0708045A	177.....	407
Environmental Quality Technology Mgmt Support	0605857A	146.....	104
EXPLOITATION OF FOREIGN ITEMS	0605709A	139.....	54
Force XXI Battle Command, Brigade and Below (FBCB2)	0203759A	158.....	217
Global Combat Support System	0303141A	169.....	280
Information Systems Security Program	0303140A	168.....	263
Joint Command and Control - Army	0303158A	172.....	330
Joint High Speed Vessel (JHSV)	0208058A	165.....	256
Joint Land Attack Cruise Missiles Defense (JLENS)	0102419A	151.....	143
Joint Tactical Communications Program (TRI-TAC)	0208010A	163.....	240
Joint Tactical Ground System	0208053A	164.....	249
Major T&E Investment	0604759A	127.....	9
Management Headquarters (Research and Development)	0605898A	147.....	111
Maneuver Control System	0203740A	154.....	168
MATERIEL SYSTEMS ANALYSIS	0605706A	138.....	51
Meteorological Support to RDT&E Activities	0605702A	137.....	48
Missile/Air Defense Product Improvement Program	0203801A	160.....	224
MLRS PRODUCT IMPROVEMENT PROGRAM	0603778A	149.....	113
Munitions Standardization, Effectiveness & Safety	0605805A	145.....	92

## Alphabetic Listing - RDT&E Volume III

<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
Other Missile Product Improvement Programs	0203802A	161.....	232
Programwide Activities	0605801A	143.....	68
Rand Arroyo Center	0605103A	128.....	17
SATCOM Ground Environment (SPACE)	0303142A	170.....	298
Simulation & Modeling for Acq, Rqts, & Tng (SMART)	0605718A	142.....	63
Support of Operational Testing	0605712A	140.....	56
Survivability/Lethality Analysis	0605604A	134.....	40
Tactical Unmanned Aerial Vehicles	0305204A	173.....	338
TARGET SYSTEMS DEVELOPMENT	0604258A	126.....	4
Technical Information Activities	0605803A	144.....	81
THREAT SIMULATOR DEVELOPMENT	0604256A	125.....	1
Weapons Capability Modifications UAV	0603820A	150.....	137
WWMCCS/Global Command and Control System	0303150A	171.....	321

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>	<b>February 2007</b>
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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT	
6 - Management support			0604256A - THREAT SIMULATOR DEVELOPMENT					976	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
976	ARMY THREAT SIM (ATS)	27598	23517	21887	21482	22259	17028	17407	17795

**A. Mission Description and Budget Item Justification:** This program supports the design, development, acquisition, integration and fielding of realistic mobile threat simulators and realistic threat simulation products utilized in Army training and developmental and operational tests. While this project originally funded simulators representing Soviet equipment, the changing world order has expanded the scope of this program to address other world threats. Army Threat Simulator and Threat Simulation products are utilized to populate test battlefields for U.S. Army Test and Evaluation Command (ATEC), to conduct developmental and operational tests, and to support Program Executive Office (PEO) required user testing in System Integration Laboratories and hardware/simulation in-the-loop facilities. Army threat simulator and threat simulation products developed or fielded under this program support Army-wide, non-system specific threat product requirements. Each capability is pursued in concert and coordination with existing Army and tri-service capabilities to eliminate duplication of products and services, while providing the proper mix of resources needed to support Army testing and training. These battlefield simulators represent systems (e.g. missile systems, command, control and communications systems, electronic warfare systems, helicopters, etc.) that are used to portray a realistic threat environment during testing of U.S. weapon systems. Simulator development is responsive to Office of the Secretary of Defense and General Accounting Office guidance for the Army to conduct operational testing in a realistic threat environment. Actual threat equipment is acquired when appropriate (in lieu of development) and total package fielding is still required (i.e., instrumentation, operations and maintenance, manuals, new equipment training, etc.). Threat simulator development is accomplished under the auspices of the Project Manager for Instrumentation, Targets and Threat Simulators (PM ITTS) and the Director, Operational Test and Evaluation, Threat Simulator Investment Working Group.

<u><b>Accomplishments/Planned Program:</b></u>	<u><b>FY 2006</b></u>	<u><b>FY 2007</b></u>	<u><b>FY 2008</b></u>	<u><b>FY 2009</b></u>
Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution.	6806	6000		
Develop product enhancements for XM11S simulator threat system.	2800	746		
Continue development of Network Exploitation Test Tool (NETT).	2966	2294	1119	1164
Develop Advanced Electronic Order of Battle (AEOB) upgrade and develop mobile threat emitter system interoperable with threat scenario outputs.	1393	2118	1919	
Conduct Threat Systems Management Office Operations efforts.	6270	6358	6739	6921
Develop Threat Intelligence and Electronic Warfare Environment to simulate Electronic Warfare capabilities.	1795	1877	2560	2753
Continue development of radio frequency (RF) Surface-to-Air Missile (SAM) radar prototype.	805	1300		
Develop simulations of threat camouflage, concealment, deception and obscurants (CCD&O) techniques (formerly known as threat deception techniques).	998	1092	1139	1502
Continue establishment of a Threat Systems Management satellite office for Townsend Electronic Combat Training Range to conduct threat scenarios.	1165	1300		
Established a Threat Systems Management Office Operating Center - West to conduct threat scenarios.	1795			
Developed a Web Assured Response Protocol (WARP).	805			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)				February 2007	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT
<b>6 - Management support</b>		<b>0604256A - THREAT SIMULATOR DEVELOPMENT</b>			<b>976</b>
Begins development of the functionality of the Threat Battle Command Center (TBCC) to support new threat systems/equipment.				3348	3757
Begin development of Signal Injection Jammer.				2063	1894
Begin development of location tracking capability of MCNI-TR.				1300	
Begin development of Threat Wireless Network Exploitation Test Tool (NETT).				1700	3491
Small Business Innovative Research/Small Business Technology Transfer Programs			432		
Total		27598	23517	21887	21482

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)					February 2007
BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0604256A - THREAT SIMULATOR DEVELOPMENT</b>			PROJECT <b>976</b>
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	28878	21180	22162	21730	
Current BES/President's Budget (FY 2008/2009)	27598	23517	21887	21482	
Total Adjustments	-1280	2337	-275	-248	
Congressional Program Reductions		-90			
Congressional Rescissions					
Congressional Increases		2600			
Reprogrammings	-1280	-173			
SBIR/STTR Transfer					
Adjustments to Budget Years			-275	-248	
FY 2006: Funding reprogrammed to higher priority requirements. FY 2007: Congressional Plus-Ups: Integration of Live and Virtual Threats Townsend Range - \$1,300; Integrated RF/SAM Threat Environment - \$1,300; funds reprogrammed to higher priorities. FY 2008/2009: Funds realigned to higher priority requirements.					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604258A - TARGET SYSTEMS DEVELOPMENT**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	11446	12785	13499	13570	13779	8929	8981	9038
238 AERIAL TARGETS	7986	8962	6215	6261	6454	5111	5227	5345
459 GROUND TARGETS	3460	3823	7284	7309	7325	3818	3754	3693

**A. Mission Description and Budget Item Justification:** This program funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to ensure validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under Reliance for providing rotary wing, mobile ground, towed, and designated targets for T&E. The Army executes development of some Service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of Service-peculiar and on-going target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)				February 2007
BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0604258A - TARGET SYSTEMS DEVELOPMENT</b>		
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	11784	10928	11137	11163
Current BES/President's Budget (FY 2008/2009)	11446	12785	13499	13570
Total Adjustments	-338	1857	2362	2407
Congressional Program Reductions		-49		
Congressional Rescissions				
Congressional Increases		2000		
Reprogrammings	-338	-94		
SBIR/STTR Transfer				
Adjustments to Budget Years			2362	2407
FY 2007: Section 8106 Economic Assumptions (\$49); Congressional Plus-Up: Next Generation Ice Protection Technologies for UAVs - \$2,000; Funds reprogrammed (\$94) to higher priorities. FY 2008/2009: Funding increase of (FY08:\$2,362/FY09:2,407) is for the Ground Targets program.				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604258A - TARGET SYSTEMS DEVELOPMENT**

PROJECT

**238**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
238 AERIAL TARGETS	7986	8962	6215	6261	6454	5111	5227	5345

**A. Mission Description and Budget Item Justification:** Aerial Targets support Army Transformation and the Global War on Terrorism by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; virtual targets; ancillary devices; and their control systems. These products are required to adequately stress weapon systems undergoing test and evaluation (T&E). In order to stress systems under test and evaluation, aerial targets must have flight characteristics, signatures, and other performance factors that emulate the modern threat. This includes long-range planning to determine future target needs and development of coordinated requirement documents; the management of target research, development, test and evaluation process; execution of the validation process to ensure that surrogate targets adequately represent the threat; development and acquisition of surrogate and acquired targets; and continuing maintenance, storage, and development/enhancements/update via engineering services of the developed and acquired threat targets to ensure availability for the T&E customer. The US Army is the Reliance lead for rotary wing targets and towed target developments and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continues management and sustainment of more than 20 Army (Reliance Lead) Rotary Wing Targets, including updates for obsolescence, maintenance, and safety to support T&E programs such as Medium Extended Air Defense System (MEADS), Surface Launched Advanced Medium Range Air to Air Missile (SLAMRAAM), APACHE Block III, and others.	472	859	538	631
Provides Research, Development, Test and Evaluation (RDT&E) portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, Joint Land Attack Cruise Missile Defense Elevated Netted Sensors (JLENS), MEADS, SLAMRAAM, and classified programs for Army and Tri-Service customers. FY 2005 began the process to acquire replacements for expended targets, which will include development of updated component/subsystem replacements of no-longer-available, obsolete equipment and systems to reduce operational cost.	1439	1717	1229	1239
Completes redesign and testing of upgraded Target Tracking Control System (TTCS) to new design. Complete testing of upgraded initial test sets. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative to develop and integrate a set of Common Digital Architecture control equipment into aerial targets to improve performance and reduce operating costs. Completes upgrade of remaining TTCS to new configuration and begins sustainment. Also develops/improves integrated test set, operator displays, software performance enhancements, and documentation of design. This will provide support to programs such as Patriot, SLAMRAAM, JLENS, MEADS, and others.	891	703	518	496
Continues development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Continues development and testing of Low Cost Towed target systems (Cruise Missile Tow Target, Reduced Radar Tow Target, and the Special Low Altitude Tow Target) emulating current threats at a very low cost to Patriot, JLENS and classified customers. Starting in FY07, signature modifications and/or performance enhancements to these targets will begin.	782	992	759	762

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0604258A - TARGET SYSTEMS DEVELOPMENT</b>		<b>238</b>	
Integrated Avionics Program incorporates Central Test and Evaluation Investment Program (CTEIP) Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost. Provides RDT&E funding to initialize production and provide maintainer and operator training, and finalize technical documentation. The customer will provide funding and training for production units.	831	203	123	115
Funding supports research and development of evolving Army and DoD simulation standards and evolving implementation techniques; fabricates additional simulation target models of airplanes, helicopters, missiles, and unmanned aerial vehicles in commonly used model formats; develops simulation target model infrared and radar frequency signature models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD test and evaluation communities. Simulation target models are employed to facilitate simulations for both Developmental and Operational Testing (test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by Developmental Test Command's (DTC) simulations, Operational Test Command's (OTC) Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems; T&E (e.g. Future Combat System, Patriot, SBCT (Stryker), MEADS, etc.). These models are on-line and available to all T&E simulation developers.	92	560	943	948
Develops, tests and provides generic, tactical class Unmanned Aerial Vehicle (UAV) targets to provide threat representative support for MEADS/SLAMRAAM testing in FY08-10 and MEADS testing in future years. Provides management of approximately 20 customer funded production air vehicles for developmental testing(DT) and initial targets fleet, ground support equipment, and maintainer and operator training. TTCS will be utilized for target control. This effort provides significant cost avoidances over using real UAVs for T&E targets.	2432	729	522	552
Initiates Airborne Control System for Rotary Wing targets, incorporates the Central Test and Evaluation Investment Program(CTEIP) Common Digital Architecture into aerial rotary wing targets controlled by TTCS; improving reliability, maintainability, and target performance while reducing operational cost.		960	1583	1518
Funding supports development and design of current in-flight icing protection shortfalls with low-weight,low-cost,low-power options made specifically for installation on current and future UAV configurations.	1047	2000		
Small Business Innovative Research / Small Business Technology Transfer Programs		239		
Total	7986	8962	6215	6261

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604258A - TARGET SYSTEMS DEVELOPMENT**

PROJECT

**459**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
459 GROUND TARGETS	3460	3823	7284	7309	7325	3818	3754	3693

**A. Mission Description and Budget Item Justification:** This program funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Transformation by developing surrogates, acquiring foreign equipment and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing T&E. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation processes; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for T&E customers. This program also manages use of current assets and operates centralized spare parts program. The US Army is the Tri-Service lead for providing mobile ground targets for T&E.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2006-2009 Funds management and oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of 158 active and 188 inactive Mobile Ground Target vehicles, and acquisition of new material and spare parts. Supports users such as Future Combat Systems(FCS), Armed Reconnaissance Helicopter (ARH), Guided Multiple Launch Rocket System (GMLRS), Excalibur, Mid-Range Munition (MRM), Non-Line-of-Sight Launch System (NLOS-LS), Precision Guided Mortar Munition (PGMM), and others.	2078	2105	2470	2552
FY 2006-2009 Supports research and development of evolving Army and DOD simulation standards and evolving implementation techniques; fabricates additional simulation target models of wheeled and tracked ground vehicles in commonly used model formats; develops simulation target model infrared (IR) and radio frequency (RF) signature models support verification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DOD T&E communities. Simulation target models are employed to facilitate simulations for both developmental testing (DT) and operational testing(OT)(test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by DTC's simulations, OTC's Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System [FCS], Excalibur, Precision Guided Mortar Munition[PGMM], Mid Range Munition[MRM], etc.). These models are available on-line to all T&E simulation developers.	1131	1280	1939	1929
Manages Mobile Ground Target Surrogates development effort. Supplements the Mobile Ground Targets threat fleet with up to date threat representatives surrogates that emulate the visual, infrared and radio frequency signatures to support T&E (e.g. ARH, FCS, NLOS-LS, CKEM, and others. FY08 begins development and fielding of SCUD-B and T-90 Surrogate Vehicles.	251	362	2875	2828
Small Business Innovative Research / Small Business Technology Transfer Program		76		
Total	3460	3823	7284	7309

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	61626	65325	66921	65004	66629	44498	45493	46511
983 Reagan Test Site (RTS) T&E Investments	6272	8206	8443	8563	8919			
984 Major Developmental Testing Instrumentation	37462	36081	37438	35568	36347	27473	28085	28711
986 Major Operational Test Instrumentation	17892	21038	21040	20873	21363	17025	17408	17800

**A. Mission Description and Budget Item Justification:** This program funds the development and acquisition of major developmental test instrumentation for the U.S. Army Test and Evaluation Command's (ATEC) Developmental Test Command (DTC) test activities: White Sands Missile Range (WSMR), NM; Yuma Proving Ground, (YPG), AZ; Aberdeen Test Center (ATC), MD; Electronic Proving Ground (EPG), AZ; Redstone Technical Test Center (RTTC), AL; Aviation Technical Test Center (ATTC), AL; and for the Reagan Test Site (RTS) at the US Army Kwajalein Atoll (USAKA), which is managed by the Space and Missile Defense Command. The program also funds development and acquisition of Operational Test Command's (OTC) major field instrumentation. Requirements for instrumentation are identified through a long range survey of project managers, Research Development and Engineering Centers (RDECs), and Battle Laboratories developing future weapon systems and the test programs that support these systems. Army testing facilities are also surveyed to determine major testing capability shortfalls.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	66030	64953	67547	65584
Current BES/President's Budget (FY 2008/2009)	61626	65325	66921	65004
Total Adjustments	-4404	372	-626	-580
Congressional Program Reductions		-249		
Congressional Rescissions				
Congressional Increases		1100		
Reprogrammings	-4404	-479		
SBIR/STTR Transfer				
Adjustments to Budget Years			-626	-580

FY 2006 funding reprogrammed to higher priority requirements.

FY 2007 Congressional Plus-Up: US Army Network Centric Warfare-Digital Battlefield Instrumentation - \$1,100; funds reprogrammed (\$479) to higher priorities.

FY 2008/2009 Funds realigned to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

PROJECT

**983**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
983 Reagan Test Site (RTS) T&E Investments	6272	8206	8443	8563	8919			

**A. Mission Description and Budget Item Justification:** This project funds the purchase of major improvement and modernization (I&M) equipment for the Ronald Reagan Ballistic Missile Defense Test Site (RTS) located on US Army Kwajalein Atoll (USAKA) in the Marshall Islands. RTS is a national test site supporting Army, Missile Defense Agency (MDA), US Air Force, National Aeronautics and Space Administration (NASA), U.S. Strategic Command (STRATCOM), and other customers. Program upgrades radars, telemetry, optics, range safety, communications, command/control and other equipment required to maintain RTS as a national test range. These upgrades are critical to maintain a state of the art sensor suite and to the success of MDA test missions, Minuteman Operational Tests and STRATCOM's Space Surveillance Network (SSN) and Space Object Identification (SOI) operations.

**Accomplishments/Planned Program:**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Modernize RTS Operations Control Center (ROCC) for compatibility with upgraded RTS sensors and modernize the existing 10 year old Kwajalein Mission Control Center computer hardware and software. Improves initial interoperability with other Pacific Ranges.	4265	2450		
RTS Distributed Operations	1043	1500	2000	2000
Digital and Remoted Optical Sensors (DROpS). Replaces 35mm film camera. Digital image capture system and common control room.	380	900	1000	1800
High Resolution Imaging MMW/Tubes	85	617	600	383
Transmitter Modernization Program		1658	1000	1000
Bandwidth Expansion Program			1300	1200
Real-Time Cross-Domain Secure Interoperability			1051	1395
Modernize MPS-36 radars to replace unsupportable hardware and computer systems.	426	141		
Upgrade RTS Safety Control Center (RSCC)/MSE	73			
Range Safety System Upgrade (RSSU). Modernize fixed and mobile range safety assets using commercial off-the-shelf hardware and common computer architecture and interface.			750	
Radar Open System Architecture (ROSA) Refresh		709	742	785
SBIR/STTR		231		
Total	6272	8206	8443	8563

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

PROJECT

**984**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
984 Major Developmental Testing Instrumentation	37462	36081	37438	35568	36347	27473	28085	28711

**A. Mission Description and Budget Item Justification:** This project develops and acquires major test instrumentation to perform developmental testing of weapon systems at U. S. Army Test and Evaluation Command's (ATEC) Developmental Test Command (DTC) activities which include: Yuma Proving Ground (YPG), AZ; Aberdeen Test Center (ATC), MD; Electronic Proving Ground (EPG), AZ; White Sands Missile Range (WSMR), NM; Redstone Technical Test Center (RTTC), AL; and Aviation Technical Test Center (ATTC), AL. Projects are designated as a major program based on their visibility, assessed relative technical risk (medium-high), schedule risk, cost (generally greater than \$1 Million/yr or \$5 Million for the total project) and applicability to other mission areas or services. These projects are technically demanding, state-of-the-art, unique instrumentation assets or suites to meet the technology shortfalls, and generally result from development programs managed by a professional project management team. Vehicle Durability Simulator (VDS) is a laboratory-based durability simulation which simulates driving on and off-road condition for both wheeled and track vehicles. The Versatile Information Systems Integrated Online (VISION) develops a modular, scalable instrumentation suite with sufficient integral mass storage for extended operation. It extends ATC and Department of Defense (DoD) networking to mobile platforms nationwide and provides database accessibility throughout DoD. It also provides advanced program management tools, and on-line customer definable multimedia reports. The Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMSSTC) develops the capability to test modern weapon systems and subsystems in the laboratory, in an open or closed loop scenario. The Range Digital Transmission System (RDTS) will improve test operations through modernization and will reduce test costs allowing for efficient data collection and remote operations at YPG. The Mobile Infrared Scene Projector (MIRSP) project will conduct performance testing of imaging Infrared and Forward Looking Infrared (FLIR) sensors while installed on the weapon system under test at RTTC. 21st Century Target Control System provides the integration of newly developed joint target control system with the range communication infrastructure and command center and ensures target control interoperability between the services. Starship II is the Command, Control, Communications, Computers and Intelligence (C4I) Test Instrumentation Control Center (TCC) which enhances and modernizes EPG's Enhanced Position Location and Reporting System (EPLRS) TCC to provide and automate a command and control center software tool that monitors test progress and performance status in real time for all Army Battle Command Systems (ABCS). Joint Warfighter Test and Training Suite is the development of an instrumented test area capable of creating Military Operations in Urban Terrain (MOUT) and maneuver training area for platoon size operations. Digital Network Migration is the development of mobile assets for support of remote testing areas and linking instrumentation assets to Test Support Network and Cox Range Control Center (CRCC). Crew Station Interface is the development of a reconfigurable cockpit simulator for various rotary wing platforms to determine optimum man-machine interfaces and connectivity via Defense Research Engineering Network (DREN) to other service/DoD test sites. Fiber Optic Network II is the installation of digital fiber optic cable and transmission electronics to modernize, secure and expand the backbone telecommunication and data transmission network in support of Aberdeen Test Center. Systems Test and Integration Laboratory (STIL) is the development of a systems integration and test lab for use in developmental testing and integration engineering, including a virtual test environment to support integration testing of aviation electronic systems as a part of modernization of army aircraft. Quantitative Visualization (QV) for Test and Evaluation is the development of QV integration models to enable rapid conversion of test data into visual representations. Mobile Multi-sensor Time-Space Position Information (TSPI) System (MMTS) is the development of a tracking system for weapons with low/flat trajectories and low radar cross sections. Roadway Simulator (RWS) allows for year round, 24/7 testing and provides the ability to safely conduct repeated conditions testing and evaluation of vehicle systems in real world driving environment that otherwise cannot be performed due to driver and test area safety limitations. Common Range Integrated Instrumentation System (CRIIS) previously called EnRAP project will meet critical requirements to provide GPS based Time, Space, Position Information (TSPI) instrumentation to support the testing of a variety of platforms including advanced aircraft, ships, helicopters, Unmanned Aerial Vehicles (UAVs), Ground Vehicles and dismounted soldiers. Advanced Ballistic Data Acquisition: Develops capabilities that will permit YTC and ATC to test and generate safety releases for new systems being introduced by the on-going Army Transformation as part of the Precision Effort and testing of Interim and Legacy

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>		PROJECT <b>984</b>	
weapons. Versatile Information Systems Integrated Online (VISION) ADMAS Product Improvement Program: Develops very small and low power pocket sized ADMAS systems which will extend VISION's capabilities to support dismounted and small robotic platforms.				
<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMSSTC): Continue design, development and integration of advanced multi-spectral simulation, test and acceptance resource for both performance and production testing of Common Missile and other potential multi-mode guided missiles.	9749	3497	3475	3071
Crew Station Interface (formerly Reconfigurable Cockpit Simulator (RCS)): Develop a reconfigurable cockpit simulator for various rotary wing platforms to determine optimum man-machine interfaces and connectivity via Defense Research Engineering Network (DREN) to other service/DoD test sites	752	1212	3932	1587
Digital Network Migration (DNM): Develop mobile assets for support of testing in remote areas and linking of instrumentation assets to the Test Support Network and Cox Range Control Center (CRCC)	3037	7565	7339	6330
Common Range Integrated Instrumentation System (CRIIS) previously known as EnRAP: The system is a life cycle replacement and technology improvement for the current Advanced Range Data System (ARDS) which is rapidly approaching the end of its life cycle. The capability will include the components to be mounted on the test platform and the components required for any necessary ground infrastructure. The system will support T&E associated with the cooperative collection of TSPI from dismounted soldiers, ground vehicles, low dynamic aircraft, and high dynamic aircraft.		134	3498	5400
Fiber Optic Network II (FON II) - Aberdeen Test Center (ATC): Install digital fiber optic cable and transmission electronics to modernize, secure and expand the backbone telecommunication and data transmission network in support of Aberdeen Test Center	1983	5273	5254	3085
Joint Warfighter Test and Training Suite (JWTT): Develop instrumented test area capable of creating mobile operations and maneuver training area for platoon size operations.	1177	2503	6240	3718
Mobile Infrared Scene Projector (MIRSP): Completed the development and integration of the Multi-spectral Subsystem. Participated in the design, development and integration of the large format resistive-emitter array (LFRA) IRSP to performed integration of the LFRA into Objective MIRSP.	152			
Mobile Multi-sensor Time Space Position Information (TSPI) System (MMTS)(formerly Hypervelocity Advanced TSPI System): Begin development of a tracking system for weapons with low/flat trajectories and low radar cross sections.	1513	1362	3013	4657
Quantitative Visualization (QV) for Test and Evaluation: Develop QV integration models to enable rapid conversion of test data into visual representations.	793	829	903	869
Range Data Transmission System (RDTS): Installed digital fiber optic cable and transmission electronics to modernize, secure and expand the backbone telecommunication and data transmission network in support of the East Kofa, North and South Cibola test ranges at Yuma Proving Ground.	4457			
Starship II: Develop enhancements and expansion of the functions for the C4I/Test Instrumentation Control Center (TCC) to test the Digitized Army and it's suite of Army Technical Architecture (ATA) - Compliant C4I systems.	2421	1655		
Systems Test and Integration Laboratory (STIL): Develops a systems integration and test lab for use in developmental testing and	1187	1956	3784	3966

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)				February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
<b>6 - Management support</b>	<b>0604759A - Major T&amp;E Investment</b>			<b>984</b>
integration engineering, including a virtual test environment to support integration testing of aviation electronic systems as a part of modernization of army aircraft.				
Versatile Information Systems Integrated Online (VISION): Continue development/enhancement of the Digital Library to increase database and links to other Army facilities. Continue development of new smart sensors to monitor vehicle position and initial research to develop communications protocol. Develop security communication features to handle classified information.	8566	9153		
Advanced Ballistic Data Acquisition: Develops capabilities to test and generate safety releases for new systems.				443
Versatile Information Systems Integrated Online (VISION) ADMAS Product Improvement Program: Develops very small and low power pocket sized ADMAS systems				2442
Vehicle Durability Simulator (VDS): completed the development of a Laboratory-based durability simulation which simulated driving on and off-road condition for both wheeled and track vehicles. This system allows for year round, 24/7 testing capabilities, provided the ability to perform accelerated life cycle testing of real world driving conditions, safely imposed extreme conditions for both durability and drivetrain performance to reduce overall testing time requirements.	1000			
21st Century Target Control System: Completed the development and integration of DoD-standard multi-service target control system at WSMR.	675			
Small Business Innovative Research/Small Business Technology Transfer Programs		942		
Total	37462	36081	37438	35568

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

PROJECT

**986**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
986 Major Operational Test Instrumentation	17892	21038	21040	20873	21363	17025	17408	17800

**A. Mission Description and Budget Item Justification:** This project supports the development of major field instrumentation for Operational Testing (OT), Force Development Testing and Experimentation (FDTE), Army Warfighting Experiments (AWE) for the U.S. Army Test and Evaluation Command (ATEC), and Army Transformation. Each initiative set forth in this program element is directly tied to tactical systems that support the following Army Modernization Plan operational capability areas: Dominate Maneuver, Full Dimensional Protection, Precision Engagement, and Focused Logistics. The cornerstone of this effort is the Operational Test-Tactical Engagement System (OT-TES) vice Objective Real-Time Casualty Assessment and Instrumentation Suite (Objective RTCA) that provides users a high fidelity, realistic, real-time capability to measure the performance of hardware and personnel under tactical conditions for small and large-scale operations (up to 1,830 players). OT-TES allows the U.S. Army to test all Current-to-Future, Future Force, and Future Combat Systems (FCS) capabilities in a force-on-force operational environment. OT-TES Research, Development, Test and Evaluation (RDTE) develops performance enhancements and technology upgrades to the Command, Control and Communications (C3) Center, Communications Network, weapons system interfaces, dismounted-troop vest and peripherals, Global Positioning System (GPS), encryption components and integrates high-fidelity digital battlefield data collection and analysis tools. These tools will collect, store and analyze data from the digital battlefield. These improvements will enable OT-TES to measure and record accrued damage, levels of exposure, effects of countermeasures, evasive action, and instrument threat vehicles, while significantly reducing system intrusiveness and increase the safety of current instrumentation for both vehicle and dismounted instrumentation. Instrumentation does not presently exist to monitor, record, stress, and analyze the effects of the digital battlefield in realistic operational scenarios. This capability is required by the operational test community to integrate digital battlefield data collection and analysis tools into the Mobile Automated Instrumentation Suite (MAIS) as enhancements to the fielded MAIS system. These tools will collect, store and analyze data from this new dimension of digital battlefield warfare. The ability to fully stress the entire battlefield with numerous simulated entities presents opportunities for significant cost savings and greater realism than would otherwise be achievable. This effort responds to the current Operations Tempo (OPTEMPO) and Personnel Tempo (PERSTEMPO) demands to force the U.S. Army to conduct more realistic, more accurate, and comprehensive evaluations at reduced costs by virtually replicating a greater number of troop resources in force-on-force testing and training exercises. Personnel and resource cuts have already been taken in the test community predicated upon data reduction/analysis streamlining provided by this capability.

Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS) Enterprise Integration Solution (EIS) is the operational test environment for FCS and the Future Force. OASIS EIS provides the integrated environment required for testing of network centric systems in a realistic operational environment.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
OT-TES: Develop improved communications architecture, rotary-wing instrumentation, new encryption capabilities, and geometric pairing technologies. Complete development of weapons performance modules, player unit upgrades, and Air Defense Artillery fly-out models. The program is also providing funding to the One Tactical Engagement Simulation System (One TESS) to support the integration of specific test requirements into One TESS.	15179	18038	19682	19541
Develop Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS)Enterprise Integration Solution (EIS).	1213	1336	1358	1332
Network Centric Warfare Digital Battlefield: Develop the next generation test and training integrated technologies required to support the future mission of the evolving battle space.	1500	1100		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)				February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>			PROJECT <b>986</b>
Small Business Innovative Research/Small Business Technology Transfer Programs			564		
Total		17892	21038	21040	20873

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
6 - Management support		0605103A - Rand Arroyo Center						732
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
732 ARROYO CENTER SPT	20382	21234	16342	16444	16688	17145	17525	17906

**A. Mission Description and Budget Item Justification:** This program funds the RAND Arroyo Center, the Department of the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis. The Arroyo Center draws its researchers from RAND's staff of nearly 700 professionals trained in a broad range of disciplines. Most staff members work in RAND's principal locations-Santa Monica, California; Arlington, Virginia; and Pittsburgh, Pennsylvania. The RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, grouped in four major research areas: Strategy, Doctrine, and Resources; Military Logistics; Manpower and Training; and Force Development and Technology. The RAND Arroyo Center research agenda is primarily focused on mid/long-term concerns. Results and analytical findings directly affect senior leadership deliberations on major issues. Arroyo Center research is sponsored by the Chief of Staff, Vice Chief, the Deputy Chiefs of Staff of the Army; the Army Assistant Secretaries; and most of the Army's major commands. The Arroyo Center is provided guidance from the Army through the Arroyo Center Policy Committee (ACPC), which is co-chaired by the Vice Chief of Staff of the Army and the Assistant Secretary of the Army (Acquisition, Logistics and Technology). The ACPC reviews, monitors, and approves the annual Arroyo Center research plan. Each project requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis. RAND Arroyo provides the Army with a unique multidisciplinary capability for independent analysis.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Research addressing the Army's transformation to meet near-term challenges: key issues for the Army, including implications of network-centric insurgencies; support to the unit-focused stability effort; Combat Training Center (CTC) training effectiveness; support to Officer Personnel Management System (OPMS 3); alternative medical force structures; Army Working Capital Fund (AWCF) for an expeditionary Army; integrating APS with the supply chain; and lessons from Stryker support in Iraq.		500	700	800
Research addressing the Army's transformation to shape the future force: key issues for the Army in laying out long-term alternatives, including future strategic challenges, operational cognition, support to Unified Quest '05, budget implications of current operations; and improving fleet recap planning; improving jointness and interdependence, including improving joint blue force Situational Awareness (SA), training strategies for the Brigade Combat Team-Unit of Action (BCT-UA), and integrating Army requirements and Defense Logistics Agency (DLA) contingency planning; technology for future forces, including future force reconnaissance capabilities, robotics for future forces, fusion architectures for Stability and Support Operations (SASO), architecture options for future forces, behavior based modeling, and RF Spectrum access; logistics support to future forces, including sustaining simultaneous distributed operations and assessment of Future Combat System (FCS) sustainability requirements; and cooperation with friends and allies, including compatibility with new allies, and Army international affairs activities and force compatibility.	2008		2000	1500
Research addressing support to current operations: key issues for the Army in continuing military operations in Afghanistan and Iraq; measuring Army effectiveness in the Global War on Terrorism (GWOT); access to soldiers for deployment; strengthening Army recruiting and retention; evaluation of unit-based leader-development programs; adapting Combat Training Center (CTC) training proficiency to demands of the Contemporary Operating Environment (COE); and anticipating adaptive enemies.	2500	3569	3500	3944
Research addressing the Army's transformation to meet near-term challenges: Implementing Army Force Generation (ARFORGEN) for a modular force, including unit-focused stabilization; Units of Action (UAs) and manning the force; training and readiness strategies to	4958	3783	3342	3500

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)				February 2007	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT
<b>6 - Management support</b>		<b>0605103A - Rand Arroyo Center</b>			<b>732</b>
support ARFORGEN; and optimizing Combat Service Support (CSS) capabilities. Improving doctrine/organization for Stability and Support Operations/Counterinsurgency (SASO/COIN), including the implications for the Army of irregular warfare; improving doctrine and planning for stability operations; dominating complex terrain; integrating Information Operations (IO) into planning and execution of military operations; and building transitional security capabilities. Managing the tech challenges of transformation, including managing the Future Combat System (FCS) program; recapitalizing Army Battle Command System (ABCS); Optimizing the ground force network; and integrating UAV capabilities into UA networks. Supporting the transforming force, including improving Army repair parts inventories; and supply chain integration with government providers.					
Research addressing the Army's enduring challenges: key issues for the Army in shaping and staffing the force, including assessing effectiveness of a tier-two attrition screen program, and support to Army review of the Officer Personnel Management System (OPMS); and key issues for the Army in supporting the force, including improving depot supply chain management, identifying best Performance Based Logistics (PBL) practices; evaluating the Army's organic technical capabilities, and implementing best purchasing and supply management practices.		4284	3879	1500	1200
Research addressing the Army's transformation to shape the future force: key issues for the Army, including reexamining strategic guidance for the US Army; dealing with nuclear weapons; support to TRADOC war-game; building partner capability for coalition operations; assessing the value of commonality and families of systems; developing a total Condition Based Maintenance (CBM) program; evaluating the state of automated fusion; simulating robotics concepts; and future force vulnerability assessment.		6632	9503	5300	5500
Total		20382	21234	16342	16444

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007		
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605103A - Rand Arroyo Center</b>				PROJECT <b>732</b>	
<b><u>B. Program Change Summary</u></b>			FY 2006	FY 2007	FY 2008	FY 2009		
Previous President's Budget (FY 2007)			23460	20171	21037	21588		
Current BES/President's Budget (FY 2008/2009)			61626	65325	66921	65004		
Total Adjustments			38166	45154	45884	43416		
Congressional Program Reductions				-81				
Congressional Rescissions								
Congressional Increases				1300				
Reprogrammings			-3078	-156				
SBIR/STTR Transfer								
Adjustments to Budget Years					-4695	-5144		
Change Summary Explanation: FY07 Congressional add for analytical and technical support (\$1300). FY08 - 09 Realigned to higher priority programs.								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605301A - ARMY KWAJALEIN ATOLL</b>					PROJECT <b>614</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
614 ARMY KWAJALEIN ATOLL	156212	176916	182136	166772	166876	169081	163482	166991

**A. Mission Description and Budget Item Justification:** In FY07, funding increases to reestablish the necessary funding baseline needed to operate Kwajalein Atoll and the testing range. Funding reflects the Army leadership actions to comply with the Bob Stump National Defense Authorization Act (NDAA) for FY 2003 (Public Law 107-314, December 2002). In accordance with the NDAA, Sec. 232, "The Secretary of Defense shall establish the objective of ensuring that, by FY 2006" ...the institutional and overhead costs of a facility or resource of a military department or Defense Agency that is within the Major Range and Test Facility Base are fully funded....The term "institutional and overhead cost" means the costs of maintaining, operating, upgrading, and modernizing the facility or resource; and does not include any incremental cost of operating a facility or resource that is attributable to the use of the facility or resource for testing under a particular program." The U.S. Army Kwajalein Atoll/Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS), located in the Republic of the Marshall Islands, is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). Its function is to support test and evaluation of major Army and DoD missile systems and to provide space surveillance and space object identification in support of US Strategic Command and National Aeronautics and Space Administration (NASA) scientific and space programs. Programs supported include Army missile defense, Missile Defense Agency (MDA), demonstration/validation tests, Air Force Intercontinental Ballistic Missile (ICBM) development and operational tests, U.S. Space Surveillance Network, and NASA Space Transportation System (Shuttle) and orbital debris experiments. The technical element of USAKA/RTS is the RTS, which consists of a number of sophisticated, one-of-a-kind, radar, optical, telemetry, command/control/communications, and data reduction systems. These systems include the four unique radars of the Kiernan Reentry Measurement Site (KREMS); Super Recording Automatic Digital Optical Tracker (SRADOT) long range video-metric tracking systems; high density data recorders for high data-rate telemetry collected by nine antennas; underwater acoustic impact location system; and data analysis/reduction hardware/software. USAKA/RTS is government-managed/contractor-operated (GMCO) and is therefore totally dependent upon its associated support contractors. Program also provides funds for the contractors to accomplish installation operation and maintenance (O&M) and provides mission essential bandwidth via lease of fiber optics cable system. Funding is required to maintain minimal O&M support, while accepting moderate risk of continued degradation of USAKA/RTS infrastructure (housing, offices, facilities), higher future repair costs, and reduced logistical support capability. The Army, Air Force, Navy and MDA have programs planned, which have significant test and data gathering requirements at USAKA/RTS. Air Force programs require firing from Vandenberg Air Force Base, CA, with complete data collection during late mid-course and terminal trajectory. MDA programs require range sensors to collect technical data in support of Ground Based Mid-Course Missile Defense (GMD) and Theater Missile Defense (TMD) programs. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of USAKA/RTS. Program supports US Strategic Command (STRATCOM) requirements for data collection on objects in space. The Advanced Research Project Agency (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radar located at USAKA/RTS, are two of only three radars world-wide that have deep-space tracking capability. Program supports Air Force's Peacekeeper, Minuteman III, and Delta; MDA's GMD tests, Ground Based Radar (GBR), Battle Management/Command, Control and Communications (BMC3), In-Flight Interceptor Communication System (IFICS) data terminals; Army/MDA PAC-3, System Integration of Tests, Family of Systems, Critical Measurements Program (CMP), Patriot, and ground-based radar; and NASA's Space Transportation System (STS), Small Expendable Deployer System and Orbital Debris Measurement Programs; and the Air Force Space and Missile Center's associated programs.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Provide management support (salaries, training, travel, Space & Missile Defense Command (SMDC) matrix, etc).	11495	11964	12443	12770

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605301A - ARMY KWAJALEIN ATOLL</b>		<b>614</b>	
Accomplish facility maintenance and repair projects, including design.	4141	7400	7500	7700
Procure petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP) items.	26263	26140	26140	26140
Procure other mission operating supplies, equipment and services.	5604	5716	5842	5970
Provide air and sea transportation (cargo to and from continental United States).	4884	4982	5082	4574
Kwajalein Cable System (KCS) fiber optic cable lease.	200	4700	6300	6300
Continue to support Army, MDA, NASA and Air Force development and operational missile testing. Includes institutional funding of maintenance and overhead costs to comply with the Bob Stump National Defense Authorization Act (NDAA) for FY2003 (Public Law 107-314, December 2002).	41048	45834	46842	47873
Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.	62577	65420	69787	54745
RTS Distributed Operations.			2200	700
Small Business Innovative Research/Small Business Technology Transfer Programs.		4760		
Total	156212	176916	182136	166772

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007		
BUDGET ACTIVITY 6 - Management support			PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL				PROJECT 614	
<u>B. Program Change Summary</u>			FY 2006	FY 2007	FY 2008	FY 2009		
Previous President's Budget (FY 2007)			153317	178891	136855	120792		
Current BES/President's Budget (FY 2008/2009)			61626	65325	66921	65004		
Total Adjustments			-91691	-113566	-69934	-55788		
Congressional Program Reductions				-676				
Congressional Rescissions								
Congressional Increases								
Reprogrammings			2895	-1299				
SBIR/STTR Transfer								
Adjustments to Budget Years					45281	45980		
Change Summary Explanation: Increase in FY08 and FY09 was necessary to fund critical requirements for continued test mission and base operations (to bring installation to standard avoiding future health and safety hazards). In addition, increase was to comply with Section 232(a)2 of Bob Stump National Defense Authorization Act for FY 2003 that provides funds T&E Mission Operations of the Reagan Test Site.								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605326A - Concepts Experimentation

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	37283	25293	34004	28440	22467	23646	27226	27669
308 Concepts Experimentation	15625	3906						
312 Army/Joint Experimentation	19158	18592	32145	26549	20532	21953	25499	25898
33B SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	2500	2795	1859	1891	1935	1693	1727	1771

**A. Mission Description and Budget Item Justification:** A. Mission Description and Budget Item Justification: Funding for the Army Concept Development and Experimentation Campaign Plan mission enables integrated examinations with US Joint Forces Command (USJFCOM), Army Test and Evaluation Command (ATEC), Research, Development, and Experimentation Command (RDECOM), Army battle laboratories, operational units, research labs, materiel developers, industry and academia for the development, refinement, and assessment of future force concepts and concept capability plans to inform the CIDS process and shape future requirements, enabling identification and acquisition of critical DOTMLPF capabilities for the future force in order to provide the land power capabilities needed by the Joint Force commander and establish the Army as a purposely interdependent and expeditionary component of the future Joint force. Enables the Air Assault Expeditionary Force Spirals, the Army's principle live discovery examinations to determine impacts on leaders from increased mental demands and complexities from enhanced situational awareness, requirements of sensor planning, employment and management of accelerated decision cycles in a network-enabled force, training requirements of new technologies (e.g. Unmanned Ground Vehicles, Unmanned Aerial Vehicles, and battle command systems and communications); Digital Warfighter Exercises addressing the required capabilities of future echelons above Brigade command posts; and Battle Command On The Move developments.

The Asymmetric Warfare program provides a method for Army to keep the Current Force current/relevant as adversaries adapt and the operating environment changes. As capability gaps identified by deployed forces reveal shortfalls that impact effectiveness or interoperability, and these capability gaps are prioritized by Army, this program provides the ability for Army to evaluate high priority/high leverage solutions from industry during the current year, with highest priority going to candidates that cover multiple capability gaps. Funding provides the ability to identify and insert leading-edge technology from industry to deployed forces in an incremental manner by leveraging the best ideas of best-positioned Program Manager/Program Executive Officers and pulling, or spiraling, them forward for immediate use in the theater. Asymmetric Warfare program will ensure that a solution's proposed gain in capability is not offset by a disruption caused by integration problems. Program enables the holistic demonstration, assessment and deployment of critically needed capabilities to the current force in an integrated environment in the current year.

Additional funds in FY 2008 and FY 2009 provided for new Future Combat System Brigade Combat Team (FCS BCT) & Spin Outs Developments mission. Will enable final validations for FCS Doctrine, Organization, Training and Leader Development(DOTL) products in support of FCS Spin Out capabilities for 2010 - Modular Brigade Combat Team (MBCT) and the FCS BCT. The program provides program analytic support to Spin Outs 2-4. It also provides systems analysis, data development, and technology assessments for the main FCS PoR and Spin Outs 2-4. Additionally, it will provide technology evaluations and assessments, system concept evaluations, and integrated concept/product teams.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605326A - Concepts Experimentation**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	38496	21626	21466	22184
Current BES/President's Budget (FY 2008/2009)	37283	25293	34004	28440
Total Adjustments	-1213	3667	12538	6256
Congressional Program Reductions		-97		
Congressional Rescissions				
Congressional Increases		3950		
Reprogrammings	-1213	-186		
SBIR/STTR Transfer				
Adjustments to Budget Years			12538	6256

Change Summary Explanation: FY 07 Congressional increases as follows: (1) Automated Language Translator - 2,300; (2) Online Arabic Language Learning Community - 1,650. FY08/FY09: Additional funds in FY 2008 and FY 2009 were provided to new Future Combat System Brigade Combat Team (FCS BCT) and Spin Out developments mission (see Mission Description above).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605326A - Concepts Experimentation**

PROJECT

**312**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
312 Army/Joint Experimentation	19158	18592	32145	26549	20532	21953	25499	25898

**A. Mission Description and Budget Item Justification:** A. Mission Description and Budget Item Justification: Funding for the Army Experimentation mission enables integrated examinations with US Joint Forces Command (USJFCOM), Army Test and Evaluation Command (ATEC), Research, Development, and Experimentation Command (RDECOM), Army battle laboratories, operational units, research labs, materiel developers, industry and academia for the development, refinement, and assessment of future force concepts and concept capability plans to inform the CIDS process and shape future requirements, enabling identification and acquisition of critical DOTMLPF capabilities for the future force in order to provide the land power capabilities needed by the Joint Force commander and establish the Army as a purposely interdependent and expeditionary component of the future Joint force. Enables the Air Assault Expeditionary Force Spirals, the Army's principle live discovery examinations to determine impacts on leaders from increased mental demands and complexities from enhanced situational awareness, requirements of sensor planning, employment and management of accelerated decision cycles in a network-enabled force, training requirements of new technologies (e.g. Unmanned Ground Vehicles, Unmanned Aerial Vehicles, and battle command systems and communications); Digital Warfighter Exercises addressing the required capabilities of future echelons above Brigade command posts; and Battle Command On The Move developments.

TRADOC's Asymmetric Warfare mission (previously referred to as Spiral Developments program) is to provide rapid capability development and the insertion of new warfighting capabilities into deployed Army units. Two significant problem sets exist in this area for the Army and TRADOC. First, there is a significant difference between the way Army forces are operating in the field and the way they were designed to operate. Secondly, there is a fast-growing backlog of capabilities that need to be assessed in terms of how well those capabilities are doing what they were intended to do. These two problem sets have never been more evident and critical than today, when the pace at which units and technology are evolving is being driven by the need to adapt to an enemy that not only employs asymmetric means, but also quickly adjusts to our own changes. This creates significant challenges for TRADOC - challenges of integrating key activities across DOTMLPF associated with accelerated capabilities development. Specific examples include integrating those activities that support the full spectrum of complex operations associated with asymmetric warfare in the areas of defeating improvised explosive devices (IED), Electronic Warfare (EW), Information Operations (IO) and Force Protection (FP).

Additional funds in FY 2008 and FY 2009 provided for new Future Combat System Brigade Combat Team (FCS BCT) & Spin Outs Developments mission. Will enable final validations for FCS Doctrine, Organization, Training and Leader Development(DOTL) products in support of FCS Spin Out capabilities for 2010 - Modular Brigade Combat Team (MBCT) and the FCS BCT. The program provides program analytic support to Spin Outs 2-4. It also provides systems analysis, data development, and technology assessments for the main FCS PoR and Spin Outs 2-4. Additionally, it will provide technology evaluations and assessments, system concept evaluations, and integrated concept/product teams.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Asymmetric Warfare - Demo/Assess radar enhancements in support of Counter Rocket, Artillery and Missile (C-RAM)	2335			
Asymmetric Warfare - Demo/assess command and control capabilities for Maneuver Control System (MCS) modifications	2000			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605326A - Concepts Experimentation</b>		<b>312</b>	
Asymmetric Warfare - Demo/Assess Joint interoperability of emergent soldier protection capability	60	3000		
Asymmetric Warfare - Demo/Assess emergent remote operating weapons station capability	360	2800		
Asymmetric Warfare - Demo/Assess emergent explosives detection capability	200	2000		
Asymmetric Warfare - Demo/Assess emergent sensor integration solutions	1310	2450		
Asymmetric Warfare - Comprehensive Force Protection Initiative	44			
Wargaming - Unified Quest Army Title X Series of Wargames and Warfare Studies	4597			
Experimentation - Intelligence, Surveillance and reconnaissance Experiment	320			
Experimentation - unit of Action and Unit of Employment Sustainment and simulated experiments	2528			
Experimentation - high Fidelity Analysis and ACDEP sustainment	1369			
Experimentation - Network Operations Experiment	650			
Experimentation - World Class Blue Force analysts	3163	1894		
Experimentation - Modular Force - Joint Urban Resolve/Omni Fusion Experiment	207	700		
Experimentation - Air Assault Expeditionary Force Experiment - Spiral C in FY 06, Spiral D in FY 07	15	2000		
Experimentation - Battle Command on the Move Experiment		231		
Experimentation - Counter Insurgency and Digital Warfighter Experiments		1767		
Experimentation - Earth, Wind and Fire Experiment		1410		
Experimentation - Sustainment Brigade and Operational Level Logistics Concept Experiment		340		
Experimentation requirements will be determined at the FY 08 and FY 09 ACDEP conferences.			21600	10555
Asymmetric Warfare requirements will be determined at the FY 08 and FY 09 Asymmetric Warfare conference.			10545	15994
Total	19158	18592	32145	26549

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)							February 2007		
BUDGET ACTIVITY 6 - Management support			PE NUMBER AND TITLE 0605326A - Concepts Experimentation				PROJECT 33B		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
33B	SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	2500	2795	1859	1891	1935	1693	1727	1771
<b>A. Mission Description and Budget Item Justification:</b> This project will provide early application of human performance and human figure modeling tools in the development of Soldier-focused requirements to shape technology for Army Transformation. Design analyses, constructive simulations and Soldier-in-the-loop assessments will ensure that manpower requirements, workload and skill demands are considered, avoid information and physical task overloads, and take optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this project is performed by the Army Research Laboratory (ARL).									
<b>Accomplishments/Planned Program:</b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide dedicated modeling and analysis cell for early and accurate Manpower and Personnel Integration (MANPRINT) estimates to Army Materiel Command (AMC), AMC Research, Development, and Engineering Command (RDECOM) and its Research, Development, and Engineering Centers (RDECs), TRADOC Centers, Schools and Battle Laboratories, Army Test and Evaluation Command (ATEC) and other service laboratories. In FY06, extended Stryker based analyses of maintenance manpower and personnel to Brigade Combat Team (BCT) platforms. Recommended changes to air and missile defense training, personnel, and unit configuration practices and branch assignment policies. In FY07, verify Soldier centered analysis impacts in force modernization systems and transition lessons learned to influence future requirement definitions. In FY08, conduct and improve MANPRINT assessment processes with increased emphasis on system of systems analyses. In FY09, apply cross domain MANPRINT risk (i.e. manpower, personnel, training, systems engineering, safety) tradeoff tools to the user, acquisition and test & evaluation communities for more cost effective risk mitigation.						1175	1301	1043	1054
Provide Human Factors Engineering and Manpower and Personnel Integration (MANPRINT) support to Training and Doctrine Command (TRADOC) Centers, Schools and Battle Laboratories. In FY06, analyzed potential crew task loading and workstation design issues to support enhanced area security for future forces. In FY07, will support future force requirements determination using Soldier centered analysis of proposed concepts. In FY08, increase use of quantitative analyses methods to quantify MANPRINT risks in MANPRINT assessment documents. In FY09, will leverage enhancements in analysis tools and methods and human behavior simulation to support a wider range of development programs.						1325	1494	816	837
Total						2500	2795	1859	1891

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605601A - ARMY TEST RANGES AND FACILITIES</b>					PROJECT <b>F30</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
F30 ARMY TEST RANGES & FACILITIES	349783	385498	357964	343030	339850	323918	331027	338632

**A. Mission Description and Budget Item Justification:** Funding, beginning in FY 2006, reflects realignment to comply with Section 232 of the FY2003 National Defense Authorization Act (NDAA) requiring Major Range and Test Facility Bases (MRTFBs) to be fully funded and that DoD test customers be charged for direct cost only. The new law precludes the MRTFBs from charging customers for efforts not directly identifiable to a specific program and requires Office of the Secretary of Defense(OSD) certification to Congress of funding adequacy. Funding was realigned from the Army Program Executive Officers/Program Managers and non-Army DoD customers to this program element.

This project also funds the indirect test costs associated with rapidly testing field systems and equipment needed in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) such as Individual soldier protection equipment and Counter Measures for Improvised Explosive Devices (IEDs) and uparmoring the Army's wheeled vehicle fleet. This project sustains the developmental Test & Evaluation capability required to support Army transformation as well as Joint Service or Other Service systems, hardware, and technologies. Unclassified systems scheduled for developmental testing encompass the entire spectrum of transformation weapons systems such as: up-armoring vehicle ballistic protection on the Buffalo, Cougar, Family of Medium Tactical Vehicles Long Term Armor Strategy (FMTV LTAS), and Joint Light Tactical Vehicle (JLTV); Stryker upgrades; armor gun shields for tactical vehicles; reactive and active armor on the Stryker; Personnel Screening Systems; Electronic Countermeasure Devices (ECMDs); Body Armor; and High Mobility Multipurpose Wheeled Vehicle (HMMWV). Capabilities are also required to support System-of-Systems and network centric systems to include Future Combat System(FCS) testing.

This project provides the institutional funding required to operate the developmental test activities required by Department of Defense (DoD) Program Executive Officers, Program and Product Managers, and Research, Development, and Engineering Centers. This project provides resources to operate four DoD Major Range and Test Facility Bases (MRTFBs): White Sands Missile Range (WSMR), NM; Aberdeen Test Center (ATC), MD; Electronic Proving Ground (EPG), AZ; and Yuma Proving Ground (YPG), AZ (to include management of Army natural environmental testing at Cold Regions Test Center, Fort Greely and Fort Wainwright, AK, and Tropic Regions Test Center at various locations). This project also funds the Army's developmental test capability at Aviation Technical Test Center (ATTC), AL; and Redstone Technical Test Center (RTTC), AL. Test planning and safety verification at Headquarters, U.S. Army Developmental Test Command (DTC), MD is also supported by this program element.

This project finances overhead test operating cost not appropriately billed to test customers, replacement of test equipment, and test revitalization/upgrade projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. The developmental test capabilities at these test ranges have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, and quality of materiel in development and in production.

Direct costs are borne by materiel developers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Mission Support. Funds support test equipment upgrade and maintenance; test facility maintenance; routine calibration; handling and	93136	105508	107658	109926

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605601A - ARMY TEST RANGES AND FACILITIES</b>		<b>F30</b>	
disposal of hazardous materials, transportation, postage, administrative supplies; tools; software; spare parts; test support vehicle maintenance; mission unique installation costs; temporary duty/training of civilian and contractor personnel; printing and reproduction; utilities; communications; land leases; and range road maintenance not billable in accordance with NDAA. Effective beginning in FY 06, funding supports indirect cost previously paid by the customer for which funding was realigned, as approved by Assistant Secretary of the Army for Acquisition, Logistics and Technology and validated by Deputy Assistant Secretary of the Army for Cost and Economics, from the Army PEO/PMs and non-Army DOD customers.				
T&E Civilian Pay. This funding supports the overhead costs of the civilian labor for Program Budget Guidance (PBG) authorizations in accordance with NDAA. The balance is customer funded. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. Funding is essential to maintain core T&E skills as part of the Government civilian workforce.	134276	140551	131604	125581
Contractor Pay. This funding supports contractor labor costs not appropriately billable to the customer in accordance with NDAA. Contract labor is essential to augment core civilian T&E personnel. Functions performed include range operations, automotive test support, radar maintenance, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and automatic data processing support. Effective beginning in FY06, funding supports contractor efforts related to mission support. These costs were previously paid for by the customer prior to implementation of the FY2003 National Defense Authorization Act.	112371	121799	108702	97523
Revitalization/Upgrade of test infrastructure and capabilities. Beginning in FY06, MRTFBs are required to use institutional funding to sustain, upgrade or create capabilities that support multiple customers. In FY06, funded projects upgraded test capabilities to support live fire and armor vulnerability testing. For FY07 through FY09 funding has been focused on improving test and evaluation capabilities for distributed test operations, joint and Army network centric testing.	10000	10000	10000	10000
Small Business Innovative Research/Small Business Technology Transfer Programs		7640		
Total	349783	385498	357964	343030

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)					February 2007
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT
6 - Management support		0605601A - ARMY TEST RANGES AND FACILITIES			F30
<b><u>B. Program Change Summary</u></b>		FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)		364007	389840	376413	361966
Current BES/President's Budget (FY 2008/2009)		37283	25293	34004	28440
Total Adjustments		-326724	-364547	-342409	-333526
Congressional Program Reductions			-1511		
Congressional Recissions					
Congressional Increases					
Reprogrammings		-14224	-2831		
SBIR/STTR Transfer					
Adjustments to Budget Years				-18449	-18936
<p>FY 2006 was reprogrammed to higher priority requirements.</p> <p>FY 2007 was reprogrammed to higher priority requirements.</p> <p>FY 2008 and FY 2009 was realigned to higher priority requirements.</p>					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605602A - Army Technical Test Instrumentation and Targets**

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
	Total Program Element (PE) Cost	54039	80467	74391	75067	74381	58293	59730	61046
628	Developmental Test Technology & Sustainment	37441	51831	45930	46421	44558	35435	36213	37010
62B	OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	9920	14511						
62C	MODELING AND SIMULATION INSTRUMENTATION	6678	14125	28461	28646	29823	22858	23517	24036

**A. Mission Description and Budget Item Justification:** Increased funding beginning in FY 2007 provides sustainment and improvements to the Army's test infrastructure reflecting an Army leadership decision supporting Congressional and Office of Secretary of Defense interest in implementing the Defense Science Board (DSB) recommendations to increase Test and Evaluation (T&E) funding. The DSB report indicated that testing is not being adequately conducted, resulting in latent defects that can be very costly and impact system's operational effectiveness and that the acquisition process is not delivering high quality, reliable and effective equipment to our military forces. Limited T&E instrumentation investments are a major contributor to the lack of testing and the problems described in the DSB report. Effective FY08, 62B and 62C were combined into one line - 62C - to accurately reflect the interwoven use of both Modeling and Simulation (M&S) and instrumentation in support of operational and developmental testing.

This Program Element provides critical front-end investments for development of new test methodologies; test standards; advanced test technology concepts for long range requirements; future test capabilities; advanced development of M&S and instrumentation prototypes; and the full development of systems for the United States Army Test and Evaluation Command (ATEC), which includes the Developmental Test Command (DTC) at Aberdeen Proving Ground, Maryland and the Operational Test Command (OTC) at Ft Hood, Texas. DTC consists of seven Test Centers: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; Yuma Proving Ground (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropical Regions Test Center, Hawaii); Aviation Technical Test Center (ATTC), Fort Rucker, Alabama; Redstone Technical Test Center (RTTC), Redstone Arsenal, Alabama; and Dugway Proving Ground (DPG), Utah. OTC consists of four forward Test Directorates (Airborne Special Operations Test Directorate, Fort Bragg, North Carolina; Air Defense Artillery Test Directorate, Fort Bliss, Texas; Fire Support Test Directorate, Fort Sill, Oklahoma; and Intelligence Electronic Warfare Test Directorate, Fort Huachuca, Arizona) together with five other Test Directorates (Aviation; Close Combat; Command, Control, Communications, and Computers; Engineer and Combat Support; and Future Force) at Ft Hood, Texas. These capabilities support the development and fielding cycle of the Army Transformation as well as Joint Vision 2020 initiatives. Sustainment funding maintains existing testing capabilities at both DTC and OTC by replacing unreliable, uneconomical, and irreparable instrumentation, as well as incremental upgrades of hardware and software for M&S and instrumentation systems to assure adequate test data collection capabilities. This data supports acquisition milestone decisions for all commodity areas throughout the Army including programs such as Future Combat Systems (FCS), Theater High Altitude Area Defense (THAAD), Patriot Advanced Capability Phase 3 (PAC 3), Mobile Gun System (MGS), Armed Reconnaissance Helicopter (ARH), Joint Network Node - Network (JNN-N), Warfighter Information Network - Terrestrial (WIN-T), Joint Tactical Radio System (JTRS), Net Enabled Command and Control (NECC), and the Army Battle Command System (ABCS) with includes Force XXI Battle Command Brigade and Below (FBCB2)/Blue Force Tracking (BFT). This Program Element develops and sustains developmental and operational test capabilities that provide key support to the Army's Transformation. In addition this Program Element supports the Global War on Terror by providing instrumentation to support ATEC's 24/7 mission at Yuma Proving Ground, Arizona - supporting the Joint Improvised Explosive Device Defeat Organization (JIEDDO) - as well as efforts throughout ATEC in support of the

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>	
Army's Rapid Equipping the Force (REF) initiative.		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605602A - Army Technical Test Instrumentation and Targets**

## B. Program Change Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	68299	74066	75267	75308
Current BES/President's Budget (FY 2008/2009)	54039	80467	74391	75067
Total Adjustments	-14260	6401	-876	-241
Congressional Program Reductions		-307		
Congressional Rescissions				
Congressional Increases		7300		
Reprogrammings	-14260	-592		
SBIR/STTR Transfer				
Adjustments to Budget Years			-876	-241

FY 2006 funding was realigned to higher priority requirements. FY 2007 Congressional increases for Chemical Biological Defense Material Test and Evaluation Initiative (\$1.65 million), Dugway Testing and Infrastructure Upgrade (\$1.1 million), Mobile Optical Tracking System (\$1.95 million), White Sands Missile Range Study (\$2.6 million). FY 2008 and FY 2009 funding was realigned to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>6 - Management support</b>		<b>0605602A - Army Technical Test Instrumentation and Targets</b>						<b>628</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
628	Developmental Test Technology & Sustainment	37441	51831	45930	46421	44558	35435	36213	37010

**A. Mission Description and Budget Item Justification:** This program provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC), which includes: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; Yuma Proving Ground (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropic Regions Test Center, at various locations); Aviation Technical Test Center (ATTC), Fort Rucker, Alabama; Redstone Technical Test Center (RTTC), Redstone Arsenal, Alabama; and Dugway Proving Ground (DPG), Utah. These capabilities are required to support developmental testing requirements of high priority Army systems being rapidly fielded to Iraq and Afghanistan, and those systems supporting Army Transformation.

A key element within this program is building the Army's network-centric test capability. This capability, comprised of modern simulation and internetting technologies, uses the Department of Defense Architecture Framework to integrate live, virtual and constructive models in realistic live and synthetic environments. A network of Distributed Test Control Centers (DTCCs), each connected to the Defense Research and Engineering Network (DREN), has been installed at each Army test range to bring all of the Army's test capabilities to bear on the complex challenge of system-of-systems testing. Within the DTCC network, an Inter-Range Control Center (IRCC), installed at White Sands Missile Range (WSMR), serves as the primary interface between ATEC test ranges and the Future Combat Systems Lead Systems Integrator System-of-Systems Integration Laboratory (SOSIL). The IRCC will facilitate a complete virtual replication of the battlespace using distributed test assets to exercise, measure and analyze the synergies achieved through the system-of-systems architecture. It will serve as the central test control for distributed tests involving multiple ranges and the SOSIL, and will provide the central analytic data center for comparing tactical common operational pictures with ground truth. This technology investment follows Office of Secretary of Defense guidance for Test and Evaluation test architectures and test and training range interoperability.

Sustaining instrumentation maintains existing capabilities at test facilities by replacing unreliable, uneconomical and irreparable instrumentation, as well as incremental upgrades of instrumentation and software, to assure adequate test data collection capabilities. This project develops and sustains developmental test instrumentation and capabilities that provide the data necessary to support acquisition milestone decisions for all commodity areas throughout the Army and in direct support of all Army Transformation Elements.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Provides command-level oversight, management and technical support for the DTC test technology and instrumentation investment programs. Technical support includes requirements development, project prioritization and execution of investments accounts for Small Business Innovation Research, Major Construction, Army (MCA), Unspecified Minor MCA, Revitalization and Upgrade of facilities, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation (T&E) Investment, and the Central T&E Investment Program. Provides support to ATEC Domain Teams in coordinating development of common instrumentation and technology needs for developmental and operational testing. Provides management and support costs for direct interface with the T&E Executive Agent, management of needs and solutions calls for T&E Reliance oversight, and support of the Army principal of the	5833	5301	5117	5074

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605602A - Army Technical Test Instrumentation and Targets</b>		<b>628</b>	
Test Resource Advisory Group (TRAG).				
Development, acquisition and sustainment of critical test technology and instrumentation: Provides and maintains the necessary test instrumentation, computer and communications systems, data collection, analysis and reporting equipment and other test capabilities to successfully develop and test the Army Future Force. Acquires instrumentation for reliability, availability and maintainability data collection on tracked and wheeled vehicles; replaces automotive transducers for measuring vibration and engine performance and ballistic transducers for measuring chamber pressures during ammunition tests; supports development of common data collection instrumentation used in developmental and operational testing across all test commodity areas; acquires instrumentation for electromagnetic environment effects on ground and air systems; continues replacement and upgrade of range control instrumentation, radar, optics and telemetry equipment used in missile testing; acquires data recorders, signal conditioning equipment, data processing equipment and other instrumentation for aircraft and Unmanned Aerial Systems (UAS) tests; upgrades natural environments test instrumentation used for testing weapon systems, vehicles, munitions and support equipment in extreme hot desert environments as well as extreme cold conditions; continues upgrade of survivability/vulnerability test capabilities in support of live fire and active protection systems; upgrades and replaces mobile range communications equipment and digital end devices and develops advanced test technologies and instrumentation for testing next generation materiel such as hybrid electric propulsion systems, advanced armor protection, multi-spectral sensors, and advanced soldier systems. Funding increase in FY07-FY10 upgrades and replaces an accumulated backlog of obsolete and maintenance intensive instrumentation, which is required to reduce cost growth and achieve personnel efficiencies.	11629	28031	26825	26903
Support of simulation and distributed testing: Provides the necessary synthetic test environments, hardware-in-the-loop capabilities and models and simulations to successfully develop and test the Army Future Force. Continues development of test control simulation tools and test beds which integrate actual field instrumentation data with existing simulations and models to conduct test range management, test setup, simulation model validation and test result validation. Synthetic Environment Integration projects are used to develop and demonstrate the ability to tie all geographically dispersed Army test ranges and synthetic battle-space representations together for system of systems level testing. The Future Combat System (FCS) Lead Systems Integrator and the Program Manager (PM), FCS (BCT) Future Combat System Brigade Combat Team, have built this distributed test capability into their testing strategy. These projects also fund a collaborative knowledge management system to provide a common access for all data/documents within the Army test community. Continues development of a High Level Architecture (HLA) and Department of Defense Test and Training Enabling Architecture (TENA) compliant architecture for integrating internal and external models, software algorithms, virtual test tools, databases, and synthetic environments; integrate synthetic range and image generation, and acquisition of test support tools. Continues development of tools for control and conduct of live, virtual and constructive integrated tests in net-centric warfare environments.	14995	11780	13988	14444
The WSMR Film Elimination Congressional Add: Continues procurement and integration of technologically advanced commercial off-the-shelf digital imaging systems to replace legacy film-based imaging systems at WSMR. Supports non-tracking instruments by acquiring mobile launch support network vans; lenses, portable field computers, field storage devices, media duplicators; and equipment for digital imaging, reproduction, archiving and photo lab support in the Media Transfer Facility.	2013			
WSMR Accelerator Based Neutron Production Study Congressional Add: Supports development of a facility for providing neutron radiation test environments for nuclear effects testing using other than conventional fission reactor technology. The alternative is required because the costs and risks associated with conventional fission reactor technology are prohibitive. The funding will provide an analysis and report on the feasibility of designing and building an alternative neutron radiation test environment for the Army	959			
Aberdeen Technology Transfer Initiative Congressional Add: Supports the issuance of approximately 15 technology transfer contracts to small businesses to enter into technology transfer agreements with Aberdeen Proving Ground (APG). Also supports APG Business	1053			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605602A - Army Technical Test Instrumentation and Targets</b>		<b>628</b>	
Development Office labor to research, define, and issue the contracts and to monitor the contracting effort.				
Dugway Testing and Infrastructure Upgrades Congressional Add: The Dugway Proving Ground is charged with testing a broad range of sensor technologies across a variety of operational scenarios and environmental conditions including those encountered in urban operations. This presents very challenging requirements for test and evaluation (T&E) tools that can provide both high-fidelity simulated results and accurate ground truth data for sensor performance verification. By tying the modeling and simulation (M&S) software tools more closely to the actual sensor ground truth instrumentation, a more comprehensive T&E capability can be achieved. This will enable DPG to substantially improve its capabilities for improving our defense against chemical, biological and radiological threats. The Defense Advanced Research Projects Agency is funding an effort to design and build a highly engineered autonomous version of an eye-safe LIDAR (light detection and ranging) system for detecting and mapping aerosols out to ranges greater than 10 kilometers. A breadboard version of this system was developed and deployed as part of the Pentagon Shield 2004 program. It provided unprecedented profiles of aerosol distributions and flow patterns in the vicinity of the Pentagon and will be deployed for full time unattended operation in support of the Pentagon Force Protection Agency. M&S software has also been developed for providing an understanding of how threat clouds will evolve on the battlefield and in urban environments as they are affected by meteorology and terrain. The purpose of this project is to build one or more eye-safe LIDAR referee systems, to develop elastic backscatter LIDAR calibration procedures and models, and to merge and fuse multiple LIDAR and other referee system data with atmospheric dispersion and LIDAR models, in order to generate the best possible aerosol cloud characterization and tracking.	959	1100		
Chemical Biological Defense Materiel Test and Evaluation Initiative (CBDMTEI) Congressional Add: Supports the creation of a Technology Development, Application and Commercialization Center to promote licensing of inventions and submission of research proposals. Also showcases DPG technology to business and education institutions, and sponsors activities to showcase capabilities of small business and educational institutions of interest to DPG.		1650		
White Sands Missile Range Study Congressional Add: Provides an updated range wide Environmental Impact Statement (EIS) that covers a broad range of joint RDT&E activities. WSMR is the largest major range and test facility base in the Department of Defense. A variety of test and training activities occur at WSMR, each of which require environmental consideration per the National Environmental Protection Act (NEPA) and state environmental regulations. As the range mission evolves to meet the DoD transformational needs, the environmental documentation, process and uses of the range must also evolve. On January 6, 2006, the Army announced the location of the Evaluation Brigade Combat Team at Ft. Bliss/White Sands Missile Range and the establishment of a center for conducting the system design and development of the Future Combat System. This new type of RDT&E activity will not only transform the Army, but it will transform the use of WSMR and the region support infrastructure.		2600		
Small Business Innovative Research/Small Business Technology Transfer Programs		1369		
Total	37441	51831	45930	46421

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>6 - Management support</b>		<b>0605602A - Army Technical Test Instrumentation and Targets</b>						<b>62B</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
62B	OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	9920	14511						

**A. Mission Description and Budget Item Justification:** This project provides for the technical development, enhancement, upgrade and maintenance of essential non-major instrumentation related technology programs. The various projects will achieve cost effective data collection, data reduction, data analysis, telemetry, and processing capability in support of robust and credible operational tests as required by the Department of Defense (DOD) and Congress. The increased sophistication of the Army's new weapons as well as communication and control systems demands new instrumentation's ability to capture test data non-intrusively. The data must be collected at high rates and in massive volumes. After the essential data is collected, it must be reduced to the essential elements necessary for effective evaluation. As the Army's digitization and transformation of the battlefield continues, this development effort allows Army Test and Evaluation Command's Operational Test Command (OTC) to modernize and develop its non-major instrumentation to be more robust, reliable and less intrusive in terms of integrating automated instrumentation during operational tests. The goal is to expand data collection, reduction, and analysis of the collected data and test control capability, while reducing future operational test costs. This project supports multiple instrumentation development efforts leading to improved command and control, increased mobility, expanded remote data collection from various tactical sites. In many instances instrumentation must have a transmission capability to central receiving, control, and evaluation stations at various test directorates, and the capability to support Real-Time Casualty Assessments which measures simulated attrition of forces during simulated battlefield engagements. OTC's test directorates are located at Fort Hood, TX, Fort Bragg, NC, Fort Bliss, TX, Fort Huachuca, AZ, and Fort Sill, OK. These programs support Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and the Current to Future transition path of the Transformation Campaign Plan. Beginning FY 2008 funding from PE Number 0605602A Project 62B for modeling, simulation, and instrumentation development and the subsequent sustainment of all systems are identified under the PE line 0605602A Project 62C.

<b>Accomplishments/Planned Program:</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY06 Accomplished Projects: The accomplished and planned projects fall within the test technology areas as outlined in the latest Army Test Resource Master Plan of June 2006. These projects fall within Performance Instrumentation Systems, Time Space Position Information (TSPI) and Telemetry Systems, Network Control Systems and Data Management, and Imaging Systems. technology categories. The accomplished projects: Operational Test Command (OTC) Analytic, Simulation and Instrumentation Suite (OASIS) Integration FY06 Phase I, Extensible C4I (Command, Control, Communications, Computers, and Intelligence) Instrumentation System Fire Support Application (ExCIS-FSA), Global Positioning System (GPS) Modernization, Multimedia Data Transfer system, Family of Digital Data Collector Test Bed, Neutral Network Based Software, Intelligence and Electronic Warfare (IEW) Test Operation Capability, Digital Asset Management System, High Speed Data Recording System, Data Collection and Analysis Van, Mobile Surveillance & Target Acquisition Radar, Intelligence Modeling and Simulation for Evaluation (IMASE), Operational Test Tactical Engagements System (OT-TES), and Test Technology Execution Centers (TTEC).	8578			
Small Businee Innovative Research/Small Business Technology Transfer Programs		409		
FY07 Planned Program: ExCIS, Performance Instrumentation Systems, Time Space Position Information (TSPI) and Telemetry Systems, Network Control Systems and Data Management, and Imaging System technology categories: Network Instrumentation Test Systems,		12152		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)				February 2007	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT
<b>6 - Management support</b>		<b>0605602A - Army Technical Test Instrumentation and Targets</b>			<b>62B</b>
Family of Digital Data Collectors Test Bed, IEW Test Operations Capability, Mobile Surveillance & Target Acquisition Radar, Multimedia Data Transfer System, Alternative Power Source for Future Combat System (FCS), ExCIS FSA, GPS Modernization, High Speed Data Recording System, Command Audio/Video Modernization, OT-TES Support, Quick Look Instrumentation Workstation, Secure Wide Band Satellite Common Link, and Digital Asset Management System.					
Congressional increases for HQ Operational Test Command Air Defense Artillery Test Directorate developing Mobile Optical Tracking System.		1342	1950		
Total		9920	14511		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT	
6 - Management support			0605602A - Army Technical Test Instrumentation and Targets					62C	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
62C	MODELING AND SIMULATION INSTRUMENTATION	6678	14125	28461	28646	29823	22858	23517	24036

**A. Mission Description and Budget Item Justification:** A. Mission Description and Budget Item Justification: Increased funding in FY07 develops synthetic environments and instrumentation systems necessary to test FCS and Future Force systems under realistic operational conditions. This project provides the critical foundation necessary to develop and sustain the Army Test and Evaluation Commands (ATEC) current and future modeling and simulation (M&S) instrumentation efforts. ATECs M&S efforts include: Operational Test Tactical Engagements System (OT-TES); Command, Control and Communication Driver (C3 Driver); Test Technology Execution Centers (TTEC); Test and Evaluation Enterprise Architecture (TEEA); Intelligence Modeling and Simulation for Evaluation (IMASE); Extensible C4I Instrumentation System Fire Support Application (ExCIS-FSA); Simulation Testing Operations Research Model (STORM); and Operational Test Command (OTC) Analytic, Simulation and Instrumentation Suite (OASIS) Integration and Management. All these systems will benefit Armys Acquisition Category (ACAT) I, II, and III systems under operational test and series of Future Combat Systems. Beginning FY 2008 funding from PE Number 0605602A Project 62B for modeling, simulation, and instrumentation development and the subsequent sustainment of all systems are identified under the PE line 0605602A Project 62C.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY06 Accomplishments Programs: Funds utilized for the high priority modeling and simulation instrumentation systems, such as development and sustainment of OT-TES, IMASE, STORM, TTEC, STORM, and OASIS.	4198			
FY07 Planned Programs: Funds will be utilized for the development and sustainment of high priority modeling and simulation instrumentation systems, such as Next Generation Command, Control, Communications, and Intelligent Engineering and Evaluation Systems (NG CEES), M&S Preparation and Integration for FCS OT, M&S Architecture and Requirement for FCS, ExCIS FSA, IMASE, OASIS Integration, Neural Network Based Software, and TTEC Base.		11288		
Small Business Innovative Research/Small Business Technology Transfer Programs		398		
FY08 and FY09 Planned Programs: Funds will be utilized for the development and sustainment of high priority modeling and simulation instrumentation systems. The following programs are planned: OT-TES sustainment and minor upgrades, TTEC, TEEA, IMASE, Performance Instrumentation Systems, Time Space Positioning Information (TSPI) and Telemetry System, Network Control Systems and Data Management, Imaging Systems, Sustainment of OTC MS&I Inventory, ExCIS FSA, STORM, OASIS Integration and Management, Air Defense Artillery Simulation.			26325	26603
Funds development of the C3 Driver. The C3 Driver supports the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Army Battle Command System (ABCS) 6.3, 6.4, Brigade Combat Team, Joint Tactical Radio System, and Warfighter Information Network -Tactical development and integration at the Central Technical Support Facility and contractor locations as the Army's single simulator/stimulator.	2480	2439	2136	2043
Total	6678	14125	28461	28646

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605604A - Survivability/Lethality Analysis</b>				<b>PROJECT</b> <b>675</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
675      Army Survivability Analysis & Evaluation Support	39518	43544	40343	41111	42446	39029	39887	40765
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> This project funds the investigation of the survivability, lethality and vulnerability (SLV) of designated Army systems to all battlefield threats. It supports transforming the Army to a highly effective mobile force depending on symmetry between Survivability, Lethality, Mobility, Manpower and Personnel Integration (MANPRINT), Deployability, and Sustainability. The challenge of the Army Transformation is to examine holistically the contribution of platforms to force effectiveness. This project provides lethality and survivability data of potential systems in the Stryker and Future Forces to achieve symmetric mix of force effectiveness. The analysis is integrated across all battlefield threats (i.e., conventional ballistic, electronic warfare, and directed energy). The results are used by each Program Manager (PM) and the Program Executive Officer (PEO) to direct weapon system development efforts and structure product improvement programs; by the Army Test and Evaluation Command's Army Evaluation Center (ATEC/AEC) when they provide system evaluations in support of milestone decisions; by the user to develop survivability/lethality requirements, doctrine and tactics; and by decision makers in formulating program/production decisions.</p> <p>Additionally this project supports survivability analysis, information warfare (IW), and information operations (IO) of Army communications, electronic equipment and digitized forces against friendly and enemy threats. Provides field threat environment support for Electronic Warfare Vulnerability Analysis (EWVA). Analyzes vulnerabilities of foreign threat weapons and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and Intelligence Electronic Warfare (IEW) systems to U.S. Army Electronic Warfare (EW) systems. Provides threat weapon electronic design data to countermeasure developers and technical capability information to the intelligence community. Supports Army initiatives in vulnerability reduction of C4I/IEW systems against battlefield threats, including IW. Provides analysis for understanding potential vulnerabilities of Digitized Force developmental systems. Supports Army Warfighting Experiments and associated Information Operations Vulnerability Assessments for Digitized Force Architecture. Supports vulnerability analysis of situational awareness data of the Transformation Force.</p> <p>Analysis includes survivability and vulnerability analysis of ground systems of the Stryker and Future Force for Army Transformation and other Army ground combat systems; Army air defense and missile defense systems; Army aviation systems and Unmanned Aerial Vehicles (UAV); Army fire support weapons (smart and conventional); Horizontal Technology Integration systems, Advanced Technology Demonstration initiatives, and proposed survivability enhancements to weapon platforms.</p>								
<b><u>Accomplishments/Planned Program:</u></b>					<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Completed non-ballistic survivability/lethality analysis for Stryker variants/configurations. Conduct Stryker Mobile Gun System and Nuclear, Biological and Chemical Reconnaissance vehicle Live Fire Test and Evaluation (LFT&E) and non-ballistic survivability analysis. For these two variants, provide pre-shot predictions, perform damage assessments after live fire tests, post-shot analyses and provide technical data required by ATEC for the Systems Evaluation reports. Completed baseline crew survivability analysis for Tactical Wheeled Vehicle (TWV) variants/configurations. Conduct crew survivability analysis for Tactical Wheeled Vehicle variants/configurations in support of the Long Term Armor Strategy (LTAS) Live Fire Test and Evaluation (LFT&E). For the TWV variants, provide pre-shot predictions, perform damage assessments after live fire tests, post-shot analyses and provide technical data required by ATEC for the Systems Evaluation Reports. More information continued into the next box of text below.....								

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605604A - Survivability/Lethality Analysis</b>		<b>675</b>	
continued from above... Conduct integrated survivability, lethality, and vulnerability analyses for Army Future Combat Systems. Initiate modeling, analysis and simulation efforts supporting the FCS program, to include Active Protection Systems and FCS Lethality. Contribute to the Development of the System of Systems analysis methodology for Unit of Action survivability. Investigate the vulnerability/survivability implications of FCS advanced technologies including new armors and hybrid electric propulsion systems. Develop the methodologies necessary to support the characterization and assessment of FCS platforms equipped with these systems. Aid FCS platform designers and technology suppliers to enhance the survivability of these technologies. Identify and manage Soldier Survivability related issues during FCS system design to include fratricide prevention and crew protection. Support the planning and execution of the ballistic vulnerability and Title 10 LFT&E programs on the FCS, in conjunction with ATEC and Director, Operational Test & Evaluation (DOT&E). Provided survivability analysis for the functional analysis/functional decomposition effort for development of the FCS system of system specification. Provided analytical data and expertise for the system functional review and the initial preliminary design review. In FY07, produce vulnerability data for MGCV, ARV and UAVs to support the AMSAA certification of the Design Concept Baseline, and provide real-time integrated support and teaming with the FCS MGCV engineering design team to insure appropriate vulnerability reduction measures are implemented during the preliminary design process. In FY08, Continue FCS MGCV engineering design team support participate in the Preliminary Design Review, provide analytical input in support of the TEMP Update, continue support to the network analysis effort. In FY09, support LFTE armor coupon testing continue FCS MGCV engineering design team support, continue network analysis support.	11000	13080	12518	12900
Conduct integrated survivability, lethality, and vulnerability analyses for aviation systems. Complete CH-47F LFT&E survivability evaluation. Prepare multi-threat survivability analysis data for CH-47F milestone C decision. Provide Blackhawk and Apache LFT&E support. Conduct EW vulnerability assessments for developmental U.S. Army munition systems such as Advanced Precision Kill Weapon System (APKWS), Intelligent Munition System (IMS) and Mid-Range Munition (MRM). Conduct ballistic survivability/lethality analysis for U.S. Army munitions systems to include APKWS, Spider, XM 982 Excalibur, MRM, Precision Guided Mortar Munition (PGMM), Guided Multiple Launch Rocket System (GMLRS) w/Dual Purpose Improved Conventional Munitions (DPICM), GMLRS Unitary, Compact Kinetic Energy Missile (CKEM) and Javelin pre-planned product improvement. Provide Global Positioning System jamming analysis for U.S. Army munition systems to include Excalibur, GMLRS w/DPICM and GMLRS Unitary. Conduct obscurant and atmospheric effects survivability analysis for U.S. Army munitions systems.	7254	6900	6900	6900
Conduct integrated electronic and IW effects survivability analysis on command and control systems, and various Army weapon platforms as they integrate C4ISR components with internal information/computer processors controlling automotive, flight, fire control and sensor functions. This effort supports the full set of Army Battle Command Systems: Force XXI Battle Command, Brigade & Below, Advanced Field Artillery Tactical Data System, Maneuver Control System, Forward Area Air Defense-C2I, All Source Analysis System, Combat Service Support Control System, and Advanced Missile Defense Warning System. Continue to expand IW vulnerability assessment program to determine exploitable weakness in the Digitized Forces (including FCS) and recommend mitigating solutions. Focus on processor components of the Stryker Force to determine the limitations of system performance in an IW threat environment. Conduct integrated electronic and IO survivability analysis for Army communications systems such as Warfighter Integrated Network-Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System (JTRS), Single Channel Anti-Jam Man-Portable Terminal, Secure Mobile Anti-Jam Reliable Tactical Terminal and Single Channel Ground and Airborne Radio System Advanced System Improvement Program. Conduct integrated electronic and IO survivability analysis for C2 systems integral to air and missile defense systems. Conduct integrated electronic and IO survivability analysis for Global Positioning System components as they are integrated into Army munitions systems. Includes update of information warfare vulnerability database, and vulnerability analyses of Tactical Internet components to radio frequency directed energy weapons (RFDEW). Develop modeling and simulation to examine impacts of EW and IW attacks on the	11057	13777	14025	14250

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007		
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT		
6 - Management support	0605604A - Survivability/Lethality Analysis		675		
survivability of FCS. Conduct EW and IW investigations of the JTRS design via supplied simulations and emulations.					
Conduct SoSCOE assessment and third assessment of JNN. BY 08 conduct EW & IO survivability testing and analysis of JTRS/WIN-T. By 09 perform analysis of preliminary survivability anlysis of FCS networks. Conduct integrated survivability, lethality, vulnerability analyses for developmental air defense and missile defense systems, pre-planned product improvements of current systems, and recently fielded systems. Systems to be addressed include Ballistic Missile Defense System (BMDS), Theater High Altitude Air Defense (THAAD), Patriot, Medium Extended Air Defense System (MEADS), Surface-Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and Sentinel. Provide interim survivability reports. Recommend survivability enhancements. Project also funds Anti-Radiation Missile (ARM) Counter-Arm efforts that assess threat technologies against THAAD and Ground-Based Midcourse Defense, Patriot, MEADS, and Forward Area Air Defense-C21 (FAAD-C21) ground based sensors. Includes work on Focal Plane Array Countermeasures (FPACM) (Project Agreement Partner: United Kingdom): Produce final assessment report for FPACM. Assist in transitioning to new FPACM agreement with the Air Force. Continue support of Missile Defense Agency's (MDA) Ballistic Missile Defense System (BMDS) through MDA Black Team participation which includes postulation of potential countermeasure threats, assessment of countermeasure impacts on BMDS systems and providing communications jamming and Information Assurance inputs to the Adversary Capability Document. Support development of BMDS Test Bed.Design and develop hardware to support the software research and development for the Patriot Advanced Capability-3 Seeker electronic countermeasures/electronic counter-countermeasures algorithms.	5317	5337	5400	5500	
System of Systems Survivability Simulation - develop a System of Systems Survivability engineering model used with the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) and its successor, Combat XXI. The System of Systems Survivability model provides details of how combat outcomes are dependant on understanding the way quality of military decision-making is conditioned by information flow on the battlefield. This model will advance the understanding of Information Operations and Information Warfare.	1000	1200	1500	1561	
Complete engineering design, site preparation work and concrete pad construction for rotorcraft Survivability Assessment Facility. This is a congressional add. Not a new start.	3890	3250			
Total	39518	43544	40343	41111	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)					February 2007
BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis			PROJECT 675
<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	41703	40780	40657	41184	
Current BES/President's Budget (FY 2008/2009)	54039	80467	74391	75067	
Total Adjustments	12336	39687	33734	33883	
Congressional Program Reductions		-166			
Congressional Rescissions					
Congressional Increases		3250			
Reprogrammings	-2185	-320			
SBIR/STTR Transfer					
Adjustments to Budget Years			-314	-73	
FY 2006 reprogrammed to higher priority requirements. FY 2007 Congressional increase for Rotocraft Survivability Assessment Facility (\$3250). FY 2007 reprogrammed to higher priority requirements. FY 2008 and FY 2009 realigned to higher priority requirements.					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605605A - DOD High Energy Laser Test Facility**

PROJECT

**E97**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
E97 DOD HELSTF	16940	16438	2801	2840	2876	1906	1948	1991

**A. Mission Description and Budget Item Justification:** The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat Systems (FCS). Specifically, HEL weapons will play a major role in the Counter Rockets, Artillery and Mortars (CRAM) initiative and can be a key component of the Future Force supporting Full Dimensional Protection. HELSTF is part of the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development to include damage, vulnerability, propagation, and lethality laser testing as well as HEL weapon developmental and operational test and evaluation (DTE&OTE). The HELSTF's laser development support capabilities include a fully certified open-air HEL test range, test cells for bringing breadboard to brassboard test device, fully integrated Command, Control, Communications & Intelligence (C3I) systems and a suite of beam directors to perform both static and dynamic tracking tests. Other capabilities include an extensive array of fully instrumented test sites, full laser meteorological support, and an approved site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF's location on White Sands Missile Range (WSMR) provides unparalleled testing flexibility because of WSMR's 3200 square miles of controlled land mass and 7000 square miles of controlled airspace. This location also enables HELSTF to leverage the existing WSMR T&E infrastructure. Current HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Large Vacuum Chamber (LVC) with associated Vacuum Test System (VTS), the Solid State Laser testbed, the Tactical High Energy Laser (THEL) testbed, and the Low Power Chemical Laser (LPCL). This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale static and dynamic targets, explosive targets, and testing of targets in a high altitude space environment. HELSTF has embarked on its own modernization to fully upgrade its mission control systems, develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile HEL diagnostic test suite to support DTE and OTE for potential HEL weapons in the Army Future Force in all relevant combat environments.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
In FY 2006-07 continued to perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies (Missile Defense Agency (MDA) MUDPACK program, Special Operations Command (SOCOM) Advanced Tactical Laser (ATL), Air Force Airborne Laser (ABL) program, Full Scale Airflow Static Test (FAST) program, the US Army Space & Missile Defense Command (USASMDC) Technical Center High Energy Laser Technology Demonstrator (HEL-TD) program, and Navy HEL Low Aspect Target Tracking (HEL-LATT), and other laser programs). Conducted a variety of tracking tests with SLBD to support US Army Space and Missile Defense Command (USASMDC), U.S. Air Force (USAF) and Missile Defense Agency (MDA) missions. Complete Solid State Laser Lethality Testbed and Solid State Laser Transition Testbed based on the ex-THEL Pointer-Tracker System (THEL-PTS) in FY2007. In FY 2008, HELSTF will continue to provide limited support to the Laser T&E programs of all Services and DoD Agencies using the Solid State Laser (SSL) Lethality Testbed and the SSL Transition Testbed.	16940	16014	2801	2840
Small Business Innovative Research / Small Business Technology Transfer Programs.		424		
Total	16940	16438	2801	2840

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007		
BUDGET ACTIVITY 6 - Management support			PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility				PROJECT E97	
<u>B. Program Change Summary</u>			FY 2006	FY 2007	FY 2008	FY 2009		
Previous President's Budget (FY 2007)			19505	16622	16404	16424		
Current BES/President's Budget (FY 2008/2009)			54039	80467	74391	75067		
Total Adjustments			34534	63845	57987	58643		
Congressional Program Reductions				-63				
Congressional Rescissions								
Congressional Increases								
Reprogrammings			-2565	-121				
SBIR/STTR Transfer								
Adjustments to Budget Years					-13603	-13584		
Change Summary Explanation: FY08/09 funds realigned to higher priority requirements.								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605606A - AIRCRAFT CERTIFICATION**

PROJECT

**092**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
092 AIRCRAFT CERTIFICATION	2694	4530	4688	5024	5756	6004	9548	9842

**A. Mission Description and Budget Item Justification:** The Aircraft Certification program is an Army Aviation mission unique to the Aviation and Missile Command that provides for the independent Airworthiness Qualification of all assigned Development and In-Production Army Manned and Unmanned Aircraft systems required per AR 70-62. The Aircraft Certification Program is essential for ensuring the safe operations of aircraft. This program, when all requirements are fully funded, performs all engineering functions (design, analysis, testing, demonstrations, and system specification compliance) essential for certifying the airworthiness of assigned Army aircraft, performs safety-of-flight investigations/assessments, evaluates system risks, develops Airworthiness Impact Statements, evaluates and issues Airworthiness Flight Releases, Safety of Flight Messages, Aviation Safety Action Messages to the field, manages/executes the Army's Aeronautical Design Standards (ADS) Program, manages airworthiness approval of new vendor qualification and material changes for all assigned Army aircraft systems, provides airworthiness-engineering support to the Army Aviation Program Executive Office (PEO) and Technology Applications Program Office (TAPO) requirements for major development/modification and any future system/subsystems, and manages the test and evaluation process to support airworthiness qualification process. This program performs general research and development support of aircraft qualifications and overarching airworthiness projects that involve multiple platforms or airworthiness processes. Current programs requiring Airworthiness Qualification support are TAPO and PEO Aviation Future Force Systems such as Apache, Chinook, and Black Hawk; new systems such as Armed Reconnaissance Helicopter (ARH) and Light Utility Helicopter (LUH), and other critical aircraft programs such as Aviation Mission Equipment, Aviation Survivability Equipment, Unmanned Aircraft Systems, and Blue Force Tracker. With the currently budgeted D092 program, a minimal aircraft certification program will be executed. Beginning in FY 07, the effort will be limited to overarching airworthiness projects affecting multiple platforms; development of airworthiness procedures, specifications, and other critical standard design and qualification documents; active participation in airworthiness related tri-service activities (i.e. Joint Logistics Commanders Group); and early airworthiness involvement in Technology Transition projects (i.e. Joint Heavy Lift and OSD initiatives). Platform specific airworthiness certification efforts will be conducted through PEO Aviation funding lines.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Managed/executed technical and airworthiness qualification mission for PEO Aviation/force modernization aircraft systems or multi-system programs. In FY 07, will be limited to multiplatform airworthiness efforts.	975	1708	1705	1732
Continued to ensure safety of flight investigations/assessments to include PEO Aviation/force modernization of aircraft systems.	667	480	647	647
Develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching Airworthiness qualification documentation.	236	743	776	774
Provided continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.	599	851	851	851
Continued to provide test management capability for PEO Aviation Program/Project/Product Managers.	217			311
Active involvement in tri-service/NATO airworthiness activities (i.e. Joint Logistics Commanders Group).		709	709	709
SBIR/STTR		39		
Total	2694	4530	4688	5024

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)					February 2007
BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605606A - AIRCRAFT CERTIFICATION			PROJECT 092
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	2709	4580	4691	5002	
Current BES/President's Budget (FY 2008/2009)	54039	80467	74391	75067	
Total Adjustments	51330	75887	69700	70065	
Congressional Program Reductions		-17			
Congressional Rescissions					
Congressional Increases					
Reprogrammings	-15	-33			
SBIR/STTR Transfer					
Adjustments to Budget Years			-3	22	
Change Summary Explanation: None.					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
<b>6 - Management support</b>		<b>0605702A - Meteorological Support to RDT&amp;E Activities</b>						<b>128</b>
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
128 Meteorological Support to RDT&E Activities	7810	8477	8346	8313	8398	7222	7377	7536

**A. Mission Description and Budget Item Justification:** All functions and resources in this Program Element (PE) are managed by the U.S. Army Developmental Test Command, a subordinate command of the U.S. Army Test and Evaluation Command (ATEC). Meteorological support to research, development, test, and evaluation (RDT&E) activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/Department of Defense RDT&E test requirements for modern weaponry, e.g., (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target to background measurements, and predictions for electro-optical testing and ballistic artillery/mortar firing; and (3) advisory and warning products such as go/no-go test recommendations for ballistic and atmospheric probe missiles, smoke/obscurant tests, hazard predictions for chemical agent munitions disposal, monitoring dispersion of simulant clouds for chemical/biological detector tests, simulated nuclear blasts, and weather warnings for test range safety. Provides technical support to Army Program Executive Officers (PEOs), Project Managers (PMs), and the Army test ranges and sites at: White Sands Missile Range (WSMR), NM; Electronic Proving Ground (EPG), Fort Huachuca, AZ; Dugway Proving Ground (DPG), UT; Aberdeen Test Center (ATC), Aberdeen Proving Ground, MD; Redstone Technical Test Center (RTTC), Redstone Arsenal, AL; Yuma Proving Ground (YPG), AZ (including the Cold Regions Test Center (CRTC), Fort Greely, AK); Fort Belvoir, VA; and Fort A.P. Hill, VA. This PE develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDT&E requirements. It finances indirect meteorological support operating costs not billable to customers and replacement/upgrade of meteorological instrumentation and support systems. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e., materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R, October 1999. This program is essential to the accomplishment of the Army's developmental test mission in that precise weather modeling and measurement directly influence test item performance and quantify test item weather dependencies and vulnerabilities.

<b>Accomplishments/Planned Program:</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provides indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories; staff meteorological services; and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges, and alternate test sites as required. Provides program management for meteorological support to the Army research, development, test and evaluation community and technical review/assistance to ranges and meteorological support teams. Includes Verification, Validation and Accreditation (VV&A) for the Four-Dimensional Weather (4DWX) System.	2399	2436	2339	2261
Provides funding for meteorological instrumentation and technology to support RDT&E activities at Army test ranges. Includes funding for development, fielding, and enhancement of the 4DWX system, an advanced meteorological support system that provides high-resolution weather forecasts and analyses to support developmental and operational field tests. The 4DWX analyses and forecasts of the 3-dimensional structure of the atmosphere over time (4th dimension) are used in test planning, conduct, and forensic analyses and also provide realistic atmospheric conditions for modeling and simulation. The Global Meteorology on Demand (GMOD) capability allows range meteorologists to set-up and launch 4DWX modeling capabilities anywhere in the world. FY06 accomplishments include initial transition of the range 4DWX systems to the Weather Research and Forecast (WRF) model (a nationally recognized next-generation weather prediction system designed for operational forecasting and atmospheric research); further upgrades in GMOD computer;	5411	5890	6007	6052

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605702A - Meteorological Support to RDT&amp;E Activities</b>		<b>128</b>	
improved land-surface and boundary layer parameterizations to improve forecast accuracy near the surface; new data acquisition systems; and the replacement of Linux clusters. 4DWX system enhancements planned in FY07-FY09 include WRF VV&A, use of the new DPG high performance computer (HPC) to generate 20-year 3-D climatologies for seven ranges; implementation of a prototype probabilistic forecasting capability for high profile tests; and additional links between 4DWX and range application models. FY06 instrumentation funding was used to continue a multiyear effort to replace or upgrade obsolete instrumentation, including replacing obsolete upper-air sounding systems, upgrades to the Surface Atmospheric Measurement System weather stations, renovation of the radar wind profilers, and replacement of Doppler acoustic sounders for near real-time boundary layer wind profile measurements. This instrumentation modernization will continue in FY07-FY09.				
Small Business Innovative Research/Small Business Technology Transfer Programs		151		
Total	7810	8477	8346	8313

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)					February 2007
BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities			PROJECT 128
<u>B. Program Change Summary</u>		FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)		8703	8571	8483	8478
Current BES/President's Budget (FY 2008/2009)		54039	80467	74391	75067
Total Adjustments		45336	71896	65908	66589
Congressional Program Reductions			-32		
Congressional Rescissions					
Congressional Increases					
Reprogrammings		-893	-62		
SBIR/STTR Transfer					
Adjustments to Budget Years				-137	-165
FY 2006 funds reprogrammed to higher priority requirements. FY 2007 funds reprogrammed to higher priority requirements. FY 2008 and FY 2009 realigned to higher priority requirements.					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605706A - MATERIEL SYSTEMS ANALYSIS**

PROJECT

**541**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
541 MATERIEL SYS ANALYSIS	15210	16344	16526	16987	17287	15485	15824	16205

**A. Mission Description and Budget Item Justification:** This program element funds Department of the Army (DA) civilians at the Army Materiel Systems Analysis Activity (AMSAA) to conduct its mission of materiel systems analysis.

AMSAA is the Army's center for item/system level performance analysis and certified data. In accomplishing its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems. Unique models and methodologies have been developed to predict critical performance variables, such as weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage, and system reliability. AMSAA is responsible for the generation of these performance and effectiveness measures and for ensuring their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analyses, such as: Analyses of Alternatives (AoAs), system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, and requirements analyses. These analyses are used by Army and Department of Defense (DoD) leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the soldiers.

AMSAA's modeling and simulation (M&S) capabilities support the development, linkage, and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined-arms environment. AMSAA has resident and maintains a significant number of models and simulations, most of which were developed in-house to address specific analytical voids. This M&S infrastructure provides a hierarchical modeling process that is unique to AMSAA and allows for a comprehensive performance and effectiveness prediction capability that can be utilized to make trade-off and investment decisions prior to extensive and expensive hardware testing. AMSAA is the Army's executive agent for the verification, validation, and accreditation (VV&A) of item/system level performance models. In this role, AMSAA assists model developers with the development and execution of verification and validation (V&V) plans to ensure new models and simulations faithfully represent actual systems.

AMSAA serves as the Army's Executive Agent for reliability and maintainability standardization improvement by developing and implementing reliability and maintainability acquisition reform initiatives. AMSAA develops and applies reliability-engineering approaches that assess the reliability of Army materiel and recommends ways to improve reliability, thereby reducing the logistics footprint, reducing life cycle costs, and extending failure free periods for deployed equipment. AMSAA's electronic and mechanical Physics of Failure (PoF) program pioneered the Army's involvement in utilizing computer-aided engineering tools in the analysis of root-cause failure mechanisms at the component level during the system design process.

As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision-makers throughout the entire materiel acquisition process in responding to analytic requirements across the full spectrum of materiel. It is critical that the Army have access to AMSAA's integrated analytical capability that provides timely, reliable, and high quality analysis on which Army leadership can base the complex decisions required to shape the Future Army. AMSAA has developed an integrated set of skills and tools focused on its core competencies to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army Transformation decisions.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605706A - MATERIEL SYSTEMS ANALYSIS</b>		PROJECT <b>541</b>	
This Project funds the salaries of civilian employees assigned to the materiel systems analysis mission.				
<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Funding directly pays DA civilians at AMSAA who are responsible for developing and certifying system performance and effectiveness data for U.S. and foreign systems to be used during Army and Joint AoAs, force structure studies, and theater level studies. Analyses of performance and combat effectiveness of materiel systems and technology base programs are conducted in support of DA, the Army Materiel Command, the Research, Development and Engineering Command, Program Executive Officers/Program Managers, the Training and Doctrine Command, and the Army Test and Evaluation Command. These analyses include the conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons/systems mix analyses, requirements analyses, technology insertion studies, reliability growth studies, and PoF analyses. Examples of programs to be supported with critical analyses: Future Combat Systems Brigade Combat Team (FBCT), Experimental Brigade Combat Team (EBCT), Joint Light Tactical Vehicle (JLTV), Joint Non-Lethal Weapons Program (JNLWP), Intelligent Munitions System (IMS), Stryker, Short and Long Range Active Protection Systems (APS), and Future Force Warrior. AMSAA develops and modifies system level methodologies, models, and simulations to be used in the conduct of analyses. Examples of efforts include the Infantry Warrior Simulation (IWARS), SURVIVE, suppression methodology development, Geographical Information Systems (GIS) modeling, Network System of Systems (SoS) modeling, power and energy (soldier/vehicle) methodology development, Improvised Explosive Device (IED) modeling enhancements, aviation modeling improvements, search and target acquisition methodology improvements, sensor fusion modeling, mechanical and electronic Physics of Failure (PoF) modeling, vehicle performance methodology, APS performance, non-lethal weapons performance and effectiveness estimation methodology, and modeling operations in urban terrain.	15210	16344	16526	16987
Total	15210	16344	16526	16987

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007		
BUDGET ACTIVITY 6 - Management support			PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS				PROJECT 541	
<u>B. Program Change Summary</u>			FY 2006	FY 2007	FY 2008	FY 2009		
Previous President's Budget (FY 2007)			15296	16526	17151	17531		
Current BES/President's Budget (FY 2008/2009)			54039	80467	74391	75067		
Total Adjustments			38743	63941	57240	57536		
Congressional Program Reductions				-62				
Congressional Rescissions								
Congressional Increases								
Reprogrammings			-86	-120				
SBIR/STTR Transfer								
Adjustments to Budget Years					-625	-544		
FY 2006 reprogrammed to higher priority requirements. FY 2007 reprogrammed to higher priority requirements. FY 2008 and FY 2009 realigned to higher priority requirements.								

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)							February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605709A - EXPLOITATION OF FOREIGN ITEMS</b>				PROJECT <b>C28</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
C28 ACQ/EXPLOIT THREAT ITEMS (TIARA)	4487	4938	3291	3530	5521	5629	5662	5730
<b>A. Mission Description and Budget Item Justification:</b> This is a continuing project for acquisition and exploitation of foreign materiel constituting potential advanced technology threats to U.S. systems. The primary aim of this project is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties concerning these threats. The project also answers general scientific and technical intelligence requirements, aids in the development of countermeasures to threat materiel and threat technology, and provides materiel for realistic testing and training. Acquisitions and exploitations are executed according to an Army Foreign Materiel Review Board and with the approval of the Army Deputy Chief of Staff for Intelligence (DCSINT).								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Acquire threat systems identified and prioritized in the Army Foreign Materiel Program (FMP) Five Year Plans.					1670	1728	1152	1235
Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the appropriate Army FMP Exploitation Programs.					2817	3210	2139	2295
Total					4487	4938	3291	3530

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007		
BUDGET ACTIVITY 6 - Management support			PE NUMBER AND TITLE 0605709A - EXPLOITATION OF FOREIGN ITEMS				PROJECT C28	
<u>B. Program Change Summary</u>			FY 2006	FY 2007	FY 2008	FY 2009		
Previous President's Budget (FY 2007)			4643	4993	5528	5894		
Current BES/President's Budget (FY 2008/2009)			54039	80467	74391	75067		
Total Adjustments			49396	75474	68863	69173		
Congressional Program Reductions			-19					
Congressional Rescissions								
Congressional Increases								
Reprogrammings			-137	-55				
SBIR/STTR Transfer								
Adjustments to Budget Years					-2237	-2364		
FY08-FY09 Funds are realigned to higher priority programs.								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	74044	80163	75293	72974	74381	64878	66229	67735
001 ATEC Joint Tests and Follow-On Test & Evaluations	7158	7681	7874	8317	8700	4428	4526	4626
V02 ATEC ACTIVITIES	66886	72482	67419	64657	65681	60450	61703	63109

**A. Mission Description and Budget Item Justification:** This Program Element provides the resources to operate the Army's operational test directorates located at Fort Hood, TX; Fort Bragg, NC; Fort Bliss, TX; Fort Huachuca, AZ; and Fort Sill, OK; all managed by the Operational Test Command (OTC), a subordinate command of the Army Test and Evaluation Command (ATEC). Also funds the Test and Evaluation Coordination Offices (TECOs) located at Fort Benning, GA; Fort Knox, KY; Fort Lee, VA; and Fort Leonard Wood, MO; as well as joint testing, operational test and evaluations without an Army Program Executive Officer/Project Manager and follow-on test and evaluations, all of which are managed by HQ, ATEC.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	75891	80057	78833	76925
Current BES/President's Budget (FY 2008/2009)	74044	80163	75293	72974
Total Adjustments	-1847	106	-3540	-3951
Congressional Program Reductions		-306		
Congressional Rescissions				
Congressional Increases		1000		
Reprogrammings	-1847	-588		
SBIR/STTR Transfer				
Adjustments to Budget Years			-3540	-3951

FY 2006 funding was reprogrammed to fund higher priority requirements. FY 2007 Congressional increase (\$1 million) for Track Conversion System for Light Wheeled Vehicles and Unmanned Ground Vehicles; funds reprogrammed (\$588) to higher priorities. FY 2008 and FY 2009 was realigned to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

PROJECT

**001**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
001 ATEC Joint Tests and Follow-On Test & Evaluations	7158	7681	7874	8317	8700	4428	4526	4626

**A. Mission Description and Budget Item Justification:** This project funds the Army's direct costs of planning and conducting Multi-service Tests and Evaluations (MOTE) for which there is no Army Project Manager (PM) and Army requirements for Joint Test and Evaluation (JT&E). These are required to evaluate concepts and address needs and issues that occur in joint military environments and provides information required by Congress, Office of the Secretary of Defense, the Unified Commands, and the Department of Defense components relative to joint operations. This project also funds Follow-on Test and Evaluation (FOTE), as necessary. FOTE may be required after a full production decision to assess system training and logistics, to verify correction of deficiencies identified during earlier testing and evaluation, and to ensure that initial production items meet operational effectiveness, suitability and supportability thresholds.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Joint operational testing and evaluation.	2157	2970	2515	2795
Other-Special projects/Operational Test and Evaluation without Army Project Manager	1015	1045	1665	1698
Multi-Service Operational Text and Evaluation/Follow-on testing and evaluations.	3025	3450	3694	3824
Small Business Innovative Research/Small Business Technology Transfer Programs		216		
MATTRACKS Track Conversion System for Light Wheel Vehicles	961			
Total	7158	7681	7874	8317

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

PROJECT

**V02**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
V02 ATEC ACTIVITIES	66886	72482	67419	64657	65681	60450	61703	63109

**A. Mission Description and Budget Item Justification:** The Operational Test Command (OTC) conducts operational tests required by public law that provide significant data to the Army decision-makers on key Army systems and concepts. This project finances recurring costs for the Operational Test Command that are essential for conducting realistic and continuous testing in the critical areas of equipment, doctrine, force design and training. These recurring costs include civilian pay, core requirements for test support contracts, temporary duty, supplies and equipment. This project funds requirements for the Operational Test Command's nine test directorates and one support activity located at Fort Hood, TX; Fort Bragg, NC; Fort Bliss, TX; Fort Sill, OK; and Fort Huachuca, AZ. The primary mission of these test directorates is to perform detailed planning, execution, and reporting of Initial Operational Test and Evaluation (IOTE), and Force Development Test and Experimentation (FDTE). Project V02 also provided support for the four Test and Evaluation Coordination Offices (TECOs) located at Fort Benning, GA; Fort Knox, KY; Fort Lee, VA; and Fort Leonard Wood, MO as well as for the recurring support costs of Headquarters, Army Test and Evaluation Command (HQ ATEC).

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Operational costs for HQ ATEC includes: civilian pay, support contracts, temporary duty, supplies and equipment for non-AMHA (Army Management Headquarters Activity) HQ ATEC and TECOs.	19055	20089	18446	17854
Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command.	47831	51689	48973	46803
Small Business Innovative Research/Small Business Technology Transfer Programs.		704		
Total	66886	72482	67419	64657

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605716A - Army Evaluation Center**

PROJECT

**302**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
302 Army Evaluation Center	49882	59465	61694	63400	65341	60758	62036	63348

**A. Mission Description and Budget Item Justification:** The Army Evaluation Center (AEC) provides independent and integrated technical and operational evaluations, and life-cycle Continuous Evaluation (CE) of assigned Major Defense Acquisition Programs (MDAP), Major Automated Information Systems, and In-Process Review (IPR) programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. AEC develops the evaluation strategy, designs technical and operational tests, and evaluates the test results to address a system's combat effectiveness, suitability, and survivability factors pertinent to the decision process, such as: Critical Operational Issues and Criteria (COIC), system performance, soldier survivability, performance in countermeasures, system survivability, reliability, supportability, etc. AEC has the lead in planning and execution of Army Live Fire Tests and Continuous Evaluations through its evaluation and test design responsibilities. The evaluations produced by AEC are required by the Army Chief of Staff, the Army Acquisition Executive, other Army senior leaders and the Director of Operational Test and Evaluation for acquisition decisions. In addition, Army leadership has recognized the numerous benefits of an early involvement initiative. In support of ongoing contingency operations and other Global War on Terrorism (GWOT) related activities, AEC has drastically refocused its evaluation workload towards the evaluation of Rapid Initiative (RI) & Rapid Equipping Force (REF) systems, Urgent Material Releases, and Counter Improvised Explosive Device (IED) systems in support of the Joint IED Defeat Office (JIEDDO) and the Joint Test Board.

This project funds the salaries of civilian employees assigned to the evaluation and test design missions and associated costs including temporary duty, support contracts, supplies and equipment. This project does not finance test facility operations, test instrumentation or test equipment.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Support the early involvement initiative which provides continuous support to materiel and combat developers from the inception of their programs. This initiative leverages science and technology that will lead to cost savings, avoidances and design efficiencies early in a system's development, thereby avoiding more expensive product improvement programs later in a system's life cycle. Test and evaluation efficiencies will be gained through early identification of instrumentation, modeling and simulation tools, and other resources needed for testing, as well as making more efficient use of data from developmental testing and experiments. This initiative also supports ongoing contingency operations and other GWOT related activities by supporting the evaluation of Rapid Initiative systems, Counter IED systems, and Urgent Material Releases.	4513	5840	4328	4465
Provide integrated technical and operational evaluations and continuous evaluation of assigned MDAPs, major automated information systems, and IPR programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. Develop the evaluation strategy, design technical and operational tests, and evaluate the test results to address the combat effectiveness, suitability, and survivability factors pertinent to the decision process, for programs such as Future Combat System (FCS), Warfighter Information Network- Tactical (WIN-T), Stryker, Army Airborne Command and Control System (A2C2S), High Mobility Artillery Rocket System (HIMARS), Disbursed Common Ground System (DCGS), Advanced Precision Kill Weapon System (APKWS), Suite of Integrated Infrared Countermeasures (SIIRCM), Joint Tactical Radio System Clusters 1 & 5 (JTRS), Army Battle Command System (ABCS), Blackhawk Helicopter (UH-60M), Counter Sniper (SOS), Family of Medium Tactical Vehicles	45369	52933	57366	58935

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605716A - Army Evaluation Center</b>		<b>302</b>	
(FMTV) - Long Term Armor Solution (LTAS), Highlighter II, Guardian D-CREW, Mine Rollers, Warlock DUKE V2, CREW 2.1, Viper Strike, and the Aerial Common Sensor (ACS). As the Army lead for Live Fire Test and Evaluation, plan and execute the Army Live Fire Test and Evaluation program for developmental systems such as the FCS. Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapon systems. In support of contingency operations and the Global War on Terrorism (GWOT), AEC has drastically refocused its evaluation workload towards the evaluation of Rapid Initiative (RI) systems, Counter Improvised Explosive Device (IED) systems, and Urgent Material Releases. Includes CIV PAY costs for 395 authorizations for FY08; 386 auth for FY09; 372 auth FY10-13.				
Small Business Innovative Research/Small Business Technology Transfer Programs		692		
Total	49882	59465	61694	63400

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)						February 2007
BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605716A - Army Evaluation Center				PROJECT 302
<u>B. Program Change Summary</u>		FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)		56388	60129	62163	64917	
Current BES/President's Budget (FY 2008/2009)		74044	80163	75293	72974	
Total Adjustments		17656	20034	13130	8057	
Congressional Program Reductions			-227			
Congressional Rescissions						
Congressional Increases						
Reprogrammings		-6506	-437			
SBIR/STTR Transfer						
Adjustments to Budget Years				-469	-1517	
FY 2006 funding reprogrammed to higher priority requirements. FY 2008 and FY 2009 funding realigned to higher priority requirements.						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	3945	5380	5342	5360	5483	4077	3736	3818
S01 INTEGRATION & EVALUATION CENTER (IEC) SUSTAINMENT		775						
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	304	933	1758	1679	1718	502		
S03 TRAC M&S TOOLS & SERVICES	2710	2521	2069	2125	2173	2064	2076	2124
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	931	1151	1515	1556	1592	1511	1660	1694

**A. Mission Description and Budget Item Justification:** Simulation and Modeling for Acquisition, Requirements and Training (SMART) is a concept to accomplish the vision of a disciplined, collaborative environment to reduce costs and time of providing solutions for Army needs. SMART is a change in Army business practices that exploits modeling and simulation (M&S) and other information age technologies to ensure collaboration and synchronization of effort. SMART applies to the development of tactics and doctrine, experimentation and exercises, traditional weapon system development, and to the assessment and transition of advanced technologies to operational capabilities. The overarching goal of SMART is to reduce the time and cost of providing improved capabilities to our warfighters. Emerging information-age technologies are revolutionizing our capabilities to collaborate among all stakeholders using data descriptions, digital representations, and virtual prototypes to improve understanding of required capabilities, shorten procurement time, reduce procurement and sustainment costs, and ultimately, reduce total lifecycle cost. SMART advocates the use of advanced technologies in concert with M&S to enable transformation through improved understanding of operational requirements, collaborative analyses of emerging technologies, and cross-domain participation in experiments and exercises. The following projects support Army institutionalization of SMART. There is currently one project under the HQDA Decision Support Tools and Services that support the Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE). The Integrated Performance Cost Model (IPCM) is a DASA-CE project that will identify major impacts on the total cost of ownership and will link cost analysis methodologies with engineering design methodologies and system requirements to allow analysts to develop cost estimates and perform cost - performance trades with the limited amounts of data available early in the program lifecycle. The Training and Doctrine Command Analysis Center (TRAC) is an Army analysis agency that conducts research on potential military operations worldwide to inform leaders and support decisions on the most challenging issues facing the Army and the Department of Defense (DoD). This project provides TRAC with the resources to ensure the Army can develop and maintain a current, efficient M&S infrastructure to rapidly respond to the Army leadership on Joint Warfighting Experiments, analyses of courses of action, and doctrine development. The Army Simulation Technology (SIMTECH) project enhances Current and Future Force effectiveness by inducing research organizations and agencies on an immediate/short-term basis to conduct high-priority, promising, simulation technology research initiatives that are outside the scope of the Small Business Innovative Research (SBIR) and Army Science and Technology programs. The SIMTECH project focuses simulation technology research initiatives on immediate, short-term Army needs and serves as a catalyst for major technology breakthroughs in SMART, embedded simulation, rapid prototyping, commercial innovation, and related simulation technology.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	5360	5441	4626	6893
Current BES/President's Budget (FY 2008/2009)	3945	5380	5342	5360
Total Adjustments	-1415	-61	716	-1533
Congressional program reductions		-21		
Congressional rescissions				
Congressional increases				
Reprogrammings	-1415	-40		
SBIR/STTR Transfer				
Adjustments to Budget Years			716	-1533

Change Summary Explanation: Funding - FY 2009: Funds realigned to higher priority programs.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT		
<b>6 - Management support</b>		<b>0605718A - Simulation &amp; Modeling for Acq, Rqts, &amp; Tng (SMART)</b>					<b>S02</b>		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
S02	HQDA DECISION SUPPORT TOOLS & SERVICES	304	933	1758	1679	1718	502		

**A. Mission Description and Budget Item Justification:** The HQDA Decision Support Tools and Services project provides decision support tools for the Army Staff and Forward Operating Agencies assigned to the Headquarters, Department of the Army. Currently there is one service being developed. The Integrated Performance Cost Model (IPCM) is an Army decision support tool, sponsored by the Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE), which conducts integrated analyses of system capabilities, performance, technology, acquisition programmatic strategy, and cost estimating. IPCM is a generic integrated analysis framework that enables analysts to optimize performance, cost/funding, and acquisition strategies. The objective for IPCM is to enable the dynamic discovery of requirements, cost effectiveness, engineering, and logistics optimization that seamlessly exchanges information amongst various models and databases. The resulting solution increases the quality of military worth and supportability of fielded war-fighting systems while reducing total ownership cost throughout the entire life cycle. The use of models and simulations early in the life cycle, when capabilities are being evaluated, results in a reduction of time, resources, and risk associated with the acquisition process, and provides for a much larger analysis of trade-space than the current analysis process. The robust analysis that IPCM will provide will significantly improve available information usage, and support faster, more thoroughly understood decision making capabilities for Army leaders to make informed acquisition decisions.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Integrated Performance Cost Model (IPCM) - In FY06, provided an IPCM Prototype that included a Federated Intelligent Product Environment (FIPER) infrastructure. Provided software and licenses for FIPER and DB2/WebSphere on the DASA-CE server. Provided stand-alone IPCM/FIPER analysis capability at the Tank-Automotive and Armaments Command (TAACOM). In FY07, will complete the component level cost model. Test and validate the component level cost model and populate the database. In FY08, provide prototypes to TAACOM. In FY08 and FY09, complete additional cost estimating relationship data collection, model integration and standardization.	304	933	1758	1679
Total	304	933	1758	1679

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT	
6 - Management support			0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					S03	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
S03	TRAC M&S TOOLS & SERVICES	2710	2521	2069	2125	2173	2064	2076	2124

**A. Mission Description and Budget Item Justification:** This project will support development of modeling and simulation (M&S) software, hardware, and infrastructure for general use by the Army's Training and Doctrine Command Analysis Center (TRAC) and the Army at large. This project will develop descriptions of, and implement technological solutions for, analysis tools to enable emerging technology assessment during concept exploration, and will develop infrastructure and enabling technologies to support Army Transformation. These are the critical efforts for analysis of futures work to justify Army requirements, assess the worth of concepts and alternative approaches to satisfy those requirements, and to develop current and emerging warfighting doctrine from tactical to operational levels of warfare.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Advance maneuver sustainment force representation in combat models and simulations	525	514		
Develop knowledge, models, and data for a strongly networked Future Force Command and Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR).	252	222		
Advanced simulation of urban operations (complex environments, physical processes and individual and unit behaviors)	504	444		
Develop algorithms and data that lead to better representation of the threat, non-combatants, and factions	700	699		
Develop algorithms and data to better represent joint capabilities and the Army's roles as part of a joint force	112	99		
Develop algorithms and data that lead to better representation of space capabilities and their contributions to the joint fight	561	493		
Develop algorithms and data for representing individual soldier behaviors and interactions on the battlefield	56	50		
FY 08 and 09 funds to be distributed by the Advanced Concepts and Requirements (ACR) Domain Focused Area Collaborative Team (FACT) Summit during the year of execution.			2069	2125
Total	2710	2521	2069	2125

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>6 - Management support</b>		<b>0605718A - Simulation &amp; Modeling for Acq, Rqts, &amp; Tng (SMART)</b>						<b>S05</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
S05	SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	931	1151	1515	1556	1592	1511	1660	1694

**A. Mission Description and Budget Item Justification:** The goal of the Army Simulation Technology (SIMTECH) program is to enhance Current and Future Force effectiveness by providing the ability for the Army to induce research organizations and agencies on an immediate/short-term basis to conduct high-priority, promising, simulation technology research initiatives that are outside the scope of the Small Business Innovative Research (SBIR) and the Army Science and Technology programs. The SIMTECH program provides a source of competitive funds to Army research organizations and agencies to stimulate high quality, innovative research with significant opportunity for payoff in Army warfighting capability. The SIMTECH program focuses the simulation technology research initiatives on an immediate short-term Army need by including a theme in the annual call for proposals. The SIMTECH program serves as a catalyst for major SMART related technology breakthroughs in embedded simulation, collaboration, rapid prototyping, commercial innovation, and related simulation technology. Successful SIMTECH projects are typically transitioned to start-up projects and existing Army simulation programs. The work in this program is performed by the Army Materiel Command, the Army Corps of Engineers Engineer Research and Development Center, the Army Research Institute, the Army Training and Doctrine Command Analysis Center, and other Army agencies.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Specific FY08-13 requirements will be determined at the SIMTECH Council of Colonels scheduled for the summer preceding each fiscal year.	931	1151	1515	1556
Total	931	1151	1515	1556

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605801A - Programwide Activities

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	52036	71418	73718	73596	68843	60342	69759	71069
F06 The Futures Center	335	370						
M02 MED CMD SPT (NON-AMHA)	12476	26279	24302	24977	17676	10762	10762	10707
M15 ARI MGMT/ADM ACT	1982	2235	1940	1723	1943	1913	5503	5608
M16 STANDARDIZATION GROUPS	3846	4765	4885	5020	5134	5243	5357	5475
M42 ARDEC CMD/CTR Support	5058	6041	5800	6063	6705	6921	8974	9135
M44 CECOM CMD/CTR SPT	3309	3879	4012	4189	4803	4845	8566	8885
M46 AMCOM CMD/CTR SPT	5114	5623	9194	7667	7743	7897	4072	4185
M47 TACOM CMD/CTR SPT	2381	2752	2894	2968	3282	3233	6589	6746
M53 Developmental Test Command/Ctr Spt	10326	11317	11477	11667	11523	9346	9555	9761
M55 Edgewood Chemical Biological Center (ECBC)	4257	4853	5647	5830	6333	6431	3874	3922
M58 SSCOM CMD/CTR SPT	1772	2030	2246	2134	2316	2340	5066	5175
M76 Armament Group Support	1180	1274	1321	1358	1385	1411	1441	1470

**A. Mission Description and Budget Item Justification:** This program funds the continued operation of non-Army Management Headquarters Activities (AMHA) management and administrative functions at U.S. Army Research, Development and Standardization Groups overseas, Army Research, Development, Test, and Evaluation (RDTE) commands, centers and activities required to accomplish overall assigned general research and development missions and international research and development not directly related to specific research and development projects. The Standardization Groups play an integral role in the U.S. Army efforts for international cooperative research, development and interoperability, and fulfill international memoranda of understanding requirements (especially the American, British, Canadian and Australian Armies' Standardization Programs). Starting in FY06, the bulk of funding for The Futures Center transfers to the Operation and Maintenance appropriation

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605801A - Programwide Activities**

**B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	53496	72214	73968	76337
Current BES/President's Budget (FY 2008/2009)	52036	71418	73718	73596
Total Adjustments	-1460	-796	-250	-2741
Congressional Program Reductions		-273		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-1460	-523		
SBIR/STTR Transfer				
Adjustments to Budget Years			-250	-2741

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT		
<b>6 - Management support</b>		<b>0605801A - Programwide Activities</b>					<b>M02</b>		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M02	MED CMD SPT (NON-AMHA)	12476	26279	24302	24977	17676	10762	10762	10707

**A. Mission Description and Budget Item Justification:** This project provides funding for headquarters (HQ) activities that support the Medical Research, Development, Test, and Evaluation (RDTE) Program at the U.S. Army Medical Research and Materiel Command (USAMRMC), Fort Detrick, Maryland to: (1) perform planning, programming, and budgeting, (2) manage resources, and (3) ensure compliance with U.S. Food and Drug Administration (FDA) and other regulatory requirements. It also provides for continued operations of contracting and acquisition management, and related administrative functions performed by the U.S. Army Medical Research Acquisition Activity (USAMRAA) in support of the USAMRMC Medical RDTE Program.

Additionally, the USAMRMC is implementing the Medical Research Information Technology System (MeRITS), an electronic data and document-handling system needed to standardize animal and human clinical trial documentation and centralize storage and access of the same between the Headquarters and its five subordinate laboratories. MeRITS is an integral part of an overall USAMRMC effort to enhance its laboratories performance, efficiency, and accountability. MeRITS FY 2007-2009 expenses include purchase of commercially off-the-shelf (COTS) software and equipment and significant non-recurring contractor costs necessary to tailor the COTS software to meet USAMRMC requirements.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
In FY06, partially funds civilian salaries and operation of USAMRAA and HQ, USAMRMC activities that support the Medical RDTE Program. In FY07, FY08, and FY09, funds authorized civilian salaries; operation of USAMRAA and HQ, USAMRMC; the Special Immunizations Program to store and manage residual contingency stocks of non-FDA-licensed vaccines and other biological products that might be needed to combat infectious diseases; and partially funds other HQ, USAMRMC operational costs (e.g., supplies, equipment, and services) that support medical RDTE.	12476	17090	16310	16860
In FY07, as part of MeRITS integration, testing and implementation, configure COTS software for document management and capture module for experimental data, and design the capability for principal investigators (physician scientists) to report serious adverse events that occur during human clinical trials, as required by the Food and Drug Administration (FDA).. In FY08, will build data management and medical coding capability, continue configuring system components, and field initial systems at pilot laboratories. In FY09, will continue fielding systems to achieve complete coverage of all clinical trials for which the Army Surgeon General is the product sponsor for the FDA, and implement software upgrades, including a capability to electronically submit applications to the FDA for consideration of product licensure.		8784	7992	8117
Small Business Innovative Research/Small Business Technology Transfer Programs		405		
Total	12476	26279	24302	24977

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>		
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>					<b>PROJECT</b> <b>M15</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
M15      ARI MGMT/ADM ACT	1982	2235	1940	1723	1943	1913	5503	5608	
<b><u>A. Mission Description and Budget Item Justification:</u></b> This project supports the non-AMHA management and administrative functions for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to accomplish its mission to conduct the Army's research and development (R&D) in personnel, training, and leader development issues that will ensure the future Army remains ready and relevant. Specifically, this project provides technical and administrative support to the headquarters element and to six field research units and three liaison units to include budget execution, procurement oversight, RDT&E program planning and evaluation, management control, security/safety, logistics, information technology, and personnel/manpower execution and oversight.									
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
Each fiscal year, provides continued operation of management, administrative, and support functions at a level consistent with Army and mission requirements to meet the needs of ARI and the personnel, training, and leader development R&D program.					1982	2235	1940	1723	
Total					1982	2235	1940	1723	

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>					<b>PROJECT</b> <b>M16</b>
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M16      STANDARDIZATION GROUPS	3846	4765	4885	5020	5134	5243	5357	5475
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> Project M16 supports nine International Technology Centers (formerly known as Standardization Groups) (Australia, United Kingdom, Canada, France, Germany, Japan, Chile, Argentina, and Singapore) for personnel, travel and overhead costs, leases on buildings, and mandatory permanent change of station.</p> <p>The mission of the International Technology Centers is to represent the Army and serve as in-country/region focal point for all international armaments cooperation in their Areas (countries) of responsibility to government agencies, academia, and defense industries.</p>								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at the nine International Technology Centers.					3846	4765	4885	5020
Total					3846	4765	4885	5020

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M42</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M42      ARDEC CMD/CTR Support	5058	6041	5800	6063	6705	6921	8974	9135
<b><u>A. Mission Description and Budget Item Justification:</u></b> Supports the non-Army Management Headquarters Activity (AMHA) management and administrative functions at the U.S. Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.					5058	6041	5800	6063
Total					5058	6041	5800	6063

<div> <div>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</div> <div>February 2007</div> </div>									
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>					PROJECT <b>M44</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M44	CECOM CMD/CTR SPT	3309	3879	4012	4189	4803	4845	8566	8885
<b>A. Mission Description and Budget Item Justification:</b> Supports the non-AMHA management and administrative functions at the U.S. Army Communications-Electronics Research Development and Engineering Center (CERDEC), Ft. Monmouth, NJ.									
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CERDEC.						3309	3879	4012	4189
Total						3309	3879	4012	4189

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M46</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M46      AMCOM CMD/CTR SPT	5114	5623	9194	7667	7743	7897	4072	4185
<b><u>A. Mission Description and Budget Item Justification:</u></b> Supports the non-AMHA management and administrative functions at the U.S. Army Aviation and Missile Research And Development Center (AMRDEC), Redstone Arsenal, AL.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMRDEC.					5114	5623	9194	7667
Total					5114	5623	9194	7667

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M47</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M47      TACOM CMD/CTR SPT	2381	2752	2894	2968	3282	3233	6589	6746
<b><u>A. Mission Description and Budget Item Justification:</u></b> Supports the non-AMHA management and administrative functions at the U.S. Army Tank-Automotive Research Development Engineering Center (TARDEC), Warren, MI.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TARDEC.					2381	2752	2894	2968
Total					2381	2752	2894	2968

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605801A - Programwide Activities**

PROJECT

**M53**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M53 Developmental Test Command/Ctr Spt	10326	11317	11477	11667	11523	9346	9555	9761

**A. Mission Description and Budget Item Justification:** Project M53 funds civilian labor and support costs for the technical direction and administrative functions of the Headquarters, U.S. Army Developmental Test Command (DTC) located at Aberdeen Proving Ground, Maryland, and is required to support accomplishment of assigned developmental test missions not directly related to specific test and evaluation projects. This project includes staff/management functions of resource management, safety, security, environmental, strategic planning and ADPE/information/technology support for command-wide databases in support of the developmental test mission with technical direction of five Major Range and Test Facility Bases (MRTFBs) and test centers: White Sands Missile Range (WSMR), New Mexico; Aberdeen Test Center (ATC), Maryland; Dugway Proving Ground, Utah; Electronic Proving Ground (EPG), Arizona; and Yuma Proving Ground (YPG), Arizona; as well as for Redstone Technical Test Center, Alabama; Aviation Technical Test Center, Alabama; Cold Regions Test Center, Alaska; and Tropic Regions Test Center, Hawaii. This is the operating budget for DTC HQ, which provides technical direction for the annual execution of over 2800 tests, 7447 workyears, and a \$2B institutional plus reimbursable program.

**Accomplishments/Planned Program:**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Civilian labor and other support costs for DTC to provide technical direction and administer the assigned Army developmental test mission.	9852	10901	10886	10805
Contract costs required to technically direct and administer the assigned Army developmental test mission; i.e., ADPE/information and technology support for command-wide databases.	429	256	527	778
Materials, Supplies, and Equipment.	45	47	64	84
Small Business Innovative Research/Small Business Technology Transfer Programs		113		
Total	10326	11317	11477	11667

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M55</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M55      Edgewood Chemical Biological Center (ECBC)	4257	4853	5647	5830	6333	6431	3874	3922
<b><u>A. Mission Description and Budget Item Justification:</u></b> Supports the non-AMHA management and administrative functions at the U.S. Army Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, MD.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.					4257	4853	5647	5830
Total					4257	4853	5647	5830

<div> <div>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</div> <div>February 2007</div> </div>									
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M58</b>		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M58	SSCOM CMD/CTR SPT	1772	2030	2246	2134	2316	2340	5066	5175
<b><u>A. Mission Description and Budget Item Justification:</u></b> Supports the non-AMHA management and administrative functions at the Natick Soldier Center(NSC), Natick, MA.									
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at NSC.						1772	2030	2246	2134
Total						1772	2030	2246	2134

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)							February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M76</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M76 Armament Group Support	1180	1274	1321	1358	1385	1411	1441	1470
<b>A. Mission Description and Budget Item Justification:</b> The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program partially funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in international fora, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program also includes: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); partially funds the Four Power Senior National Representatives, Army [SNR (A)], the Technical Cooperative Program, bilateral staff talks, and Army armaments working groups with many nations.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill.					912	993	1031	1040
Funds support Army subject matter experts to attend scientific and technological exchange, meetings, demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies.					268	281	290	318
Total					1180	1274	1321	1358

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605803A - Technical Information Activities

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	48552	47356	41607	43140	42911	43283	39019	39813
720 TECH INFO FUNC ACTV	7139	7447	7801	8162	8247	8309	8492	8679
727 TECH INFO ACTIVITIES	7671	6894	9451	9884	9563	10227	10405	10587
729 YOUTH SCIENCE ACTIV	2901	2179	3049	3177	3227	3273	3326	3380
730 PERS & TRNG ANALYS ACT	1682	1863	1953	2066	2094	2112	2158	2206
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	18310	6879	7204	7562	7638	7696	7865	8038
733 ACQUISITION TECH ACT	5039	5712	8530	8507	8306	7788	2810	2873
737 KNOWLEDGE MANAGEMENT FUSION	2301	3264						
739 ARMY HIGH PERFORMANCE COMPUTING INITIATIVES		9642						
C16 FAST	2570	2372	2475	2589	2617	2636	2694	2753
C18 BAST	939	1104	1144	1193	1219	1242	1269	1297

**A. Mission Description and Budget Item Justification:** This program supports upgrading the accuracy, timeliness, availability, and accessibility of scientific, technical, and management information at all levels of Army Research and Development (R&D). Management of this information is critical to achieve the goals established by the Army's Senior Leadership for the Current and Future Forces. Use of accurate and timely technical information is essential to successfully meeting the milestones required on the path to the Future Force, allowing Army Science and Technology (S&T) leadership to refine investment strategy and quickly react to emerging opportunities and issues. This program includes initiatives to improve information derivation, storage, access, display, validation, transmission, distribution, and interpretation. This program addresses the need to increase the competitiveness and availability of scientific, engineering, and technical skills in the DoD and National workforce through outreach programs aimed at high school students through college. By providing direct working experience for these students in Army laboratories, the programs expose these students to the working world of science and engineering. Work funded under this program includes analyses using behavioral science-based analytic tools to provide policy and decision makers with Soldier-oriented recommendations concerning manpower, personnel, and training issues. Funding is provided for Independent Review Team analysis of technology maturity as part of the Technology Area Readiness Assessment as required by DoDI 5000.2 dated May 12, 2003. This program funds studies by the Board on Army Science and Technology (BAST) and the Army Science Board. This program also supports combatant commanders and major Army commands by providing science advisors to address scientific and technical issues and by providing engineering teams to solve field Army technical problems. Coordination of this program with the other Services is achieved through inter-service working groups. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, Defense Basic Research Plan (DBRP), and the Defense Technology Area Plan (DTAP). Work in this program element is performed by the Research, Development, and Engineering Command (RDECOM), the Army Research Institute for the Behavioral and Social Sciences, the Army Corps of Engineers' Engineer Research and Development Center (ERDC), and the Information Management Office.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	46760	34834	36628	37916
Current BES/President's Budget (FY 2008/2009)	48552	47356	41607	43140
Total Adjustments	1792	12522	4979	5224
Congressional Program Reductions		-181		
Congressional Rescissions				
Congressional Increases		13050		
Reprogrammings	1792	-347		
SBIR/STTR Transfer				
Adjustments to Budget Years			4979	5224

Funding increases in FY08 and FY09 for Science and Technology Enterprise Management (STEM) development and the Army Educational Outreach Program (AEOP).

Three FY07 congressional adds totaling \$12508 (after adjustment for Congressional Undistributed Reductions) were added to this PE.

(\$958) Knowledge Integration & Management COE  
 (\$2205) Knowledge System & Relational Database  
 (\$9345) Army High Performance Computing Research Center

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605803A - Technical Information Activities

PROJECT

720

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
720 TECH INFO FUNC ACTV	7139	7447	7801	8162	8247	8309	8492	8679

**A. Mission Description and Budget Item Justification:** This project provides for technology transfer activities to support acquisition, storage, and utilization of technical information for both military and domestic applications. Effective exploitation of science and technology (S&T) information is critical to achieving the goals established by Senior Army Leadership. Activities include Army support for Federal Laboratory Consortium (FLC) as required by Public Law; the Army Science Board; the Army Science Conference; S&T database management efforts; and administration of the Army's Small Business Innovative Research (SBIR) and Small Business Technology Transfer Program (STTR) in accordance with the Small Business Research and Development Enhancement Act of 1992. Technology transfer activities make technical information available to both the public and private sectors to reduce duplication in Research and Development programs and to increase competitiveness in the US business community. Database management efforts support development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test and Evaluation (RDTE) appropriation. In addition, this project provides funding for patent legal expenses and fees for all Research, Development, and Engineering Command (RDECOM) subordinate commands and laboratories, as required by the Omnibus Budget Reconciliation Act. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, the Defense Basic Research Plan (DBRP), and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory (ARL).

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.	200	209	216	225
Provide administrative and contractual support for the Army Science Board.	1358	1363	1419	1457
Provide administrative support for the Army's SBIR and STTR programs.	1125	1152	1240	1273
Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	815	728	1067	1220
Provide funding for S&T Strategic Planning and Support.	188	193	194	199
Provide funding for the Army Science Conference.	430	475	506	539
Administer S&T database computer engineering support contract and support RDECOM databases S&T management support.	3023	3130	3159	3249
Small Business Innovative Research/Small Business Technology Transfer Programs		197		
Total	7139	7447	7801	8162

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**727**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
727 TECH INFO ACTIVITIES	7671	6894	9451	9884	9563	10227	10405	10587

**A. Mission Description and Budget Item Justification:** This project supports development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test, and Evaluation (RDTE) Appropriation. It includes the hardware, software, and contractor support required to develop and implement a set of management decision aids, databases, and hardware/software tools to support technical and budgetary decisions at the Office of the Secretary of Defense (OSD) and Department of the Army (DA), including support of the Army Science and Technology Master Plan. Most of the efforts in this project are on-going activities to support Army Research, Development, and Acquisition programs. Effective exploitation of S&T information is critical to achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Future Force. Funding in this program support Independent Review Team analysis of technology maturity as part of Technology Readiness Assessments as required by DoDI 5000.2 dated May 12, 2003. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, the Defense Basic Research Plan (DBRP), and the Defense Technology Area Plan (DTAP).

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct and support S&T program portfolio assessments and analysis.	1829	1816	2089	2132
Support Army S&T strategic planning, analysis, and prioritization.	2601	1347	3807	4130
Provide funding and support for Army Science and Technology Master Plan development and publication.	921	1207	1089	1112
Provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone Decisions.	1849	1830	1966	2010
Provide Army support to Director, Defense Research and Engineering Executive Staff for DoD-wide Science and Technology oversight.	471	500	500	500
Small Business Innovative Research/Small Business Technology Transfer Programs		194		
Total	7671	6894	9451	9884

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>6 - Management support</b>		<b>0605803A - Technical Information Activities</b>						<b>729</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
729	YOUTH SCIENCE ACTIV	2901	2179	3049	3177	3227	3273	3326	3380

**A. Mission Description and Budget Item Justification:** This project supports science activities that encourage over 154,000 middle/high school and college youths annually to develop an interest in and pursue higher education and employment in the science, math, and engineering fields. These activities are consolidated within the Army Educational Outreach Program (AEOP) that links and networks appropriate components to derive the best synergies to "present the Army" to a larger pool of technical talent and to provide students with Army unique practical experiences at Army laboratories, centers, and institutes to fill future Army Science and Technology workforce needs. AEOP increases interest and involvement of students and teachers across the nation in science, math, and engineering at all proficiency levels and backgrounds to include under-represented and economically disadvantaged groups by exposure to Army Sponsored research, education, competitions, internships, and practical experiences. The joint Army/Navy Washington regional area Science and Engineering Apprenticeship Program (SEAP) is included in the overall effort. This project enhances the national laboratory science and engineering personnel pool which in turn supports defense industry and Army laboratory needs. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed by the by the Research, Development, and Engineering Command (RDECOM), the Army Research Institute for the Behavioral and Social Sciences, the Army Corps of Engineers' Engineer Research and Development Center (ERDC), Medical Research and Materiel Command (MRMC) and Space and Missile Defense Command (SMDC).

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Foster high school student interest nationally in science, mathematics, engineering, and computer science by sponsoring the Junior Science and Humanities Symposium (JSHS), International Mathematics Olympiad (IMO), International Science and Engineering Fair (ISEF), and the Research and Engineering Apprenticeship Program (REAP).	1359	1449	1478	1596
Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/Research, Development, and Engineering Center (RDEC) sponsorship of students.	220	228	243	248
Conduct the Uninitiated Introduction to Engineering (UNITE) program to increase the numbers of Native Americans, African Americans, and Spanish-speaking Americans attending and completing engineering and/or science curricula at the university level.	197	198	205	205
Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.	250	242	248	253
Support Army Educational Outreach Program (AEOP) to enhance Science, Mathematics, and Engineering education through student experiences in Army labs and academic partner institutions.	875		875	875
Small Business Innovative Research/Small Business Technology Transfer Programs		62		
Total	2901	2179	3049	3177

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**730**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
730 PERS & TRNG ANALYS ACT	1682	1863	1953	2066	2094	2112	2158	2206

**A. Mission Description and Budget Item Justification:** This project provides for the Army's behavioral and social science research-based studies and analyses to address current and near term Soldier, training, and leader development issues. The research provides a unique capability to address a number of issues that affect, directly, or indirectly, Soldier and unit performance and readiness, such as the effects of changes in training on individual and unit performance, the personnel costs of alternative programs and policies and the effects of program changes on retention of quality Soldiers. Requirements for research-based studies and analyses for critical personnel and training issues of immediate importance are solicited on an annual basis from the Training and Doctrine Command (TRADOC), the Assistant Secretary of the Army for Manpower and Reserve Affairs (ASA-M&RA), the Army Deputy Chief of Staff, G-1, and the Human Resources Command (HRC). The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this project is managed by the US Army Research Institute (ARI) for the Behavioral and Social Sciences.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Research-based analyses completed in FY06 included: an initial validation of the Tier Two Attrition Screen (TTAS) to identify non-high school diploma graduate recruits who have the highest potential to remain through their first term of service; evaluated the use of immersive simulation training for dismounted Soldiers; assessed the new Warrior Transition Course; conducted a longitudinal validation of a Leadership Assessment Tool (LAT) for predicting junior non-commissioned officer (NCO) performance above and beyond the current promotion point worksheet system; identified the characteristics of officers who did and did not remain in the Army beyond their initial obligation; and expanded a prototype tool for NCO competency assessment by incorporating items that address lessons learned from recent deployments. Projects for FY07 include assessing the initial implementation of the Basic Officer Leadership Course (BOLC) II at Forts Benning and Sill; completing an evaluation of the new Basic Combat Training (BCT) program of instruction in terms of how well it prepares Soldiers to arrive at their first unit with the combat skills they may need immediately; assessing the current incentives used by the Army that are intended to mitigate the potential negative effects of deployments, assessing the retention of warrior tasks and battle drills, and evaluating the effects of using TSP matching funds as a retention incentive. The FY08 and FY09 programs will be based on issues identified by TRADOC, ASA-M&RA, the Army Deputy Chief of Staff, G-1, and the HRC.	1682	1820	1953	2066
Small Business Innovative Research/Small Business Technology Transfer Programs		43		
Total	1682	1863	1953	2066

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)							February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>				PROJECT <b>731</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	18310	6879	7204	7562	7638	7696	7865	8038
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> This project directly supports Future Force requirements by providing high fidelity modeling, simulation, and analysis of materials, systems, and operational constructs to be employed within the Future Force. The project supports collaborative efforts to advance computational science and its application to critical Army technologies. The Centers work with researchers at Army laboratories to explore new algorithms in the computational sciences to address critical technology issues in numerous and diverse computational research areas. The Centers also sustain high performance computing environments and educational outreach as an integral part of their mission. The cited work is consistent with Army Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory (ARL).</p>								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Sustain the high performance computing environment and infrastructure in support of the US Army Tank and Automotive Research Development and Engineering Center (TARDEC).					1966	2166	2252	2300
Sustain the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPCRC) research, education, and outreach activities.					1076	1208	1247	1300
Sustain the high performance computing environment and infrastructure in support of the US Army Research Laboratory's Major Shared Research Center (MSRC).					2998	3400	3705	3962
Army High Performance Computing Research Center (AHPCRC): In FY06, congressional funding was provided for AHPCRC for (1) high performance computing research; (2) computational sciences to enhance interior ballistics prediction capability for Army application; and (3) staff scientists and outreach activities. No additional funding is required to complete this project.					12270			
Small Business Innovative Research/Small Business Technology Transfer Programs						105		
Total					18310	6879	7204	7562

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**733**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
733 ACQUISITION TECH ACT	5039	5712	8530	8507	8306	7788	2810	2873

**A. Mission Description and Budget Item Justification:** This project improves the Army's acquisition process by applying decision support and expert information systems, and by supporting analysis and evaluation of alternative acquisition strategies using techniques such as value-added analysis and analysis-of-alternatives. This project provides the environment for the analysis and evaluation of new information technologies, concepts, and applications for integrated management activities and support dynamic Army acquisition technology requirements. This program supports analysis efforts to conduct critical analyses for Army leadership in support of Army Transformation. These analyses are used by leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldiers. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this program element is performed by the Army Acquisition Support Center.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases. Analyze acquisition program financial programming and budgeting requirements. Continue development of Weapon Systems Handbook, long-range planning and policy analysis, resource allocation analysis, cost tracking, and analysis.	4205	4650	7523	7551
Conduct analysis and evaluation of new information technologies, concepts, and applications of integrated management activities to meet the dynamic Army acquisition technology requirements.	834	901	1007	956
Small Business Innovative Research/Small Business Technology Transfer Programs		161		
Total	5039	5712	8530	8507

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**C16**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
C16 FAST	2570	2372	2475	2589	2617	2636	2694	2753

**A. Mission Description and Budget Item Justification:** The Field Assistance in Science and Technology (FAST) program focuses Army Materiel Command (AMC) resources to rapidly identify and solve Army field technical problems that enable the improvement of readiness, safety, training, and reduce operations and support (O&S) costs. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers. Science advisers are recruited from AMC headquarters and all AMC Major Subordinate Commands (MSCs) to serve combatant commands and major commands worldwide. The FAST activity is also supported by assigned Quick Reaction Coordinators (QRCs) within each engineering center. All costs associated with science advisor assignments are funded by AMC or the AMC MSCs that supply the science advisers for two to three year tours. The FAST program recoups many times its cost in O&S (cost) savings. FAST also provides emerging technology demonstration opportunities to the Research, Development, and Engineering Command's (RDECOM) engineering centers and DARPA and executes biannual Technology Applications Conferences (TAC) on a rotating basis between FORSCOM, USAREUR, and USFK/Eighth Army. FAST also maintains close coordination with the Navy Science Advisor Program (Naval Fleet Forces Technology Integration Office). The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this project is performed by the US Army Materiel Command.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Respond to combatant commanders worldwide with technological solutions to urgent materiel problems they identify; deploy science advisors with US Task Forces in support of combatant commanders; execute biannual Technology Applications Conference.	2570	2315	2475	2589
Small Business Innovative Research/Small Business Technology Transfer Programs		57		
Total	2570	2372	2475	2589

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**C18**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
C18 BAST	939	1104	1144	1193	1219	1242	1269	1297

**A. Mission Description and Budget Item Justification:** This project funds Army efforts by the National Research Council's (NRC) Board on Army Science and Technology (BAST). The BAST provides an independent, objective, and credible source of external advice to the Army. It serves as a convening authority for the discussion of science and technology issues of importance to the Army and oversees independent Army-related studies conducted by the National Academies. Working in close coordination with the Army, the BAST helps define problems, brings together experts to study these problems and provides recommendations. Committees are assembled in accordance with established NRC procedures and BAST studies often continue longer than 12 months. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this project is performed extramurally by the Army Research Laboratory (ARL).

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide studies and conducts periodic meetings to help identify, assess, and recommend emerging opportunities in science and technology fields applicable to the US Army. Primary study topic for FY06 was the Network Sciences Study. Topics for FY07, FY08, and FY09 will be selected according to Army S&T strategy and senior leader initiatives.	939	1073	1144	1193
Small Business Innovative Research/Small Business Technology Transfer Programs		31		
Total	939	1104	1144	1193

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605805A - Munitions Standardization, Effectiveness & Safety

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	36413	36914	19606	20992	21296	22180	23235	23748
296 PYROTECHNIC RELIABILITY & SAFETY	821	896	1118	1148	1192	1200	1300	1500
297 Mun Survivability & Log	4548	4999	5044	5895	5905	5693	5560	5636
857 DOD EXPLOSIVES SAFETY STANDARDS	700	1512	1589	1659	1703	1946	2284	2325
858 ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	392	440	401	467	479	492	503	514
859 LIFE CYCLE PILOT PROCESS	21885	19148	3689	3769	3827	3981	4046	4102
862 FUZE TECHNOLOGY INTEGRATION	1865	2039	2138	2195	2241	2285	2329	2369
F21 NATO SMALL ARMS EVAL	938	1002	1007	1026	1048	1060	1056	1056
F24 CONVENTION AMMO DEMIL	5264	6878	4620	4833	4901	5523	6157	6246

**A. Mission Description and Budget Item Justification:** This Program Element supports continuing technology investigations. It provides a coordinated tri-service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment. It provides for NATO interchangeability testing (F21); Joint munition effectiveness manuals used by all services; development of standardization agreements (STANAGS) and associated Manuals of Proof and Inspection (MOPI); operation of the North American Regional Test Center (NARTC); evaluation of demilitarization methods for existing conventional ammunition (F24); evaluation of useful shelf life, safety, reliability and producibility of pyrotechnic munitions; and improvement of explosives safety criteria for DOD munitions via the DOD Explosives Safety Board (857). Pyrotechnic Reliability and Safety (296) supports pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics. Project 296 will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions. Munitions Survivability and Logistics (297) will make Army units more survivable by applying technologies to reduce the sensitivity of munitions to unplanned stimuli (e.g. bullet impacts, fragment impacts, fast cook off, slow cook off, sympathetic detonation, shaped charge jets) and by testing and demonstrating munitions logistics system solutions that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Project 297 also supports the Army Insensitive Munitions (IM) Board's reviews. The Army Explosives Safety Management Program (858) was established in FY01. The U.S. Army Technical Center for Explosives Safety uses the funds in this project to evaluate current explosives safety standards and develop new, scientific and risk-based standards to meet U. S. Army explosives requirements. The Life Cycle Pilot Program (LCPP) (859) will assess production base capabilities and needs over the acquisition life cycle of various munitions and will address the producibility of ammunition including the transition to type classification and production, and the ability of the production base to cost effectively produce quality products on schedule. The Fuze Technology Integration program (862) will improve performance and lower the costs of existing proximity fuzes and enable new applications in submunitions and medium caliber fuzes, addressing advanced proximity fuze sensor technology, Micro-electromechanical Systems (MEMS), Safety and Arming (S&A) technology, and Electronic S&A (ESA) technology for smart munitions.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness & Safety**

**B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	37530	18726	18585	19199
Current BES/President's Budget (FY 2008/2009)	36413	36914	19606	20992
Total Adjustments	-1117	18188	1021	1793
Congressional Program Reductions		-141		
Congressional Rescissions				
Congressional Increases		18600		
Reprogrammings	-1117	-271		
SBIR/STTR Transfer				
Adjustments to Budget Years			1021	1793

Change Summary Explanation: Funding:

FY 2007: Congressional increases of +16.2M for Life Cycle Pilot Process efforts (Project 859) and +\$2.4M for Demil efforts (Project F24).

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>			<b>PE NUMBER AND TITLE</b> <b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>					<b>PROJECT</b> <b>296</b>
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
296 PYROTECHNIC RELIABILITY & SAFETY	821	896	1118	1148	1192	1200	1300	1500
<b>A. Mission Description and Budget Item Justification:</b> This project will support pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.								
<b><u>Accomplishments/Planned Program:</u></b>					<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Improved Delay Reliability					132			
Colored Smoke Study					258			
Mitigation of Perchlorates					262	294	371	
Service Life Studies					169	131		
Heavy Metal in Green Illuninants						307	307	175
Fragmentation Studies						138	168	
Nanoparticles for Pyro Items							272	381
Safer, More stable items								283
Multifunction Pyro Simulators								309
Small Business Innovative Research/Small Business Technology Transfer Programs						26		
Total					821	896	1118	1148

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT	
6 - Management support			0605805A - Munitions Standardization, Effectiveness & Safety					297	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
297	Mun Survivability & Log	4548	4999	5044	5895	5905	5693	5560	5636

**A. Mission Description and Budget Item Justification:** This project supports the Army Transformation by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, insensitive munitions (IM) technology integration and compliance, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munitions could cripple the force, jeopardize the mission, and result in high loss of life. This project mitigates vulnerabilities and ensures a survivable fighting force.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Develop scoring patterns and techniques for munitions packaging that will create a venting system during propellant burning to reduce internal pressures and minimize explosive reactions.	340	528		
Demonstrate new generation of low cost, lightweight, ammunition containers with enhanced IM performance. Evaluate advanced materials and processes for manufacturing, produce prototype containers, and conduct IM and structure integrity tests.		180	472	500
Demonstrate a less sensitive high-performance, melt-castable explosive to replace Composition B explosive in mortars and other warheads for reduced sensitivity to unplanned stimuli.	470	500		
Demonstrate low temperature gas generating mixtures that when added to explosives reduce reaction to unplanned stimuli. As temperature rises during cook-off, this additive produces pressure to rupture the projectile resulting in a controlled burning rather than detonation. FY05-Evaluated several cast cured explosive additives to mitigate violent reactions of munitions in a cook-off environment.	50			
Demonstrate new IM explosives formulated from new less sensitive basic explosive ingredients and binders to meet the most difficult threats (sympathetic detonation and shaped charge jet impact).			1078	1422
Conduct reviews of munitions in development and production to determine if they meet a DoD 5000.1 requirement to withstand unplanned stimuli, manage technology integration efforts to meet the requirement, update and maintain IM compliance status database, the IM waiver process for the Army, and the PEO Ammunition IM Strategic Plan.	513	437	472	542
Optimize munitions designs for IM compliance by modeling and simulating the reactions of these designs to unplanned stimuli in order to characterize the behavior and performance of energetic materials. FY05-Surveyed IM Modeling and Simulation capability, assisted IM technology development programs by applying modeling and simulation.	197			
Evaluate and demonstrate new explosive that could mitigate munitions violent reactions from Shaped Charge Jet Impact (SCJI).	300			
Develop standard test equipment and procedure to evaluate IM explosive candidates. This will ensure that generic Fragment Impact,	490	500	500	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>		<b>297</b>	
Bullet Impact, Sympathetic Detonation, and Cook-off tests standardize rankings for new candidate IM explosives in a way consistent with their application in actual munitions.				
Conduct modeling and simulation to evaluate the effects of IM munitions vs. Non-IM munitions on selected weapon platforms to show the benefits of IM to system/soldier survivability.	177			
Reduce the sensitivity of Comp B explosive by modifying the formulation with a new binder. Successful implementation of this program will provide incremental IM improvements for large High Explosive filled munitions and achieve tremendous cost saving by using the Comp B for the ammunition stockpile.	140	297		
Demonstrate a new generation of IM booster material for a new family of IM explosives which cannot be initiated with a currently available booster.		530	600	600
Demonstrate new IM propellants formulated from new less sensitive basic propellant ingredients and binders to help munitions meet the most difficult threats (sympathetic detonation and shaped charge jet impact)				678
Redesign the rims/rings of current square rimmed cylindrical tank and artillery munitions containers to function as external cushioning (eliminating internal cushioning) and withstand stacking loads. Develop a lightweight, vented container cover. These improvements will reduce container weight and size and improve IM performance.	80			
Evaluate powder coating alternatives for painting ammunition/munitions containers to reduce hazardous waste and eliminate costly Volatile Organic Chemical (VOC) management associated with paints while insuring NBC survivability.	245	105		
Evaluate and recommend alternative materials and methods for strapping ammunition loads to pallets at load plants, depots, contractor facilities and in field operations.	175	50		
Investigate the application of next generation passive RFID tags to all possible ammunition packaging mounting scenarios to include internal and external.		100	100	
Investigate alternatives to both natural and processed wood ammunition packaging pallets and boxes that provide a cost effective, environmentally and phyto-sanitary compliant packing and unitization option.		130	200	
Design and demonstrate a tank ammunition container sized to be compatible with the Joint Modular Intermodal Container (JMIC) footprint in order to demonstrate rapid and seamless delivery of tank ammunition configured loads to the warfighter.		90		
Investigate and test alternative consolidation methods for small 60/81/120mm mortar and other similar systems. This will potentially eliminate packaging layers and enhance accessibility.			200	110
Investigate and test alternative methods (blankets, coatings, dunnage) to achieve reductions in solar loading on ammunition packaging.				110
Investigate, develop, and test combination structures of various materials to lighten and enhance performance of munitions packaging. Insert molding, adhesive bonding, composite fabrication techniques will all be leveraged.				140
Demonstrate application of nano-technologies for ammunition container coatings to improve anti-stick properties leading to less staining and easier cleanup during retrograde operations of all munitions.				140
Demonstrate a munitions storage area planning software tool that enables soldiers to quickly design a survivable and efficient in-theater storage area given known quantities and types of munitions and terrain features.	84			
Demonstrate standard sized inter-modal shipping modules for ammunition. The modules will interlock with each other, top to bottom, and	1287	1411	500	456

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>		<b>297</b>	
cargo platforms to form a stable, palletized, mixed-supply class configured load. They are automation friendly and rapidly re-configurable to meet changing user needs.				
Demonstrate a set of low cost visual condition indicators applied to ammunition to quickly determine item status due to exposure to extreme environmental conditions. Permits more efficient and responsive deployment and sustainment operations.			200	200
Increase ammunition logistics system responsiveness by demonstrating Information Technology enhancements and identifying changes in ammunition business practices needed to improve accountability from the depot to the weapon/soldier in the field.			217	400
Demonstrate a pallet level inventory system that automatically tracks munitions data as pallet quantities are changed. Technologies will be integrated into Enterprise Systems to improve logistics system agility and responsiveness.			300	300
Demonstrate a next generation of rapid ammunition tie down restraint systems to be compatible with commercial & joint military trailers and tactical trucks and military transportation platforms like: Container Roll in/On Platform (CROP), flatracks, 463L.			205	297
Small Business Innovative Research/Small Business Technology Transfer Programs		141		
Total	4548	4999	5044	5895

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)							February 2007	
BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>				PROJECT <b>857</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
857 DOD EXPLOSIVES SAFETY STANDARDS	700	1512	1589	1659	1703	1946	2284	2325
<b>A. Mission Description and Budget Item Justification:</b> This program supports the Research, Development, Test, and Evaluation efforts of the DoD Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.								
<b><u>Accomplishments/Planned Program:</u></b>					<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Develop improved tri-service design procedures and improved computer codes for explosion-resistant structures. Initiate preparation of revised tri-service manual TM-51300.					50	255	279	314
Collect and analyze airblast/fragment/thermal data for revising DoD, NATO hazard classification.					171	234	245	246
Develop improved explosives and munitions tests and characterization data. Specifically, develop improved gap tests for rocket motors.					100	338	275	330
Develop improved DoD and NATO explosives safety guidelines for munitions storage, explosives and field operation facilities. Prepared revised Dod 6055.9-STD and 4145.26M.					100	204	269	223
Conduct other hazards analyses and expand/automate explosives safety databases. Develop improved Explosives Safety Mishap Analysis Module with links to accident reports.					40	258	313	261
Develop and improve risk based analysis tools for explosives safety. Develop sequence of operations prototype.					239	266	208	285
Small Business Innovative Research/Small Business Technology Transfer Programs						-43		
Total					700	1512	1589	1659

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness & Safety**

PROJECT

**859**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
859 LIFE CYCLE PILOT PROCESS	21885	19148	3689	3769	3827	3981	4046	4102

**A. Mission Description and Budget Item Justification:** This project supports the implementation of the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan through technology investigations, model based process controls, pilot prototyping, and industrial assessments. It will assess life cycle production capabilities required for all ammunition families, address design for manufacturability to facilitate economical production, identify industrial and technology requirements, and address the ability of the production base to rapidly and cost effectively produce quality products. Cost Reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the resources to prototype critical technologies and develop the knowledge base to establish cost-effective, environmentally safe and modern production processes in support of the Munitions Industrial Base transformation.

**Accomplishments/Planned Program:**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue ongoing technology investigations. Developed concept designs and plans to transfer life cycle pilot process technology into the supplier base.	1580	1341	1521	1567
Performed numerous production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology. Identified over 700 single points of failure in the supplier base and began assessment of mitigation plans.	1080	841	750	762
Develop "pilot" prototype processes for critical ammunition end items and components necessary to establish quality, affordable, and environmentally safe production.	2225	2041	1418	1440
Establish framework and operations for the NJ Nanotechnology and Micro-Electromechanical Systems (MEMS) Consortium in support of ammunition production modernization.	3000	3888		
Develop a new x-ray inspection system for munitions using a Cadmium Zinc Telluride (CZT) detector for automated munitions inspections and surveillance.		972		
Continued development of processes to eliminate safety concerns and achieve net-shape manufacturing of advanced cluster energetic materials by developing novel coating and handling processes to support Insensitive Munitions (IM) explosive fill and transfer those processes to the supplier base. Developed advanced coating technology and began transfer of process technology to the explosive manufacturing Industrial Base.	2000	3888		
Continue established Government, Industry and Academia partnerships to support the development of aluminum Metal Matrix Composite (MMC) prototype technologies for munitions application. Established advanced casting capabilities for Metal Matrix Composites.	1500			
Rapidly prototpe and capture the manufacturing science of munition items utilizing nanotechnology.	1000			
Establish advanced "ManTech" pilot part processing technology cell, in conjunction with ARDEC Center for Manufacturing Science, to support metal parts fabrication processes determined to be core capabilities for munitions production.	1000			
Establish commercial partnership with ARDEC's Center for Manufacturing Science for the prototyping process and capturing production knowledge in the arena of forged and drawn metal parts.	1400	1944		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)				February 2007	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT
<b>6 - Management support</b>		<b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>			<b>859</b>
Assess manufacturing and alloy parameters that affect the performance of armor piercing ammunition and capture the knowledge that will allow new technology to be inserted into current ammunition.		1000			
Addressed manufacturing issues on munitions products to insure manufacturing knowledge is available for transfer into the Industrial Base. Investigated pilot processes for Single Point Failure mitigation and performed technology assessments in support of pilot scale prototyping of critical munition items.		2100			
Investigated pilot processes for Single Point Failure mitigation and performed technology assessments in support of pilot scale prototyping of critical energetic ingredients and components for munition items.			2722		
Develop technology for the sensing of depleted uranium munition residue in soils and water and investigate technologies for the physical separation of depleted uranium from soils/water.		4000			
Establish a focal point with the Defense Materials Technology Center to investigate innovative technology to support the needs of the munitions industrial base in metals manufacture.			972		
Small Business Innovative Research / Small Business Technology Transfer Programs			539		
Total		21885	19148	3689	3769

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness &amp; Safety</b>				PROJECT <b>862</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
862 FUZE TECHNOLOGY INTEGRATION	1865	2039	2138	2195	2241	2285	2329	2369

**A. Mission Description and Budget Item Justification:** This program investigates maturing technologies and seeks potential candidates for integration on current fuzing and safe and arm devices. This program will implement these technologies into fuzing systems to preclude obsolescence and enhance performance of existing munitions. The program addresses two major areas: (1) risk mitigation and (2) block upgrades. The first area is risk mitigation, which will evaluate a second source Monolithic Microwave Integrated Circuit (MMIC) for artillery and mortar fuzes and a second source signal processor for mortars. Risk mitigation efforts will evaluate and demonstrate second sources for fuzing systems that may reduce cost by providing competition, and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting aging studies of major fuze components to detect and identify latent defects. The second major area is block upgrades, which will evaluate and perform studies on improvements to the Bunker Defeat Munition (BDM) impact sensor; increase commonality of fuze components and requirements across all hand grenade programs; determine feasibility of common training fuze for 60, 81, and 120mm mortar rounds; determine feasibility of common mortar safe and arm device components for M734A1, M783 Fuzes. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Risk Mitigation: Fabricated multiple wafer runs on the second source Monolithic Microwave Integrated Circuits (MMIC) effort, evaluated prototype devices and collected data for input to a follow-on wafer iterations. Fabricated and packaged 1st wafer run parts for the second source signal processor IC for the M734A1 application. Task order contract to Tyco-MACOM for second source MMIC transceiver for mortars and artillery. Second source component designs are completed and in fabrication. Evaluating storage reliability of current artillery batteries/determine possible solutions to battery electrolyte storage instabilities and upgrade a battery spin-airgun. Evaluate improvements to stockpiled training and war reserve fuzes to enhance capabilities and/or address deficiencies. Evaluate, new second sources for Monolithic Microwave Integrated Circuits (MMICs) used in artillery and mortar fuzes, evaluate new battery and electronics sources for current inventory fuzes. Evaluate second source for electronic safe and arm device (ESAD) components.	990	700	770	950
Block Upgrades: Field test performed for Bunker defeat Munition (BDM) impact sensor signature collection. Target impact signature data collected. Fabricated fuze electronics and conducted a ballistic test of prototype BDM Fuze. Leveraged low cost COTS components into a small, low power optical mortar tube exit sensor, for non-ferrous mortar tubes, final report will be provided to PM CAS as an alternate tube exit sensor. Investigate drop in proximity upgrades for current airburst fuzing for mortar, artillery and other munitions. Complete breadboard design of new artillery processor. Evaluate proximity sensor upgrades for M734A1. Determine feasibility of a common training fuze for 60,81, and 120mm mortar rounds. Evaluate a mortar common Safe and arm device for M734A1 and M783 rounds. Perform a study on commonality of fuze components and requirements across all hand grenades (M67, M84, and M18).1245	875	1282	1368	1245
Small Business Innovative Research/Small Business Technology Transfer Programs		57		
Total	1865	2039	2138	2195

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
6 - Management support		0605805A - Munitions Standardization, Effectiveness & Safety						F21	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
F21	NATO SMALL ARMS EVAL	938	1002	1007	1026	1048	1060	1056	1056

**A. Mission Description and Budget Item Justification:** This program assures complete interchangeability of small caliber and automated cannon-caliber ammunition and weapons among all NATO countries with all of the associated logistic, strategic and tactical advantages. Project involves development, maintenance and testing compliance of NATO standardization agreements (STANAGS) and staffing of the NATO North American Regional Test Center (NARTC).

FY 2008 funds maintain the NARTC and support NATO qualification/production testing of select ammunition types produced by Lake City Army Ammunition Plant (LCAAP) and second source manufacturers. Additionally, funds will continue to support the development of a STANAG and Manual of Proof and Inspection for 40mm Low Velocity Grenade ammunition and the facilitization of the NARTC/NTC for 40mm High Velocity Grenade Ammunition.

FY 2009 funds maintain the NARTC and support NATO qualification/production testing of select ammunition types produced by LCAAP and second source manufacturers. Additionally, funds will continue to support the development of a STANAG and Manual of Proof and Inspection for 40mm Low Velocity Grenade ammunition and the NATO qualification of US 30mm x 137mm and 40mm High Velocity Grenade Ammunition.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
40mm High/Low Velocity Standardization	55	40	45	50
30mm Assessment Team	20	20	20	20
Maintain standardization of Qualified designs	90	100	100	100
New Ammo Design Qualification & NATO Nominated Weapon Evaluation	120	120	132	121
NARTC Equipment Purchases	50	50	80	95
Staff, Equip, Maintain NARTC	120	130	130	140
Aeroballistic Study of M856		143	90	50
Design & Refine Models	75	75	75	95
Design Optimal M855 Parameters	155			
Optimize Manufacturing Process	253	296	335	355
Small Business Innovative Research/Small Business Technology Transfer Programs		28		
Total	938	1002	1007	1026

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT	
6 - Management support			0605805A - Munitions Standardization, Effectiveness & Safety					F24	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
F24	CONVENTION AMMO DEMIL	5264	6878	4620	4833	4901	5523	6157	6246

**A. Mission Description and Budget Item Justification:** This project supports a continuing technology evaluation of demilitarization methods for all types of conventional ammunition in development, production, and storage, as well as conventional ammunition recovered from formerly used defense sites (FUDS). Project F24 will complete the development and demonstration of new, safe, and environmentally acceptable alternatives to open burning/open detonation (OB/OD), including recovery/recycle/reclamation equipment, and processes to reduce the extremely large stockpile of munitions in the resource recovery disposition account and munitions recovered from FUDS.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Prove-out prototype plasma arc technology for conventional ammunition and resource recovery potential.	1196	900		
Install and prove-out cryofracture demilitarization process for anti-personnel landmines and other munitions.	664	791		
Development of integrated cryofracture/plasma arc technology on a mobile platform.	195	150	150	200
Development of recycle/reuse technology for magnesium/aluminum.	1784	1949	1200	500
Develop, install and prove out of transportable alternative materials recovery capabilities for various energetic components.	125	100	100	
Multi-based propellant recovery technology application.	50	100	1364	1991
Development of advanced resource recovery/reuse technology for explosives.		194	1000	1000
Development of Technology for Demilitarization of insensitive munitions		100	600	900
Implementation of advanced cutting technology			206	242
The purpose of this Congressional Add is to support recovery of critically needed propellant ingredients from obsolete and/or waste gun propellant formulations. No additional funds are required to complete this project.	1250	2400		
Small Business Innovative Research / Small Business Technology Transfer Programs		194		
Total	5264	6878	4620	4833

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 6 - Management support

## PE NUMBER AND TITLE

### 0605857A - Environmental Quality Technology Mgmt Support

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
	Total Program Element (PE) Cost	3838	4370	4958	5158	5276	5169	5213	5328
031	Environmentally Sustainable Acquisition/Logistics	2834	3232	3428	3657	3737	3811	3895	3981
06H	UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	1004	1138	1179	1226	1259	1290	1318	1347
06I	POLLUTION PREVENTION TECH SUPPORT			351	275	280	68		

**A. Mission Description and Budget Item Justification:** This program resources environmental quality technology (EQT) related management support functions including support of RDT&E required for EQT technical integration efforts at demonstration/validation test sites, technical information and activities, test facilities and general test instrumentation, and EQT requirement assessments. Funds required to support the management of technology transfer associated with technology demonstrated or validated as part of Army EQT projects are included in this program element. In addition, support to the Army weapon system acquisition community to address generic pollution prevention related requirements are included under the Environmentally Sustainable Acquisition/Logistics Program.

The Environmentally Sustainable Acquisition/Logistics Project includes the program management for developing acquisition strategies that both achieve system key performance parameters and sustain the environment without permanent and unacceptable change in the natural environment or human health from system concept refinement to disposal. It includes systematic consideration of environmental impacts, energy use, natural resource and installation impacts economics, and quality of life. It provides support to the system acquisition community; e.g., program and project managers, to integrate environmental quality analyses into system acquisition process. The goal is to resolve environmental quality issues related to weapon systems that are identified during design, development, testing, operation, or support to reduce Army environmental liabilities and total ownership cost and includes the following: efforts to eliminate the use of hazardous and ozone-depleting materials from weapon systems and facilities, and helping to ensure the availability of Halon 1301 to support weapon system fire suppression requirements through the year 2020.

The Unexploded Ordnance Detection and Clearance project will, beginning in FY 2004, be overseen by the Army. The project has been overseen by office of the Secretary of Defense in prior years. This project funds the Joint Unexploded Ordnance Coordination Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to provide oversight in coordinating requirements and technologies in detection and clearance of unexploded ordnance (UXO) and related ordnance issues within the Department of Defense (DoD).

The Pollution Prevention Technology Support project will provide management support for the demonstration and validation of reformulated surface coating materials for weapon systems production and maintenance operations. These materials will increase operational sustainment and warfighter training capabilities by reducing soldier health risks, environmental impacts and compliance enforcement actions against installations while increasing coatings performance and standardization across the Army. This project manages research, development, test and evaluation (RDTE) activities under projects 0603779A, Environmental Quality Technology Dem/Val (E21), and 0603804A, Logistics and Engineer Equipment \_ Adv Dev (K42), which together serve to transition advanced technologies developed under 0603728A, Environmental Quality Technology

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Mgmt Support	
Demonstrations (025).		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605857A - Environmental Quality Technology Mgmt Support**

**B. Program Change Summary**

FY 2006	FY 2007	FY 2008	FY 2009
3957	4418	4643	4892
3838	4370	4958	5158
-119	-48	315	266
	-17		
-119			
	-31		
		315	266

Change Summary Explanation:

None

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT		
<b>6 - Management support</b>		<b>0605857A - Environmental Quality Technology Mgmt Support</b>					<b>031</b>		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
031	Environmentally Sustainable Acquisition/Logistics	2834	3232	3428	3657	3737	3811	3895	3981

**A. Mission Description and Budget Item Justification:** A. Mission Description and Budget Item Justification: The Environmentally Sustainable Acquisition/Logistics (ESAL) project provides support to the system acquisition community to integrate environmental quality, system safety and occupational health, energy efficiency and material compatibility/corrosion control issues and concerns into the system acquisition process. The Army Acquisition Executive, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), and the Commanding General, Army Materiel Command (AMC) have defined the functions of the ESAL project in coordination with the office of the Assistant Secretary of the Army for Installations and Environment [ASA(I&E)]. This project supports acquisition policy support for concerns of Program Executive Officers and program managers and guidance and direct support for the Army acquisition community. ESAL helps the Army achieve compliance with its weapon systems, industrial base, field and deployed activities directed by international treaties, Federal statutes, Executive Orders, DoD and Army policies and regulations.

ESAL funds system acquisition support to the Army's Environmental Technology Technical Council (ETTC) and coordinates environmental quality related systems' needs for expanded research and development efforts. ESAL tasks are executed using appropriate Army research, development, and engineering centers; Army laboratories; and contractor facilities. Technologies are assessed for material compatibility, system safety, toxicity and health hazard risks and are implemented by program managers and life cycle management commands with their resources during design, development, or production; on the shop floor; during operations; and/or through improved materials and processes used by or on their system.

ESAL includes Army efforts to eliminate the use of ozone-depleting substances from weapon systems and facilities, to manage the Army ozone-depleting substance reserve, and Army acquisition efforts to eliminate the use of hazardous and toxic materials on Army systems. ESAL works in coordination with tactical units and field commands to leverage lessons-learned from field commanders to reduce the burden of hazardous materials on logistics and to reduce hazardous waste generated during operations and support of weapon systems. This includes supporting National Environmental Policy Act (NEPA) analyses by sharing data at the major command, installation, and unit level as appropriate. The focus of ESAL is on improving readiness, improving acquisition processes, reducing supportability burden, and minimizing total ownership cost. ESAL includes support to the Joint Group on Pollution Prevention (JG-PP).

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
- Environmentally Sustainable RDTE program management and oversight of technology integration efforts by Army Life Cycle Management Commands and weapon system program environmental integrated process teams. Participation and technical assistance in integrating pollution prevention technologies into system engineering activities. Technology management with weapon system environmental management teams to implement Department of Defense/Army policies related to hazardous and toxic materials, ozone depleting substances and environmental management systems to reduce environmental risks to acquisition programs. Provided oversight to integrated process teams addressing environmental quality issues from Army commodities and including participation in the Stryker Brigade Combat Team and Unit of Action environmental management teams. Provided technology management support across commodity areas for the Unit of Action in FY06 and represented the Army acquisition community in development of Environmental	614	720	759	807

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605857A - Environmental Quality Technology Mgmt Support</b>		<b>031</b>	
Analyses related to Army Modernization. During FY07, continued emphasis will be placed on support of Acquisition Category (ACAT) II and ACAT III systems when the Milestone Decision Authority is not the Army Acquisition Executive.				
- Technical management and oversight of the Army's reserve of ozone depleting substances. Includes oversight of Army programs developing alternative chemicals to substitute into mission critical applications in tactical vehicles and aircraft. The reserve contains the Army's strategic resources of Halon 1301 used for explosion and fire suppression systems, and Freon (R-12) used for tactical cooling systems in wheeled combat and combat support vehicles. Technical management includes oversight of operational use of reserve resources, resolution of operational problems affecting reserve resources, coordination with weapon system program managers to affect system replacement and retrofit to eliminate ozone depleting chemicals, coordination and technical assistance to garrison commanders to assure recovery and deposit of excess Halon 1301 and R-12 into the reserve and management of resource levels to assure continued availability of Halon 1301 and R-12 needed to support combat mission critical applications throughout the life of legacy weapon systems. Includes participation in Federal government and multi-national forums discussing use of ozone depleting substances, justifying mission critical applications, and addressing international importation and use regulations. During FY06, significant effort supported Army warfighters in Operation Enduring Freedom and Operation Iraqi Freedom assuring adequate supplies of fire/explosion suppression and cooling agents in the theatre of operations. In addition, provided coordination and oversight to testing of Transcritical carbon dioxide (CO2) cooling systems for support to up-armored tactical vehicles. This new cooling system is demonstrating significant cooling improvement and is being coordinated for implementation. ESAL plans to maintain level funding support of continued warfighter readiness.	331	391	414	443
- Technical management and oversight of system safety, health hazard and toxicity assessments of materials and chemicals used in weapon system configuration, production, maintenance and operation. Army regulations require all new materials and chemicals be assessed for health hazards and toxicity prior to introduction into the Army inventory. Technical management and oversight assure "environmentally preferable" materials and chemicals do not introduce unknown risks to soldiers and workers. Technical management is provided to assist in risk mitigation decisions for implementing solutions.	76	84	89	95
- Technology support to Program Executive Offices and program managers to integrate environmental quality considerations into systems engineering activities. Includes definition of technology requirements to meeting operational requirements, participation in developing test plans and protocols, oversight of testing efforts, analysis of technical data to support implementation decisions, participation in technical and cost risk assessment and reassessment and revision of contractual and operational requirements for successful technology integration, operation and support. Accomplished through direct participation in weapon system environmental management teams located at major subordinate commands. Includes technology management in Environmental Management Systems and participation in documentation and review processes supporting weapon system program milestone decisions. Directly supported elimination of Cadmium, Hexavalent Chromium, and Halon from the Stryker and other ground combat systems. Continued development of an environmental management system for the Unit of Action, reviewing environmental statutes and regulations affecting communications-electronic commodities, and preparing environmental documentation for initial capability documents and in preparation for milestone reviews.	410	428	455	485
- Technology management, technical support and representation of the Army Materiel Command (AMC) on the Joint Logistics Commander's Joint Group on Pollution Prevention. Includes coordination of technology requirements among service members, coordination of technology and operational requirements among Army program managers, management and oversight for developing joint test protocols, oversight of testing activities, and technical data analysis of test results to support systems engineering decision making.	151	140	149	158
- Technology management, technical support, and representation of the AMC voting member of the Army's Environmental Quality	641	739	786	838

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>6 - Management support</b>	<b>0605857A - Environmental Quality Technology Mgmt Support</b>		<b>031</b>	
Technology program's Environmental Technology Technical Council (ETTC). Includes coordination of Technology Base (RDTE) Budget Activity (BA)-1 & BA-2 requirements among members of the ETTC Pollution Prevention Technology Team, coordination of technology and operational requirements in support of RDTE BA-3 and BA-4 evaluations in support of weapon system platform integration, management and oversight for developing test plans, oversight of testing activities, and technical data analysis of test results to support weapon systems engineering decision making. Participation in performance and cost/risk assessments in support of Assistant Secretary of the Army (Installations & Environment) [ASA(I&E)] program objectives. Manage development and execution of plans for pollution prevention technology development in four technology areas including Sustainable Painting Operations for the Total Army (SPOTA) that address Army compliance with impending National Emission Standards for Hazardous Air Pollutants (NESHAPs) through a pollution prevention solution. Continue to provide oversight RDTE management to recomposition training simulators to remove perchlorate and other hazardous constituents in the composition of ammunition, rockets and missiles, and pyrotechnics. In FY07, develop management plan for new environmental quality technology programs including the Zero Footprint Camp and the Heavy Metals Reduction in Surface Finishing Processes.				
- Technology management and technical support to AMC industrial base and Army field installations for fielding and maintaining pollution prevention technology. Includes coordination of weapon system integration of pollution prevention technology for resolution of industrial base (depots, arsenals and ammunition plants) and garrison environmental issues associated with system fielding (operation and support). Coordination and information transfer supporting materiel fielding. Analysis of impending legal statutes impacting production, operation and support of weapon systems. Assessment of readiness impacts to weapon systems resulting from impacts in capabilities of industrial base and garrisons to support production levels, training and operational tempo and maintenance activities. Participate with ASA(I&E) management and representatives in assessing the readiness implications of impending NESHAPs on Army industrial base and garrison activities. Oversee evaluation of impacts of impending NESHAPs on Army modernization and fielding of Unit of Action. Provide Army acquisition community representation in Office of Systems Develop (OSD) and Department of the Army (DA) committees addressing environmental legislation and rulemaking.	611	730	776	831
New Accomplishment				
Total	2834	3232	3428	3657

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>6 - Management support</b>		<b>0605857A - Environmental Quality Technology Mgmt Support</b>						<b>06H</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
06H	UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	1004	1138	1179	1226	1259	1290	1318	1347

**A. Mission Description and Budget Item Justification:** This effort was devolved to the Army from the office of the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)). This effort funds the Joint Unexploded Ordnance Coordination Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to provide the day-to-day management, coordination, and information clearinghouse functions of the UXOCOE, which serves as the Department of Defense's (DoD) center for coordinating Unexploded Ordnance (UXO) requirements and programs across DoD; develops and promotes standards for testing, modeling, and evaluation; maintains information on technologies for UXO detection and clearance; publishes an annual report summarizing the activities and accomplishments of the UXOCOE in order to improve the effectiveness and economy of UXO detection and clearance RDT&E throughout DoD; and gathers and maintains a database for the results of these efforts. The Army oversees and coordinates this effort on behalf of the office of the USD(AT&L).

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct review and technology workshops to coordinate and improve the technological thrusts of DoD UXO RDT&E.	115	120	125	130
Coordinate/collect/analyze UXO RDT&E information via conferences, seminars, and workshops.	331	339	355	379
Generate an annual UXO Clearance Report focused on UXO RDT&E efforts for countermines, explosive ordnance disposal, UXO remediation, humanitarian demining, and active range clearance.	178	187	196	205
Maintain and update the UXO clearance/detection databases and computer web site and analyze data from and programs in UXO RDT&E for potential solutions to UXO related needs.	244	255	286	282
Provide oversight of JUXOCOE's Ft. A. P. Hill test site which is used for standardized scientific experiments to help gather data on and model the performance of potential UXO sensors. Data are needed for the acquisition of UXO sensor performance data versus a full system evaluation. Focus is on the sensor itself, not on full-scale operational system capability. Full-scale development would occur during engineering and manufacturing development and be aimed at meeting validated requirements prior to full-rate production.	136	205	217	230
Small Business Innovative Research/Small Business Technology Transfer Programs		32		
Total	1004	1138	1179	1226

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605898A - Management Headquarters (Research and Development) M65**

PROJECT

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
M65 Army Test and Evaluation Command (ATEC)	12647	13937	14889	15639	16256	16873	17244	17624

**A. Mission Description and Budget Item Justification:** This project provides for the salaries and related personnel benefits for the management headquarters authorized civilian personnel at the U.S. Army Test and Evaluation Command (ATEC), Alexandria, VA, and Aberdeen Proving Ground, MD. ATEC's mission involves the planning, conducting, and integration of developmental testing, independent operational testing, independent evaluations, assessments and experiments in order to provide essential information to decision makers.

**Accomplishments/Planned Program:**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.	12647	13935	14889	15639
Small Business Innovative Research/Small Business Technology Transfer Programs		2		
Total	12647	13937	14889	15639

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>	<b>February 2007</b>
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## BUDGET ACTIVITY

### 6 - Management support

PE NUMBER AND TITLE	PROJECT
<b>0605898A - Management Headquarters (Research and Development)</b>	<b>M65</b>

PE NUMBER AND TITLE	PROJECT
<b>0605898A - Management Headquarters (Research and Development)</b>	<b>M65</b>

**0605898A - Management Headquarters (Research and Development) M65**

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	12724	14092	15005	15667
Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
Total Adjustments	-8886	-9722	-10047	-10509
Congressional Program Reductions		-53		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-77	-102		
SBIR/STTR Transfer				
Adjustments to Budget Years			-116	-28

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	12724	14092	15005	15667
Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Congressional Program Reductions		-53		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-77	-102		
SBIR/STTR Transfer				
Adjustments to Budget Years			-116	-28

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	12724	14092	15005	15667
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Adjustments to Budget Years			-116	-28

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
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Congressional Rescissions				
Congressional Increases				
Reprogrammings	-77	-102		
SBIR/STTR Transfer				
Adjustments to Budget Years			-116	-28

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	12724	14092	15005	15667
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Congressional Program Reductions		-53		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-77	-102		
SBIR/STTR Transfer				
Adjustments to Budget Years			-116	-28

Previous President's Budget (FY 2007)	12724	14092	15005	15667
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Previous President's Budget (FY 2007)	12724	14092	15005	15667
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Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Current BES/President's Budget (FY 2008/2009)	3838	4370	4958	5158
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Total Adjustments	-8886	-9722	-10047	-10509
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Total Adjustments	-8886	-9722	-10047	-10509
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Congressional Program Reductions		-53		
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Congressional Program Reductions		-53		
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Congressional Rescissions				
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Congressional Increases				
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Reprogrammings	-77	-102		
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Reprogrammings	-77	-102		
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Reprogrammings	-77	-102		
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SBIR/STTR Transfer				
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Adjustments to Budget Years			-116	-28
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Adjustments to Budget Years			-116	-28
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Adjustments to Budget Years			-116	-28
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	109955	74672	54055	60003	20748	8517	10741	10167	Continuing	Continuing
090 MLRS HIMARS	10823	17187	4456	3798	2047	3500	6595	6450	Continuing	Continuing
093 MLRS JOINT TECH ARCHITECTURE	814	3276	4700	4135	4645	2421	1500	1000	Continuing	Continuing
784 GUIDED MLRS	98318	54209	44899	52070	14056	2596	2646	2717		271511

**A. Mission Description and Budget Item Justification:** The High Mobility Artillery Rocket System (HIMARS), M270A1, Guided Multiple Launch Rocket System (GMLRS), GMLRS Unitary provide precision strike capability, and GMLRS DPICM has 404 submunitions.

HIMARS, is a C-130 transportable launcher mounted on a Family of Medium Tactical Vehicles (FMTV) chassis. HIMARS is capable of firing either 6 MLRS Family of Munitions (MFOM) rockets or one Army Tactical Missile (ATACMS) Family of Munitions (AFOM) missile, including precision munitions, to a range of 300KM.

Compliance with the Joint Technical Architecture (JTA) supports HIMARS and M270A1 MLRS Launcher programs, and is required by both Department of the Army and Office of the Secretary of Defense. The M270A1 upgraded MLRS launcher is mounted on a Bradley Fighting Vehicle chassis, and is capable of firing the MFOM and the AFOM, including precision munitions, to a range of 300KM.

GMLRS is a precision munition providing increased range to 70KM, and Global Positioning System (GPS) accuracy. Fired from M270A1 and HIMARS launchers, GMLRS comes in two variants: Dual Purpose Improved Conventional Munitions (DPICM) contains 414 submunitions, for attacking area targets with improved accuracy and significantly reduced hazardous duds; and GMLRS Unitary has a 200lb High Explosive (HE) warhead for attacking point targets with reduced collateral damage.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	113652	74506	19278	13606
Current BES/President's Budget (FY 2008/2009)	109955	74672	54055	60003
Total Adjustments	-3697	166	34777	46397
Congressional Program Reductions		-286		
Congressional Rescissions				
Congressional Increases		1000		
Reprogrammings	-3697	-548		
SBIR/STTR Transfer				
Adjustments to Budget Years			34777	46397

Change Summary Explanation: The FY07 President's Budget listed above does not reflect the SBIR/STTR reductions. Those reductions are listed in the FY07 Accomplishments/Planned Program section.

Increased funding in FY 2008 and FY 2009 is intended to support an incremental improvement to DPICM capability to develop, test and field and alternate warhead. This alternate warhead will be employed against the DPICM area targets with a more Insensitive Munition (IM) compliant warhead whose effects will not include unexploded ordnance.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

## PROJECT

090

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
090 MLRS HIMARS	10823	17187	4456	3798	2047	3500	6595	6450	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The High Mobility Artillery Rocket System (HIMARS) fully supports a more deployable, affordable, and lethal Joint Expeditionary Force. It is a light weight, deployable system which provides long range precision strike capability in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle chassis, HIMARS is transportable in a C-130 aircraft, and is self-loading and self-locating using Global Positioning System (GPS) technology. It fires the full Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions (AFOM). Additionally a HIMARS battery requires significantly reduced airlift resources that are required to transport a battery of the tracked M270/M270A1 MLRS. HIMARS, as part of the Fires Brigade, will provide fires that shape, shield and isolate the battle space. HIMARS has been deployed to both Operation Iraqi Freedom and Operation Enduring Freedom with great success. HIMARS is also a key component of the Marine Corps Future Fighting Effort.

### Accomplishments/Planned Program:

	FY 2006	FY 2007	FY 2008	FY 2009
Continue system design and Production Qualification Testing (PQT), conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); integrate and test Horizontal Technology Insertion (HTI) upgrades including Increased Crew Protection, Enhanced Command and Control, Improved Initialization and Long Range Communication. Perform technical assessments, concept studies, risk reduction, and required documentation.	10823	16703	4456	3798
Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) Programs		484		
Total	10823	17187	4456	3798

### B. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
HIMARS Launcher (C02901)	161713	207547	235865	247919	221028	224725	23657	21096		1343550
HIMARS Modifications (C67501)	7896	9336	10541	16537	33377	27011	10178	9815	Continuing	Continuing
HIMARS Modifications: Initial Spares (CA0289)		1317	1261	1064	1855	1920	1962	2005	Continuing	Continuing
Initial Spares, HIMARS (CA0288)	6017	7910	11541	12037	9183	19627	975	1271		68561

Comment:

**C. Acquisition Strategy** The HIMARS program is currently in Full Rate Production (FRP) and awarded the FRP-2 contract December 2006. HIMARS follow-on Horizontal Technology Insertion (HTI) efforts include the Increased Crew Protection, Enhanced Command and Control Improved Initialization, and Long Range Communication.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 090

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM								090		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFC, Texas	113610										113610	
Path through Operational Test	SS/CPFF	LMMFC, Texas	11809										11809	
Work Directives/ Chassis and Cab	N/A	TACOM (S&S)	5733										5733	
Battle Command	SS/CPFF	CECOM, STRICOM, UA Networks, Techizon, LMMFC, Texas	4040	1869	2-3Q	1834	2-4Q	1201	2-3Q	2639	2-3Q	Cont.	Cont.	
Government Support	N/A	AMCOM/ GSA, RSA & TSM	16554	151	2-4Q	176	2-4Q	491	2-3Q	223	2-3Q	Cont.	Cont.	
Increased Crew Protection	SS/CPFF	LMMFC, Texas	2335	6136	2-4Q	9306	2-3Q	1342	2-3Q				19119	
Subtotal:			154081	8156		11316		3034		2862		Cont.	Cont.	
Remarks: TACOM - Tank Automotive & Armaments Command; AMCOM - Aviation & Missile Command RSA - Redstone Arsenal Alabama; STRICOM - Simulation Training and Instrument Command S&S - Stewart & Stevenson; GSA - General Services Administration LMMFC - Lockheed Martin Missile and Fire Control TSM - TRADOC System Manager; TBD - To Be Determined; N/A - Not Applicable CECOM - US Army Communication - Electronics Command SS - Sole Source; CPIF - Cost Plus Incentive Fee; CPAF - Cost Plus Award Fee CPFF - Cost Plus Fixed Fee; UA - Unit of Action														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Support Contract	C /CPFF	Camber Research/S3/TMI, Alabama	1888	231	2-4Q	232	2-3Q	385	2-3Q	354	2-3Q	Cont.	Cont.	
Subtotal:			1888	231		232		385		354		Cont.	Cont.	
Remarks: S3 - Systems Studies Simulation, Inc., TMI - Tec Masters Inc														

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM								PROJECT 090			
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Test Support	N/A	Fort Hood,ATEC,APG MD,WSMR NM & RTTC RSA	33251	2151	2-4Q	5306	2-4Q	916	2-4Q	453	2-4Q	Cont.	Cont.		
Subtotal:			33251	2151		5306		916		453		Cont.	Cont.		
Remarks: APG MD - Aberdeen Proving Ground, Maryland WSMR NM - White Sands Missile Range, New Mexico RTTC RSA - Redstone Technical Test Center ATEC - US Army Test and Evaluation Command															
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
In-House Support	N/A	PFRMS Project Office, Redstone Arsenal, AL	8112	285	2-4Q	333	2-4Q	121	2-4Q	129	2-4Q	Cont.	Cont.		
Subtotal:			8112	285		333		121		129		Cont.	Cont.		
Remarks: PFRMS - Precision Fires Rocket and Missile Systems															
Project Total Cost:			197332	10823		17187		4456		3798		Cont.	Cont.		

Schedule Profile (R4 Exhibit)																				February 2007																					
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT													
7 - Operational system development										0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM																		090													
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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) Full Rate Production (FRP) Contract Award (CA) 1										FRP 1 CA																															
Increased Crew Protection Development and Live Fire Test and Evaluation (LFT&E)										Increased Crew Protection & LFT&E																															
Central Technical Support Facility Certification																		Software Blk 2-5																							
Enhanced Command and Control development and testing																		Enhanced Cmd and Ctrl Dev/Test																							



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>					PROJECT <b>090</b>
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Full Rate Production (FRP) Contract Award (CA) 1	1Q							
Increased Crew Protection Development and Live Fire Test and Evaluation (LFT&E)	1Q - 4Q	1Q - 4Q	1Q					
Central Technical Support Facility Certification	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Enhanced Command and Control development and testing	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							093	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
093 MLRS JOINT TECH ARCHITECTURE	814	3276	4700	4135	4645	2421	1500	1000	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** A. Compliance with the Joint Technical Architecture (JTA) as defined in the DoD Information Technical Standards Registry (DISR) supports the High Mobility Artillery Rocket System (HIMARS) and M270A1 Multiple Launch Rocket System (MLRS) launcher programs and is required by both the Department of the Army and the Office of the Secretary of Defense (OSD). JTA provides for analysis and integration of GPS upgrades and Selective Availability/Anti-Spoofing Module (SASSM) M-code. Network Interoperability includes upgrades to meet Joint reference standards, compliance with information assurance mandates, long range communications, Sensor to Effects (STE), and Enhanced Command and Control (C2) for HIMARS and M270A1 launchers. Support Joint and Army interoperability certifications via Central Technical Support Facility (CTSF), Joint Interoperability Test Certificate (JITC) and implementing Army Software Blocking policy. Conduct assessments on long range communications and situational awareness including implementation and prototyping.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Required Global Positioning System (GPS) Modernization.	51			442
Command, Control, Communications, Computers, and Intelligence (C4I)/Interoperability Certification.	250	599	637	950
Card Consolidation.	473	191		
Network interoperability.		1558	3100	2140
Perform technical assessments, concept studies, and risk reduction.	40	836	963	603
Small Business Innovative Research/Small Business Technology Transfer Program		92		
Total	814	3276	4700	4135

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
MLRS Launcher (C65900)	19836									19836
MLRS Mods(C67500)	14387	6885	5578	1886	3144	3149	3218	3289	Continuing	Continuing
HIMARS Launcher (C02901)	161713	207547	235865	247919	221028	224725				1298797
MLRS Mod Initial Spares (CA0265)	350	521	1043	1048	1048	1049	1072	1096	Continuing	Continuing
HIMARS Modifications (C67501)	7896	9336	10541	16537	33377	27011	10178	9815	Continuing	Continuing
HIMARS Initial Spares (CA0288)	6017	7910	11541	12037	9183	19627	975	1271		68561
HIMARS Mod Initial Spares (CA0289)		1317	1261	1064	1855	1920	1962	2005	Continuing	Continuing

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>		<b>February 2007</b>
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>093</b>
<p>Comment:</p> <p><b>C. Acquisition Strategy</b> The JTA-Army standards are updated for the M270A1 and HIMARS launchers to meet DISR. The Joint Variable Message Format (JVMF) is currently being updated by the Software Engineering Directorate and will be integrated into the launchers using a sole source contracting strategy with Lockheed Martin Missile and Fire Control-Dallas (LMMFC-D). This contracting strategy will also be used for the Card Consolidation, Sensor to Effects (STE), and C2. Testing of software blocking upgrades is currently scheduled every 12 months to meet joint reference standards and information assurance.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>								<b>093</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contract	CPFF	LMMFC-D, Dallas, Texas	21329	254	2Q	1797	2Q	1409	1-3Q	442	1-3Q	Cont.	Cont.	
Government Support	N/A	AMCOM/GSA, Redstone Arsenal, Alabama	5425	156	1-3Q	358	1-3Q	420	1-3Q	388	1-3Q	Cont.	Cont.	
Subtotal:			26754	410		2155		1829		830		Cont.	Cont.	
Remarks: GPS-Global Positioning System CPFF - Cost Plus Fixed Fee LMMFC-D - Lockheed Martin Missile and Fire Control-Dallas AMCOM - Aviation and Missile Command GSA - General Services Administration														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Support Contract	Various	Multiple		40	1-3Q	436	1-3Q	554	1-3Q	603	1-3Q	Cont.	Cont.	
Subtotal:				40		436		554		603		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support, Joint Interoperability Test Certificate	N/A	CTSF, Ft. Hood, Texas	552	157	1-3Q	177	1-3Q	863	1-3Q	819	1-3Q	Cont.	Cont.	
Test Support	N/A	AMCOM, RTTC, Redstone Arsenal, Alabama		154	1-3Q	274	1-3Q	1198	1-3Q	1656	1-3Q	Cont.	Cont.	
Test Support	N/A	WSMR, New Mexico	442									Cont.	Cont.	
Subtotal:			994	311		451		2061		2475		Cont.	Cont.	
Remarks: CTSF - Central Test Support Facility RTTC-Redstone Technical Test Center WSMR - White Sands Missile Range														

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM								PROJECT 093			
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
In-House Support	N/A	PFRMS Proj Ofc, Redstone Arsenal, Alabama	2843	53	1-4Q	234	1-4Q	256	1-4Q	227	1-3Q	Cont.	Cont.		
Subtotal:			2843	53		234		256		227		Cont.	Cont.		
Remarks: PFRMS - Precision Fires Rocket and Missile Systems															
Project Total Cost:			30591	814		3276		4700		4135		Cont.	Cont.		





Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>				PROJECT <b>093</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Command, Ctrl, Communications, Computers, and Intell (C4I)/Interoperability Cert	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Card Consolidation	1Q - 4Q	1Q - 4Q						
Network Interoperability		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

## PROJECT

**784**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
784 GUIDED MLRS	98318	54209	44899	52070	14056	2596	2646	2717		271511

**A. Mission Description and Budget Item Justification:** Guided Multiple Launch Rocket System (GMLRS) munitions are the Army's primary organic Joint Expeditionary, all-weather, all-terrain, 24/7, tactical range precision guided rockets employed by modular fires Brigades supporting Brigade Combat Teams (BCT), Divisions, Corps, and Joint Special Operations Force (JSOF) combatant commanders. GMLRS are the primary munitions for units fielded with the High Mobility Artillery Rocket System (HIMARS) and MLRS M270A1 rocket and missile launcher platforms. GMLRS provides close, medium and long range pin point precision and massed fires to Destroy, Suppress and Shape threat forces and protect friendly forces against: cannon, mortar, rocket and missile artillery; light materiel and armor; personnel; command and control; and air defense surface targets. GMLRS is a major upgrade/replacement for the aging M26/A1/A2 rocket inventory that integrates a guidance and control package and an improved rocket motor achieving greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. There are two variants of GMLRS; GMLRS with Dual Purpose Improved Conventional Munitions (DPICM) and GMLRS with a 200 pound class high explosive warhead (Unitary). The GMLRS DPICM is a five nation cooperative program among France, Germany, Italy, United Kingdom and the United States. The GMLRS Unitary is a modification to the GMLRS DPICM integrating a multi-mode fuze and high explosive Insensitive Munition (IM) warhead making it an all-weather, low collateral damage, precision rocket. This expands the MLRS target set into urban and complex environments and adds point targets. Alternate warhead efforts will support an incremental improvement to the DPICM capability. This alternate warhead effort will develop and test a new capability to be employed against the DPICM area targets with a more Insensitive Munition (IM) compliant warhead whose effects will not include unexploded ordinance. To meet Central Command Operational Need Statements, two quantities (486/972) of limited capability GMLRS Unitary rockets were accelerated and fielded in Iraq between June 2005 and December 2008. In missions in which it has been deployed, GMLRS Unitary demonstrated both very high accuracy and low collateral damage. Continued GMLRS Unitary development efforts will incorporate trajectory shaping capability into the flight software. Additional material changes will provide operational flexibility and capability against an expanded target set. GMLRS is also a key component of the Marine Corps Future Fighting Effort.

### Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	2249	2152	2473	3624
Conduct Development and Engineering for Insensitive Munitions (IM) Program	10096	2341	3251	5038
Conduct Development Engineering; Design and Develop Alternate Warheads and Multi Mode Fuzes	8049	5852	10931	10546
Initiate Initial Common Hardware Buy for Test Activities for Unitary (test articles for Engineering Development Testing (EDT), Production Qualification Testing (PQT), Cold Region Testing, & Initial Operational Test & Evaluation (IOT&E))	19053	12318		
Perform Anti-Jamming Analysis and System Engineering/Integration	3939	4533		
Conduct EDT Flight Test, PQT Ground and Flight Tests, Test Analysis	22187	6321	2958	4352
Conduct Functional Configuration Audit, Final PDDP, and System Integration Test	9622	3572	3687	4428
Conduct system test and evaluation activities	11576	11182	11547	12278
Perform Integration and Test of Alternative Warheads and Multi-Mode Fuzes	11547	4482	10052	11804

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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## BUDGET ACTIVITY

### 7 - Operational system development

PE NUMBER AND TITLE	PROJECT
<b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	<b>784</b>

PE NUMBER AND TITLE	PROJECT
<b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	<b>784</b>

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	<b>784</b>

Small Business Innovative Research/Small Business Technology Transfer Programs
Total

	1456
98318	54209

	44899

52070

Small Business Innovative Research/Small Business Technology Transfer Programs
Total

	1456
98318	54209

	44899

52070

<b><u>B. Other Program Funding Summary</u></b>
Missile Procurement Army - GMLRS (C64400)

FY 2006
121555

FY 2007
136851

FY 2008
225282

FY 2009
249204

	FY 2010
	314025

	FY 2011
5	344435

	FY 2012
5	371668

	FY 2013
3	372691

	To Compl
1	Continuing

	Total Cost
g	Continuing

<b><u>B. Other Program Funding Summary</u></b>
Missile Procurement Army - GMLRS (C64400)

FY 2006
121555

FY 2007
136851

FY 2008
225282

FY 2009
249204

	FY 2010
	314025

	FY 2011
5	344435

	FY 2012
5	371668

	FY 2013
3	372691

	To Compl
1	Continuing

	Total Cost
g	Continuing

Comment:

**C. Acquisition Strategy** The Guided Multiple Launch Rocket System (GMLRS) Dual Purpose Improved Conventional Munitions (DPICM) is currently in Full Rate Production (FRP). The primary objective of the GMLRS DPICM System Development and Demonstration (SDD) was to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. Other GMLRS development efforts include an improved mechanical fuze; a self-destruct fuze; desired new rocket capabilities; design, evaluation, and test of alternative warhead technologies; and increased range.

The GMLRS Unitary Acquisition Strategy is a streamlined product improvement program. Initial configuration hardware will maximize commonality with GMLRS DPICM and incorporate a new warhead and multi-mode fuze (point detonation, airburst and delay). The European Cooperative Development Partners for GMLRS have expressed a desire to join the GMLRS Unitary development program during the Follow-On configuration effort. In FY05, Congress encouraged the Army to accelerate the GMLRS Unitary program to field a quantity of not less than 450 rockets with limited capability no later than fourth quarter FY06. In December 2004, the Army received an urgent need statement from Central Command requesting limited capability GMLRS Unitary rockets by fourth quarter FY06. The first 72 limited capability GMLRS Unitary Rockets were fielded in theater during June 05.

Comment:

**C. Acquisition Strategy** The Guided Multiple Launch Rocket System (GMLRS) Dual Purpose Improved Conventional Munitions (DPICM) is currently in Full Rate Production (FRP). The primary objective of the GMLRS DPICM System Development and Demonstration (SDD) was to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. Other GMLRS development efforts include an improved mechanical fuze; a self-destruct fuze; desired new rocket capabilities; design, evaluation, and test of alternative warhead technologies; and increased range.

The GMLRS Unitary Acquisition Strategy is a streamlined product improvement program. Initial configuration hardware will maximize commonality with GMLRS DPICM and incorporate a new warhead and multi-mode fuze (point detonation, airburst and delay). The European Cooperative Development Partners for GMLRS have expressed a desire to join the GMLRS Unitary development program during the Follow-On configuration effort. In FY05, Congress encouraged the Army to accelerate the GMLRS Unitary program to field a quantity of not less than 450 rockets with limited capability no later than fourth quarter FY06. In December 2004, the Army received an urgent need statement from Central Command requesting limited capability GMLRS Unitary rockets by fourth quarter FY06. The first 72 limited capability GMLRS Unitary Rockets were fielded in theater during June 05.

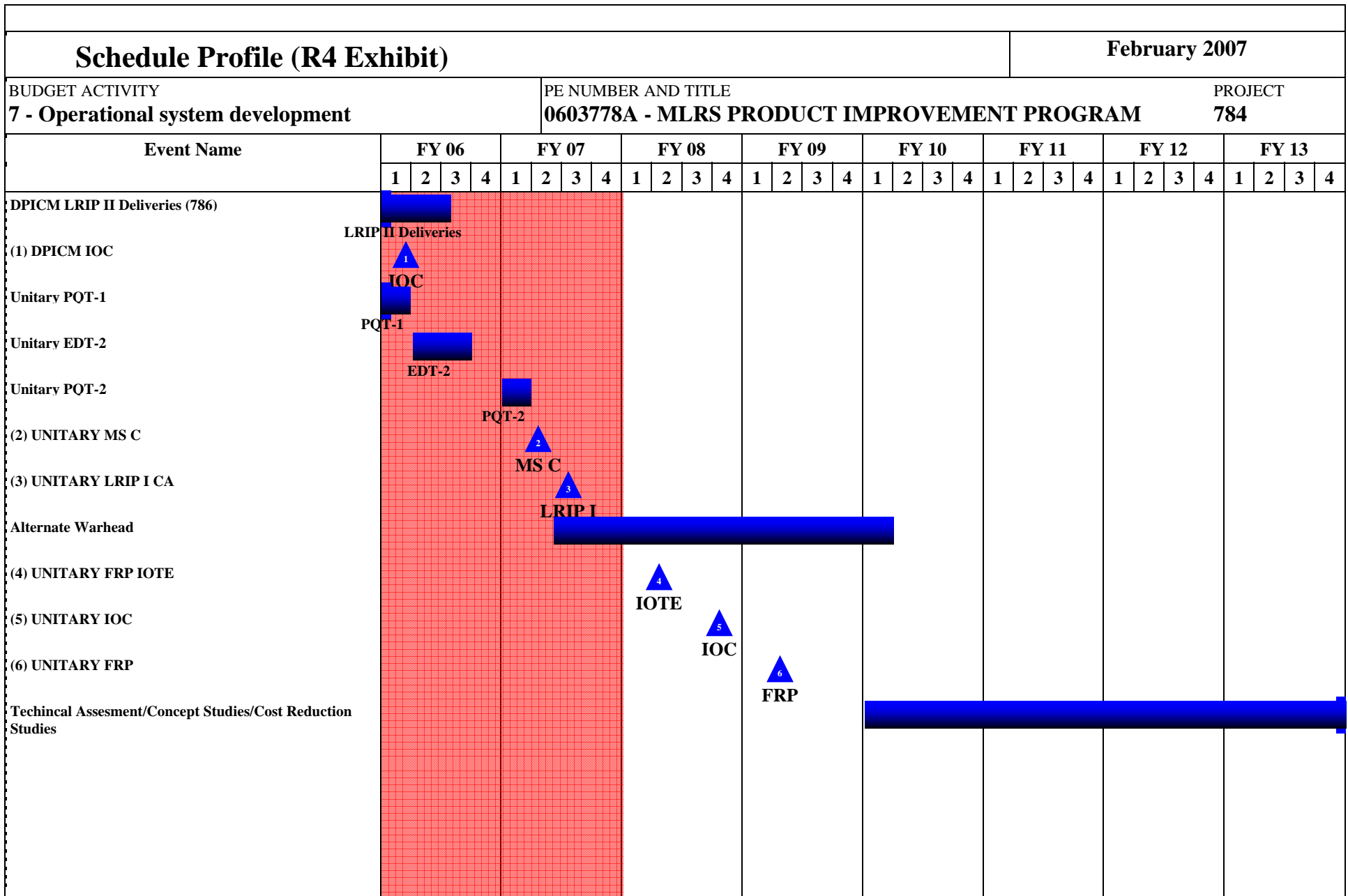
Comment:

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ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>								<b>784</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SDD DPICM Contract	SS/CPAF	LMMFCS Dallas, TX	91194									Cont.	Cont.	
SDD Unitary Contract	SS/CPFF	LMMFCS Dallas, TX	119133	44546	2Q	24129	1Q	23646	1Q	32012	1Q	Cont.	Cont.	
Government Support	N/A	AMCOM/AMRDEC, RSA	33099	24338	1-4Q	12040	1-4Q	4671	1-4Q	3126	1-4Q	Cont.	Cont.	
Subtotal:			243426	68884		36169		28317		35138		Cont.	Cont.	
Remarks: DPICM - Dual Purpose Improved Conventional Munitions; SS/CPAF - Sole Source/Cost Plus Award Fee; SS/CPFF - Sole Source/Cost Plus Fixed Fee; LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas; AMCOM-Aviation & Missile Command; AMRDEC - U.S. Army Research, Development & Engineering Command; RSA - Redstone Arsenal, Alabama														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Support Contract	C/CPFF	Camber Research/S3/TMI, Alabama	11475	3938	1-3Q	2693	1-3Q	2576	1-3Q	1919	1-3Q	Cont.	Cont.	
Subtotal:			11475	3938		2693		2576		1919		Cont.	Cont.	
Remarks: C/CPFF-Cost/Cost Plus Fixed Fee S3-Systems Studies Simulation, Inc. TMI-Tec Masters, Inc. AMRDEC-U.S. Army Research, Development & Engineering Command														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support	N/A	WSMR, NM	56061	22190	1-4Q	11639	1-4Q	11751	1-4Q	12454	1-4Q	Cont.	Cont.	
Subtotal:			56061	22190		11639		11751		12454		Cont.	Cont.	
Remarks: WSMR, NM - White Sands Missile Range, New Mexico														

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>								PROJECT <b>784</b>		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
In-House Support	N/A	PFRMS Proj Ofc, RSA	13325	3306	1-4Q	3708	1-4Q	2255	1-4Q	2559	1-4Q	Cont.	Cont.	
Subtotal:			13325	3306		3708		2255		2559		Cont.	Cont.	
Remarks: PFRMS - Precision Fires Rocket and Missile Systems RSA - Redstone Arsenal, Alabama														
<b>Project Total Cost:</b>			<b>324287</b>	<b>98318</b>		<b>54209</b>		<b>44899</b>		<b>52070</b>		<b>Cont.</b>	<b>Cont.</b>	





Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>				PROJECT <b>784</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
DPICM LRIP II Deliveries (786)	1Q - 3Q							
DPICM IOC	1Q							
Unitary PQT-1	1Q							
Unitary EDT-2	2Q - 3Q							
Unitary PQT-2		1Q						
UNITARY MS C		2Q						
UNITARY LRIP I CA		3Q						
Alternate Warhead		2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q			
UNITARY FRP IOTE			2Q					
UNITARY IOC			4Q	1Q - 4Q				
UNITARY FRP				2Q				
Technical Assesment/Concept Studies/Cost Reduction Studies					1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

<b>Termination Liability Funding For Major Defense Acquisition Programs, RDT&amp;E Funding (R5)</b>						<b>February 2007</b>		
BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>					PROJECT <b>784</b>	
Funding in \$000								
<b>Program</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Guided MLRS								
<b>Total Termination Liability Funding:</b>								
<p><b>Remarks:</b>            The GMLRS Program Prime Contract Incorporates the "Limitation Of Funds" Clause (DFARS 52.232-22) to limit the government's liability. For the GMLRS Program, The "Limitation of Funds" Clause limits the government's financial liability per the Contract to those funds placed on contract plus any outstanding commitments plus costs associated with the orderly termination of contractual actions.</p>								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0603820A - Weapons Capability Modifications UAV

## PROJECT

### D20

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D20 UAV WEAPONIZATION CAPABILITY MOD	2876	1582	3900							8358

**A. Mission Description and Budget Item Justification:** The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) includes and addresses the full scale development and integration of a weapon system capability.

These modifications include the refinement of requirements, the iterative selection of the weapons matched to the aircraft capabilities, hardware and software design, development, and integration with the system.

This will include requisite airframe, mission management software and weapon compatibility modifications to allow the system to carry and employ weapons. Tests are required to ensure reliable, safe, accurate, and timely weapons stowage and delivery. Weaponization of ERMP includes the full scale development and integration of a modified HELLFIRE missile into the ERMP UAS. Missile development will include type classification and formal materiel release.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Launcher Modification / Test Equipment / Integration			3900	
Guided Dispenser System for Tactical UAV	2876	1537		
Small Business Innovative Research/Small Business Technology Transfer Programs		45		
Total	2876	1582	3900	

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>					<b>February 2007</b>
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0603820A - Weapons Capability Modifications UAV</b>			<b>PROJECT</b> <b>D20</b>
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	5323	16532	3930		
Current BES/President's Budget (FY 2008/2009)	109955	74672	54055	60003	
Total Adjustments	104632	58140	50125	60003	
Congressional program reductions		-16550			
Congressional rescissions					
Congressional increases		1600			
Reprogrammings	-2447				
SBIR/STTR Transfer					
Adjustments to Budget Years			-30		
<b>FY 07:</b> +\$1.6 million Guided Dispenser System for Tactical UAV -\$16.550 million Program Reduction .					
<b><u>C. Other Program Funding Summary</u></b> Not applicable for this item.					
<b><u>D. Acquisition Strategy</u></b> Development/integration of an extended range unmanned aircraft includes a two phased approach. Phase I was a paper downselect to two vendors. Phase II consisted of a competition with a flyoff and downselect to one qualified airframe vendor which occurred on 6 Aug 05. PM UAS in coordination with PM JAMS will integrate the modified HELLFIRE missile system into the ERMP UAS. PM JAMS will design, develop, test, and deliver the modified HELLFIRE missile.					

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0603820A - Weapons Capability Modifications UAV</b>								<b>D20</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Integration and Testing of UADD	MIPR	Other Government Agency		2876	1-2Q	1582	2-3Q						4458	17074
Launcher Modification / Test Equipment / Integration	PWD	Other Government Agency						3900	1-2Q				3900	
Subtotal:				2876		1582		3900					8358	17074
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
<b>Project Total Cost:</b>				<b>2876</b>		<b>1582</b>		<b>3900</b>					<b>8358</b>	<b>17074</b>

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT												
7 - Operational system development										0603820A - Weapons Capability Modifications UAV										D20												
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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) System Requirements Review			▲ <sub>1</sub>	SRR																												
(2) Program Design Review			▲ <sub>2</sub>	PDR																												
(3) Contract Design Review			▲ <sub>3</sub>	CDR																												
Proof of Principle Testing Firings												■	PPT Firings (36)																			
(4) Limited User Test Firings												▲ <sub>4</sub>	LUT Firings (4)																			
(5) P+ Missiles Contract Award (CA)												▲ <sub>5</sub>	P+ Msls CA																			
(6) P+ Launcher Contract Option (CO)											▲ <sub>6</sub>	P+ Launcher CO																				



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0603820A - Weapons Capability Modifications UAV				PROJECT D20	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
System Requirements Review	2Q							
Program Design Review	3Q							
Contract Design Review	4Q							
Proof of Principle Testing Firings		4Q						
Limited User Test Firings			1Q					
P+ Missiles Contract Award (CA)			2Q					
P+ Launcher Contract Option (CO)		4Q						
System Development Demonstration	2Q - 4Q	1Q - 2Q						
IOT&E / Limited User Test (LUT)	2Q - 4Q	1Q - 3Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
<b>7 - Operational system development</b>			<b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>							<b>E55</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
E55	Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS	99851	242781	481251	353983	337464	320787	182528		Continuing	Continuing

**A. Mission Description and Budget Item Justification:** (U) The mission of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is to protect United States, Allied and Coalition forces, civilian population centers, as well as critical military and geo-political assets from air and missile attacks. JLENS is a crucial part of the Integrated Air and Missile Defense architecture that will counter Land Attack Cruise Missiles (LACMs) and low flying aerial threats. The JLENS threat target set includes not only Land Attack Cruise Missiles but also unmanned aerial vehicles, unmanned combat aerial vehicles, and rotary-wing and fixed-wing aircraft. However, the primary and most stressing targets are LACMs. The JLENS is a joint interest program. A JLENS orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system employs a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground equipment. JLENS uses advanced sensor and networking technologies to provide 360-degree, wide-area surveillance and precision tracking of land-attack cruise missiles. This JLENS information is distributed via the Joint Data Network and Joint Composite Tracking Network, contributes to the single integrated air picture. JLENS has the capability of detecting and tracking surface moving targets, detecting Tactical Ballistic Missiles at boost phase and Large Caliber Rockets during the ascent phase. JLENS also performs as a multi-role platform to enable extended range command and control linkages, communications relay, and battlefield situational awareness. JLENS is the only elevated persistent long range surveillance, and integrated fire control sensor in the Integrated Air and Missile Defense architecture.

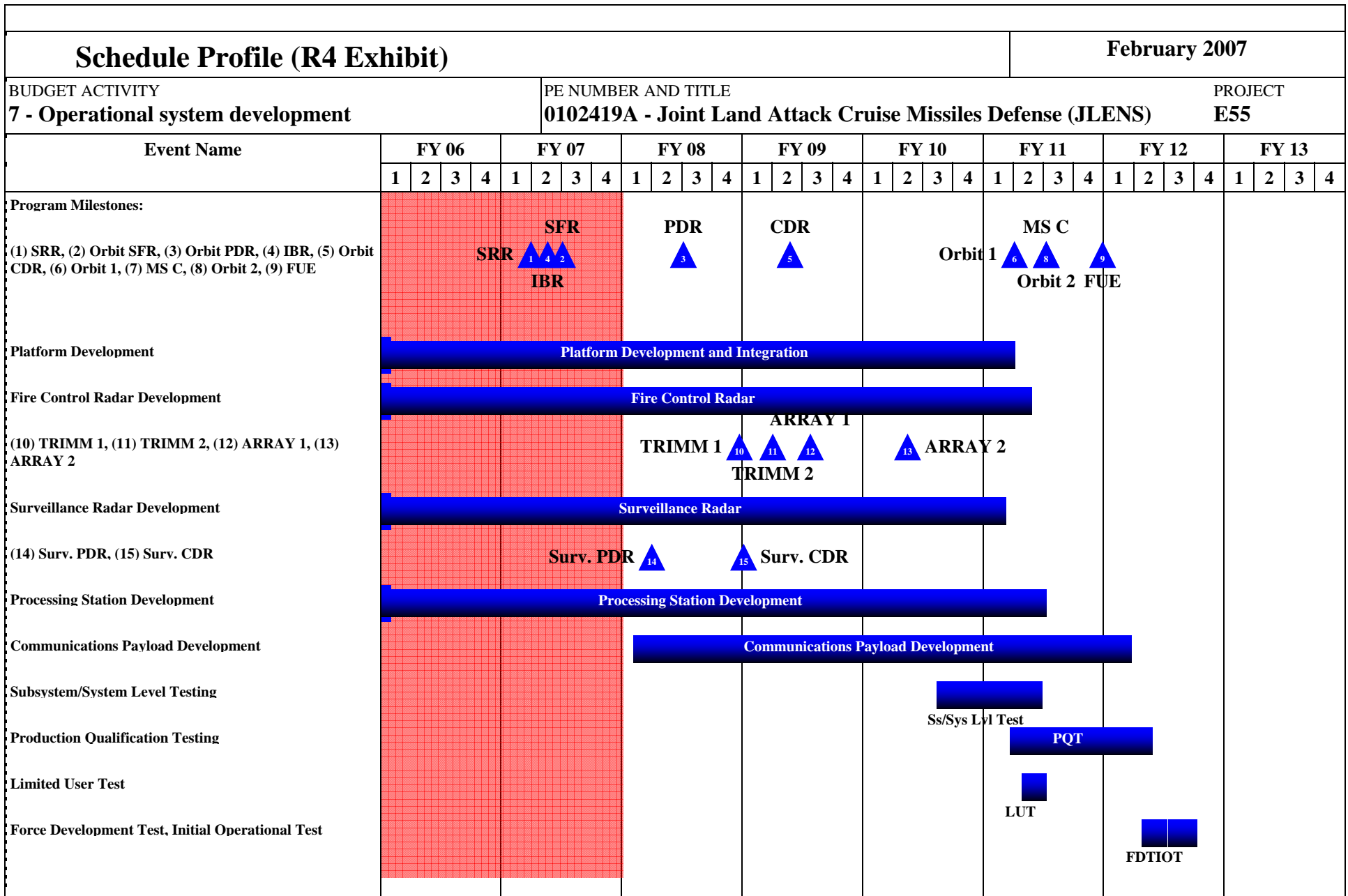
<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Contract work for Technology Development completed in FY05. System Development and Demonstration initiated in FY06.	82099	194193	369941	284578
Continue work on Lightweight X-Band Radar Micro Electro Mechanical (MEMS) Antenna Technology.	1000	1000		
System Test and Evaluation	178	9953	11189	20208
Other contracts and Other Government Agencies (OGAs).	13123	17306	20699	21274
Project Management	2651	3512	4268	4243
Government Furnished Equipment	800	10048	75154	23680
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		6769		
Total	99851	242781	481251	353983

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)								February 2007		
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)					PROJECT E55	
<u>B. Program Change Summary</u>		FY 2006	FY 2007	FY 2008	FY 2009					
Previous President's Budget (FY 2007)		105888	264491	465214	353856					
Current BES/President's Budget (FY 2008/2009)		109955	74672	54055	60003					
Total Adjustments		4067	-189819	-411159	-293853					
Congressional Program Reductions			-19927							
Congressional Rescissions										
Congressional Increases										
Reprogrammings		-6037	-1783							
SBIR/STTR Transfer										
Adjustments to Budget Years				16037	127					
The FY07 President's Budget listed above does not reflect the SBIR/STTR reductions. Those reductions are listed in the FY07 Accomplishments/Planned Program section.										
<u>C. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PE 0604869A, Proj M06, Patriot/MEADS Combined Aggregate Program (CAP)	274339	325945	372146	408182	589779	427981	436415	77399	Continuing	Continuing
SSN C50001, Patriot/MEADS CAP					403735	674386	1042010	1317090	Continuing	Continuing
SSN BZ0525, JLENS PRODUCTION						445850	223550	395200	Continuing	Continuing
PE 0604802A, ProjS23, SLAMRAAM	34034	26663	34762	11979					Continuing	Continuing
SSN C81001, SLAMRAAM Production	18825			65506	118124	76747	61850	61850	Continuing	Continuing
PE 0604820A, Proj E10, SENTINEL	4775	2499	7067						Continuing	Continuing
PE 0603327E88, Proj E88, Integrated Fire Control AMD	23662	41249							Continuing	Continuing
327S34, Proj S34, AMD System of System Engineering and Integration	2684		138399	114587	81636	37876	5238		Continuing	Continuing
Comment: This PE is an integral part of the PEO, Missiles and Space Integrated Air and Missile Defense (IAMD) Program including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, SENTINEL, and on-going initiatives to achieve Single Integrated Air Picture (SIAP).										
<u>D. Acquisition Strategy</u> D. Acquisition Strategy: On 28 Jun 05, the DAB approved the JLENS Block 1, Spiral 2 program entry into System Development and Demonstration										

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>	PROJECT <b>E55</b>
<p>(SDD) as recommended by the Army Acquisition Executive. The DAB elected to maintain oversight of JLENS as an ACAT 1D program as stated in the Acquisition Decision Memorandum signed on 5 Aug 05.</p> <p>A JLENS Orbit consists of a Fire Control Radar System and a Surveillance Radar System, each with its own aerostat platform, mobile mooring station, communications payloads, mobile processing station, and associated ground support equipment. Development Test and Evaluation (DT&amp;E) will be conducted in FY11 culminating in an SDD First Unit Equipped by 4QFY11. Initial Operational Test and Evaluation (IOT&amp;E) will be conducted in FY12 culminating with the fielding of the first JLENS Orbit.</p> <p>The JLENS Operational Requirements Document (ORD) calls for initial fielding to Block 1 requirements (tethered aerostat platforms for Fire Control and Surveillance radars); followed by fielding of Block 2 (untethered platforms for Fire Control and Surveillance radars); and Block 3 (both radars on a single untethered platform). There is currently no funding beyond Block 1. The Army plans to move to Block 2 once technology has matured sufficiently to make development of Block 2 capability attainable.</p> <p>Negotiations were conducted in November culminating in an agreed to price for the JLENS SDD effort on 1 December 06. The contract change order modification was signed and definitized on 14 Dec 06. This contract modification established a SDD period of performance of 27 Oct 05 through 30 Sep 12.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)								E55		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Technology Development (TD) Phase Contracts and Government	CPIF	Raytheon Systems Co. (MA/CA/FL/TX)	301083									Cont.	Cont.	Cont.
Lightweight X-band Radar Antenna			5811	1000	3Q	1000	1Q					Cont.	Cont.	Cont.
Contractor System Development and Demonstration (SDD) Hardware/Software	CPIF	Raytheon Systems Co. (MA/CA/FL/TX)		65861	1Q	173924	1Q	345581	1Q	267431	1Q	Cont.	Cont.	Cont.
SDD OGA System Engineering	N/A	Multiple		3170	1-2Q	4327	1Q	4614	1Q	4795	1Q	Cont.	Cont.	Cont.
SDD System Engineering Contracts	N/A	Multiple		9274	1Q	11683	1-2Q	14738	1-2Q	15078	1-2Q	Cont.	Cont.	Cont.
SDD GFE - Various	N/A	Multiple				7018	1Q	31454	1Q	3737	1-2Q	Cont.	Cont.	Cont.
SDD GFE - CEC	N/A	Multiple		800	1Q	3030	1Q	7700	1Q	7500	1Q	Cont.	Cont.	Cont.
Subtotal:			306894	80105		200982		404087		298541		Cont.	Cont.	Cont.
Remarks: Prior Years (PYs) Cost was JLENS Technology Development Phase. FY06 through FY12 Cost is JLENS System development and Demonstration Phase.														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TD Phase Misc Support	N/A	Multiple	2084									Cont.	Cont.	Cont.
SDD Govt Intergrated Logistics Support	N/A	Multiple		679	2Q	1296	1Q	1347	1Q	1401	1Q	Cont.	Cont.	Cont.
SDD GFE - Unit	N/A	Multiple						36000	1Q	12443	1Q	Cont.	Cont.	Cont.
Subtotal:			2084	679		1296		37347		13844		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TD Phase Maintain Test Bed	SS/CPFF	CAS-TX, NM	3056									Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>								PROJECT <b>E55</b>		
SDD Contractor System Test & Evaluation	CPIF	Raytheon Systems Co. (MA/CA/FL/TX)		933	1Q	2811	1Q	3565	1Q	2563	1Q	Cont.	Cont.	Cont.
SDD Government System Test & Evaluation	N/A	Multiple		178	1Q	9953	1Q	11189	1Q	20208	1Q	Cont.	Cont.	Cont.
Subtotal:			3056	1111		12764		14754		22771		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SDD Contractor Program Management	CPIF	Raytheon Systems Co. (MA/CA/FL/TX)		15305	1Q	17458	1Q	20795	1Q	14584	1Q	Cont.	Cont.	Cont.
SDD Government Program Management	N/A	PEOMS, HSV, AL		2651	1-4Q	3512	1-4Q	4268	1-4Q	4243	1-4Q	Cont.	Cont.	Cont.
SBIR/STTR						6769	1-4Q						6769	
Subtotal:				17956		27739		25063		18827		Cont.	Cont.	Cont.
Remarks: Not Applicable														
Project Total Cost:			312034	99851		242781		481251		353983		Cont.	Cont.	Cont.



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>				PROJECT <b>E55</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Program Milestones:								
SRR		1Q						
Orbit SFR		2Q						
Orbit PDR			2Q					
IBR		2Q						
Orbit CDR				2Q				
Orbit 1						1Q		
MS C						2Q		
Orbit 2						2Q		
FUE						4Q		
Platform Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q		
Fire Control Radar Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q		
TRIMM 1			4Q					
TRIMM 2				1Q				
ARRAY 1				3Q				
ARRAY 2					2Q			
Surveillance Radar Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q		
Surv. PDR			1Q					
Surv. CDR			4Q					
Processing Station Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q		
Communications Payload Development			1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q	
Subsystem/System Level Testing					3Q - 4Q	1Q - 2Q		
Production Qualification Testing						1Q - 4Q	1Q - 2Q	
Limited User Test						2Q		
Force Development Test							2Q	

Initial Operational Test							3Q	
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As a result of The JLENS contract change order modification which was signed and definitized on 15 Dec 06.  
The government should be aware of the pending changes in the JLENS schedule

<b>Termination Liability Funding For Major Defense Acquisition Programs, RDT&amp;E Funding (R5)</b>						<b>February 2007</b>		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>				PROJECT <b>E55</b>	
Funding in \$000								
<b>Program</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Total Termination Liability Funding:</b>								
<p><b>Remarks:</b>  The JLENS Prime Contract Incorporates The "Limitation Of Funds" Clause (DFARS 52.232-22) To Limit The Government's Liability.</p> <p>For The JLENS Program, The "Limitation Of Funds" Clause Limits The Government's Financial Liability Per The Contract To Those Funds Placed On Contract Plus Any Outstanding Commitments Plus Costs Associated With The Orderly Termination Of Contractual Actions.</p>								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE							PROJECT	
7 - Operational system development		0203726A - Adv Field Artillery Tactical Data System							322	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
322 Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ECS)	16150	18191	16837	15912	12010	9629	10776	11099		110604

**A. Mission Description and Budget Item Justification:** The Advanced Field Artillery Data System (AFATDS) is the tool that performs automated fire support coordination for the Army, Navy, Air Force, and Marine Corps. Fire support is the effects of lethal and non-lethal weapons (fires) that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. Fire support coordination is the planning and execution of fires so that a suitable weapon or group of weapons adequately covers targets.

AFATDS performs the attack analysis necessary to determine the optimal weapon target pairing to provide maximum use of the fire support assets. AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis and fire support planning. This project is a replacement system for the Initial Fire Support Automated System (IFSAS), Battery Computer System (BCS) and the Fire Direction System (FDS). AFATDS will interoperate with the other Army Battle Command Systems (ABCS), current and future Army, Navy and Air Force Command and Control weapon systems, and the German, French, British and Italian fire support systems.

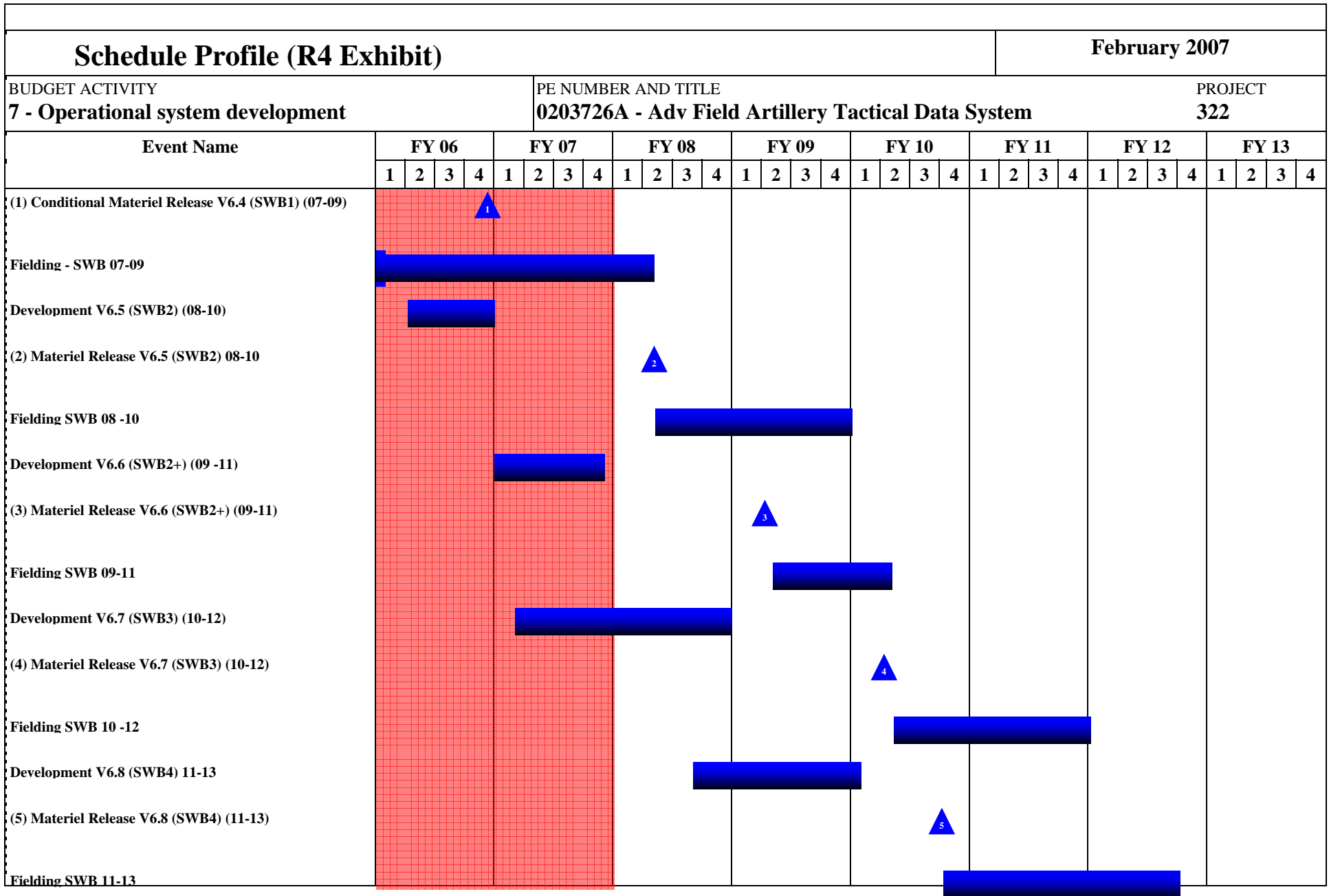
AFATDS automates the planning, coordinating and controlling of all fire support assets in the Joint battlespace (field artillery, mortars, close air support, naval gunfire, attack helicopters and offensive electronic warfare). AFATDS will perform the Fire Support Command, Control, and Coordination requirements at all echelons of field artillery and maneuver, from Echelons Above Corps to Battery or Platoon in support of all levels of conflict. The system is composed of Common Hardware/Software employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected by tactical communications in the form of a software-driven, automated network.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Prepare and support AFATDS Software Block 2 (V6.5) (09-11) test, safety & security requirements, materiel release and subsequent software block releases.	3392	3675	3460	3150
Continue AFATDS Version 6.6 and subsequent software block efforts.	12758	14039	13377	12762
Small Business Innovative Research/Small Business Technology transfer program		477		
Total	16150	18191	16837	15912

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>								<b>February 2007</b>					
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203726A - Adv Field Artillery Tactical Data System</b>					PROJECT <b>322</b>				
<b><u>B. Program Change Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009						
Previous President's Budget (FY 2007)				16820	17394	12661	10073						
Current BES/President's Budget (FY 2008/2009)				109955	74672	54055	60003						
Total Adjustments				93135	57278	41394	49930						
Congressional Program Reductions					-69								
Congressional Recissions													
Congressional Increases					1000								
Reprogrammings				-670	-134								
SBIR/STTR Transfer													
Adjustments to Budget Years						4176	5839						
FY2008 and FY 2009 funding was increased for the development of AFATDS SWB 10-12 (SWB3) and SWB 11-13 software builds.													
<b><u>C. Other Program Funding Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
OPA (B28600)				25928	28946	7384	8850	2850				Continuing	Continuing
OPA (B28620)				4836	5412	13500	14500	19357	20565	19680	19739	Continuing	Continuing
Spares				100	92							Continuing	Continuing
<p>Comment: FY08 and beyond, procurement funding for this system is now in Fire Support C2 Family - SSN: B28501</p> <p> </p> <p><b><u>D. Acquisition Strategy</u></b> AFATDS has been fielded since 1996, with the original AFATDS Version 96 Materiel Release. It has been updated with subsequent releases reflecting the Spiral development strategy of the program. AFATDS Version 6.3.2 was released in January 2004, and AFATDS Version 6.4.0 was materiel released in September 2006.</p> <p>In FY07, development efforts will focus on the 09-11 software baseline. This version will move AFATDS closer to the PM Battle Command migration to Networked-Enabled Command Capabilities (NECC). Version 09-11 also includes Fires Planning and Schedules of Fires.</p> <p>FY08 and FY09 developmental efforts and releases will include continuing joint and operational requirements resulting from Operation Iraq Freedom, Operation Enduring Freedom and future operational experience, as well as new weapons and precision fires capabilities.</p>													

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203726A - Adv Field Artillery Tactical Data System								322		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software Development	CPAF	Raytheon Systems Corp, Ft. Wayne, IN	209529	10541	2-3Q	13110	2-3Q	12105	2-3Q	11247	2-3Q	Cont.	Cont.	
ABCS System Engineering & Integration Efforts	PWD	PEO C3T, Fort Monmouth, NJ	5390									Cont.	Cont.	
Peculiar Support Equipment (PSE)	C/FFP	General Dynamics, Taunton, MA	4557	286	2Q	239	2Q	220	2Q	250	2Q	Cont.	Cont.	
Subtotal:			219476	10827		13349		12325		11497		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software Development Support	MIPR	C-E-LCMC, Ft. Monmouth, NJ & Telos, Shrewsbury, NJ	5710	541	2Q	529	2Q	515	2Q	540	2Q	Cont.	Cont.	
Engineering Support	MIPR	C-E-LCMC, Ft. Monmouth, NJ	4221	567	2Q	460	2Q	440	2Q	460	2Q	Cont.	Cont.	
Subtotal:			9931	1108		989		955		1000		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Management	MIPR	PM Battle Command (BC), Ft. Monmouth, NJ	863	177	2Q	232	2Q	245	2Q	255	2Q	Cont.	Cont.	
Test Support	MIPR	Titan, Ft. Sill, OK and various contractors	6544	902	2Q	906	2Q	850	2Q	775	2Q	Cont.	Cont.	
Limited User Test/Government	MIPR	Army Test & Evaluation	3730	1536	2-3Q	1250	2-3Q	950	2-3Q	800	2-3Q	Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203726A - Adv Field Artillery Tactical Data System</b>								PROJECT <b>322</b>		
Confidence Demo		Command (ATEC)												
Subtotal:				11137	2615		2388		2045		1830		Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Support	T&M	CSC, Eatontown, NJ	4615	530	2Q	470	2Q	477	2Q	505	2Q	Cont.	Cont.	
Program Management	MIPR	PM Battle Command (BC), Ft. Monmouth, NJ	8303	1070	1-4Q	995	1-4Q	1035	1-4Q	1080	1-4Q	Cont.	Cont.	
Subtotal:				12918	1600		1465		1512		1585		Cont.	Cont.
Project Total Cost:				253462	16150		18191		16837		15912		Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203726A - Adv Field Artillery Tactical Data System</b>				PROJECT <b>322</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Conditional Materiel Release V6.4 (SWB1) (07-09)	4Q							
Fielding - SWB 07-09	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Development V6.5 (SWB2) (08-10)	2Q - 4Q							
Materiel Release V6.5 (SWB2) 08-10			2Q					
Fielding SWB 08 -10			2Q - 4Q	1Q - 4Q				
Development V6.6 (SWB2+) (09 -11)	4Q	1Q - 4Q						
Materiel Release V6.6 (SWB2+) (09-11)				2Q				
Fielding SWB 09-11				2Q - 4Q	1Q - 2Q			
Development V6.7 (SWB3) (10-12)		1Q - 4Q	1Q - 4Q					
Materiel Release V6.7 (SWB3) (10-12)					2Q			
Fielding SWB 10 -12					2Q - 4Q	1Q - 4Q		
Development V6.8 (SWB4) 11-13			3Q - 4Q	1Q - 4Q	1Q			
Materiel Release V6.8 (SWB4) (11-13)					3Q			
Fielding SWB 11-13					4Q	1Q - 4Q	1Q - 3Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0203735A - Combat Vehicle Improvement Programs

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	23737	14380	27615	6020						73668
330 ABRAMS TANK IMPROVE PROG	21821	12600	27615	6020						68056
371 BRADLEY BASE SUSTAIN		1780								1780
718 GRND COMBAT VEHICLE HTI	1916									3832

**A. Mission Description and Budget Item Justification:** This Program Element (PE) corrects vehicle deficiencies identified in Army operations; continues technical system upgrades to include the spin out of future combat systems technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and, develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles, and develops the Tactical Wheeled Vehicle Product Improvement Program. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks through a series of product improvements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203735A - Combat Vehicle Improvement Programs**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	31080	12741	27830	6031
Current BES/President's Budget (FY 2008/2009)	23737	14380	27615	6020
Total Adjustments	-7343	1639	-215	-11
Congressional Program Reductions		-55		
Congressional Rescissions				
Congressional Increases		1800		
Reprogrammings	-7343	-106		
SBIR/STTR Transfer				
Adjustments to Budget Years			-215	-11

Change Summary Explanation: Funding - FY 06: Funds reprogrammed to a higher priority program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational system development		0203735A - Combat Vehicle Improvement Programs								330	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
330 ABRAMS TANK IMPROVE PROG	21821	12600	27615	6020						68056	

**A. Mission Description and Budget Item Justification:** This project funds improvements to the Abrams Main Battle Tank (M1 series) and the Abrams Family of Vehicles (FOV). The Abrams mission is to close with and destroy enemy forces on the integrated battlefield using firepower, maneuver, and shock effect. The M1A2 was the Army's first fully digital ground combat system developed under this project. It was succeeded by the M1A2 SEP, which is the current production model. SEP refers to a System Enhancement Package, which upgraded the M1A2's computer systems and its night vision capabilities. Post SEP development efforts are focusing on improvements yielding significant life cycle cost reductions, survivability enhancements and spiral technologies. Spiral Development will leverage experience in an urban environment and Future Combat Systems (FCS) technologies to integrate them into current systems. This could include items such as Survivability Enhancements, Power Management, Interoperability/networking capabilities and lethality. The objective is to maintain Survivability, Combat Overmatch and reduce Operational and Support (O&S) costs.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Power Train Improvement & Integration Optimization Program (e.g., Total Integrated Engine Revitalization (TIGER), Transmission, Common Controller, Auxiliary Power Unit (APU), Common Power Management	1000		1500	
Abrams Suspension Improvement Program (e.g., Track, Roadwheels, Roadarms)	1000			
Improved Situational Awareness/Supportability/Survivability (e.g. Driver's Rear Facing Camera, 360 Situational Awareness (SA), Active Protection System (APS), OIF Survivability, Environmental Systems (TMS/NBC), Improved Diagnostics and Embedded Training).	1000	7400	12700	6020
Improved Lethality (Profile Verification Program (PVP), Advanced Munitions Integration)	200	400	4100	
Advanced Technology Assessments and Insertion	4345	3445	8015	
Testing	3000	1000	1300	
Engineering support and requisitions	1264			
Abrams M1A1 Vehicle Prognostics Development	10012			
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		355		
Total	21821	12600	27615	6020

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Abrams Upgrade Program (GA0750)				326115	532616	491791	533352	227091		2110965
Abrams Vehicle Modification (GA0700)	440919	187692	588979	391385	359698	244038	216057	60699	1993900	4483367
System Enhancement Pgm (GA0730)		170410	52928	220917	76725	45478	64642			631100

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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[illegible]

Comment:

**C. Acquisition Strategy** General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort. General Dynamics is also a part of the Boeing and Raytheon Team contracted for the Active Protection System (APS).

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**C. Acquisition Strategy** General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort. General Dynamics is also a part of the Boeing and Raytheon Team contracted for the Active Protection System (APS).

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203735A - Combat Vehicle Improvement Programs								330		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Power Train Improvement & Integration Optimization Program (TIGER)	C-CPAF	Honeywell International Phoenix, AZ	23427	1000	2Q								24427	191659
Common Power Management	TBD							1500	2Q				1500	
FLIR integration into tank	SS-CPFF	General Dynamics Sterling Heights, MI	7000										7000	
Integration of improved engine into vehicle	SSCE	General Dynamics, Sterling Heights, MI	11459										11458	84786
Abrams Suspension Improvement Program (Track)	TBD	United Defense Limited Partnership, Anniston, AL	933	1000	2Q								1933	
Improved Situational Awareness/Supportability/Survivability	CPFF	General Dynamics, Sterling Heights, MI	9100	1000	2Q	7400	2Q	12700	2Q	6020	2Q		36220	
Improved Lethality	MIPR	PM, MAS	630	200	2Q	400	2Q	4100	2Q				5330	
Advance Technology Insertion	TBD	TBD		4345	2Q	3800	2Q	8015	2Q				16160	
FLIR	FFP	Raytheon Company, Mc Kinney, TX	7521										7521	
DRS-Test & Energy Management	FP	Huntsville, AL	542										542	
DRS - Tactical Systems		Palm Bay, FA	35										35	
Abrams M1A1 Vehicle Prognostics Development				10012	4Q								10012	
Subtotal:			60647	17557		11600		26315		6020			122138	276445
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Various	2540	1264	1-3Q								3804	

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs								PROJECT 330			
Subtotal:				2540	1264								3804		
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
M1A1-FLIR	MIPR	Aberdeen Proving Ground, MD	1300										1300		
Track testing	MIPR	Yuma Proving Ground, AZ	1725										1725		
Improved Situational Awareness/Supportability/Survivability	MIPR	Aberdeen Proving Ground, MD	166										166		
Various sites	MIPR	Aberdeen Proving Ground, MD; Yuma Proving Ground, AZ; White Sands Missile Range, NM		3000	2-4Q	1000	2-4Q	1300	2-4Q				5300		
Subtotal:			3191	3000		1000		1300					8491		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal:															
Project Total Cost:			66378	21821		12600		27615		6020			134433	276445	

Schedule Profile (R4 Exhibit)																				February 2007																				
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT																				
7 - Operational system development										0203735A - Combat Vehicle Improvement Programs										330																				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13											
	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								
Common Power Management																																								
Improved Situational Awareness																																								
Active Protection System (APS)																																								
Improved Lethality - Future Ammo Integration																																								
Advanced Technology Assessments and Insertion																																								
(1) SEP V2 Software																																								
Systems Engineering																																								
(2) SPINOUT 1 Safety Release, (3) SPIN OUT 1 Exercise																																								
Eng/Test Block 11 Upgrade																																								



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs				PROJECT 330	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Common Power Management			2Q - 4Q	1Q				
Improved Situational Awareness	1Q							
Active Protection System (APS)			2Q - 4Q	1Q - 4Q	1Q			
Improved Lethality - Future Ammo Integration			2Q - 4Q	1Q				
Advanced Technology Assessments and Insertion								
SEP V2 Software		4Q						
Systems Engineering	2Q - 4Q	1Q - 4Q	1Q					
SPINOUT 1 Safety Release			1Q					
SPIN OUT 1 Exercise			1Q - 4Q					
Eng/Test Block 11 Upgrade			1Q - 4Q	1Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203740A - Maneuver Control System**

PROJECT

**484**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
484 MANEUVER CONTROL SYSTEM (MCS)	36602	34590	43961	28166	24013	15125	15458	15798		213713

**A. Mission Description and Budget Item Justification:** This program element funds the development, integration and testing of the Maneuver Control System (MCS) to include injectors for Joint Tactical COP Workstation (JTCW), Joint Convergence, and Command Post of the Future (CPOF). Project satisfies an urgent need for the efficient command and control (C2) of tactical operations on the battlefield. MCS is the Army's tactical C2 system used in command posts from corps to battalion to provide automated C2 for the commander and staff at and between echelons (i.e., Force Level Control). MCS is an essential component of the Army Battle Command System (ABCS) and provides critical coordination among Battlefield Functional Areas (BFAs) within each echelon. The primary component of Force Level Control is MCS's provision of the Common Operational Picture (COP). The COP depicts information provided by all the BFAs and includes a Situation Map (SITMAP) using Defense Mapping Agency data to display friendly and enemy unit locations, control measures (e.g., boundaries, phase lines, etc.), Intelligence and Electronic Warfare graphics, Fire Support plans, combat service support location information, air corridors and air defense weapons control information.

MCS software is based on the Defense Information Infrastructure(DII) Common Operating Environment (COE) standard architecture with applications to automate C2 operations. The MCS software uses the Joint Mapping Tool Kit (JMTK), a Defense Information Infrastructure Common Operating Environment (DII COE) product, for terrain analysis, planning and SITMAP graphical displays. The Task Organization (TO) tool provides the commander and staff a means of organizing (graphically and textually) tactical Army units. Unit commanders and their staffs can quickly and efficiently prepare and disseminate combat orders with MCS's automated Operations Order (OPORD) generating tool. MCS report displays provide resource information roll-ups on all battlefield units. MCS supports battlefield situation displays for all ABCS BFAs. MCS provides the Global Command and Control System - Army (GCCS-A) the Army "ground track" segment of the joint tactical common picture.

FY08/09 funding will provide for the development of the products and services that will satisfy the tactical Battle Command capability requirements, while migrating to a service oriented architecture supporting the Army Battle Command Migration Plan. This project funding includes developing Battle Command Common Services (BCCS) and providing an enabling infrastructure for tactical Battle Command within Army Software Blocking timelines.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
MCS software development to enhance Interoperability, Usability, and Functionality	8476	6726	5303	1150
JTCW System Engineering and Development	3281			
Joint Convergence Engineering and Development	8445	8543	17361	8216
CPOF Development	16400	17149	17600	15000
Battle Command Common Services Development		1275	3697	3800
Small Business Innovative Research/Small Business Technology Transfer Programs		897		
Total	36602	34590	43961	28166



ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203740A - Maneuver Control System</b>	PROJECT <b>484</b>
<p>environment. Army acquisition strategy for technical insertion of Command Post of the Future (CPOF) capabilities into the MCS program is being implemented within this line.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203740A - Maneuver Control System								PROJECT 484		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MCS Software Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	178467	6160	1-2Q							4750	184627	184627
MCS, Joint Convergence, and BCCS System Engineering & Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	3600	10215	1-2Q	6169	1-2Q	15937	1-2Q	4046	1Q	Cont.	Cont.	
CPOF Development	MIPR	DARPA	11737	4500	2Q								16237	
CPOF Development	TBD	ILEX		5534	3Q	13689	2Q	12000	1-3Q	12000	1-3Q	Cont.	Cont.	
Misc Contracts	Various	Various	15101	1880	1-2Q	1958	1-2Q	2115	1-2Q	1650	1-2Q	Cont.	Cont.	
Software Development & Technical Support	MIPR	CECOM Software Engineering Center, NJ	29608	2500	1-2Q	3167	1-2Q	3326	1-2Q	2400	1-2Q	Cont.	Cont.	
Technical Support	In House	PM Battle Command, NJ	14116	2183	1-4Q	2830	1-4Q	2972	1-4Q	2400	1-4Q	Cont.	Cont.	
PSE H/W & S/W	Various	Various	2575			200	2Q	200	2Q			Cont.	Cont.	
MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	9721	875	1Q	1062	1Q	1147	1Q	1239	1Q	Cont.	Cont.	
ABCS SE&I	MIPR	PEO C3T, NJ	1830										1830	
SBIR/STTR						897	2Q						897	
Subtotal:			266755	33847		29972		37697		23735		Cont.	Cont.	184627
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Misc Support	In House	PM Battle Command, NJ	3864	490	1-4Q	550	1-4Q	578	1-4Q	607	1-4Q	Cont.	Cont.	
Misc Contracts	Various	Various	2128	200	1-3Q	475	1-2Q	513	1-2Q	460	1-2Q	Cont.	Cont.	
Subtotal:			5992	690		1025		1091		1067		Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203740A - Maneuver Control System								PROJECT 484			
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
OGA	MIPR	Various	3665	435	1-2Q	267	1-2Q	280	1-2Q	240	1-2Q	Cont.	Cont.		
Misc Contracts	Various	Various	4579	422	1-2Q	250	1-2Q	270	1-2Q	230	1-2Q	Cont.	Cont.		
Operational Test/Planning	MIPR	Various	19528	524	2-3Q	1721	1-3Q	3200	1-3Q	1400	1-2Q	Cont.	Cont.		
Subtotal:			27772	1381		2238		3750		1870		Cont.	Cont.		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Program Office Mgmt	In House	PM Battle Command, NJ	2759	684	1-4Q	1355	1-4Q	1423	1-4Q	1494	1-4Q	Cont.	Cont.		
Subtotal:			2759	684		1355		1423		1494		Cont.	Cont.		
Project Total Cost:			303278	36602		34590		43961		28166		Cont.	Cont.	184627	

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT				
7 - Operational system development										0203740A - Maneuver Control System																		484				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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				
S/W Development	S/W Development, Integration and COE/Interoperability Upgrades for MCS/CPOF/BCCS																															
Fielding (Purchase of Hardware)																																
CTSF Integration Testing/Certification for MCS/CPOF/BCCS																																
(1) CPOF Transitions from DARPA to Army																																
(2) CPOF Development Contract Award																																
Server Consolidation/Common Services Development																																
(3) MCS and CPOF Merge																																
Evolving Software Upgrades (e.g., joint interoperability, COE compliance, etc.)																																



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203740A - Maneuver Control System</b>				PROJECT <b>484</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
S/W Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Fielding (Purchase of Hardware)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
CTSF Integration Testing/Certification for MCS/CPOF/BCCS	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
CPOF Transitions from DARPA to Army	3Q							
CPOF Development Contract Award	3Q							
Server Consolidation/Common Services Development		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
MCS and CPOF Merge					4Q			
Evolving Software Upgrades (e.g., joint interoperability, COE compliance, etc.)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0203744A - Aircraft Modifications/Product Improvement Program

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	304408	303491	325643	417911	431223	517668	419214	420239	Continuing	Continuing
028 Aerial Common Sensor (ACS) (JMIP)	42432	21418	26391	176136	249465	354557	291379	321704		1483482
430 IMPR CARGO HELICOPTER	41571	28929	11173	9971	11053	11253				113950
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	116292	125589	87864	34129	35497	40924	44745	44745	Continuing	Continuing
D17 APACHE BLOCK III	104113	122043	193680	194639	135208	110934	83090	53790	Continuing	Continuing
D18 UTILITY FW CARGO AIRCRAFT		5512	6535	3036						15083

**A. Mission Description and Budget Item Justification:** This PE provides for development of modifications and improvements for the Guardrail Common Sensor/Aerial Common Sensor, the Improved Cargo Helicopter (ICH), the UH-60A/L Black Hawk Recapitalization/Modernization.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0203744A - Aircraft Modifications/Product Improvement Program

#### B. Program Change Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	336884	301739	256998	408701
Current BES/President's Budget (FY 2008/2009)	304408	303491	325643	417911
Total Adjustments	-32476	1752	68645	9210
Congressional Program Reductions	-1214	-11646		
Congressional Rescissions	-97650			
Congressional Increases		16200		
Reprogrammings	-1938	-1858		
SBIR/STTR Transfer	-6319	-7939		
Adjustments to Budget Years	74645	6995	68645	9210

Change Summary Explanation: FY08 increase is due primarily to support changes in requirements for software and testing which consist of the Critical Design Review (Limited User Test) which is scheduled for the 2nd quarter in FY08, others will include award of incremental funding for Boeing NRE contract and continued work; award of incremental funding for Joint Venture contract and to continue work and planning activities.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

0203744A - Aircraft Modifications/Product Improvement Program

## PROJECT

028

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
028 Aerial Common Sensor (ACS) (JMIP)	42432	21418	26391	176136	249465	354557	291379	321704		1483482

**A. Mission Description and Budget Item Justification:** The Aerial Common Sensor (ACS) is the airborne intelligence collection system required to provide critical support to early entry, forward deployed forces, and to support the future force's seamless intelligence architecture. ACS is the future force system that will satisfy the Army critical need for a responsive worldwide, self-deployable, airborne reconnaissance, intelligence, surveillance and target acquisition (RISTA) capability that can immediately begin operations upon arriving in theatre. Specifically, ACS will replace the Army's GRCS and ARL systems. The ACS will merge Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), and Measurement and Signature Intelligence (MASINT) into a single airborne system capable of providing a rapid response information dominance capability dedicated to the Joint Force Commander's need for precision real-time geolocation of the enemy on the future force battlefield. ACS will be capable of operating independently or remotely via SATCOM or line-of-sight datalinks to a ground station. ACS will be Joint Airborne SIGINT Architecture (JASA) and Unified Cryptologic Architecture (UCA) compliant and be interoperable within the open Network centric C4ISR architecture in order to support all combat and combat support functions through the emerging DOD Global Information Grid. The primary mission will be standoff Muli-INT (SIGINT, SAR, MTI) collection, with a secondary mission of overflight Imagery (EO/IR) Intelligence. ACS ground functionality will be provided by the Distributed Common Ground Station-ARMY (DCGS-A). ACS is primarily targeted against threat maneuver forces, logistic areas, rocket and artillery forces, air defense artillery, and command control communications and intelligence nodes (C3I). ACS will satisfy unique Tactical Maneuver Commander Indications and Warning, Situation Development, Targeting, and Battle Damage Assessment Intelligence, Surveillance and Reconnaissance (ISR) requirements. ACS simultaneously supports FCS information dominance requirement and is a key airborne ISR enabler for the Joint Future Force.

The National Security Agency's Military Intelligence Program (MIP) provides funding to support enhanced SIGINT capabilities.

FY 08 funds support continuation of ISR studies, continued sensor maturation and future ACS risk reduction efforts in the form of current system capability enhancements (Modern Signals and Enhanced Situational Development (ESA).

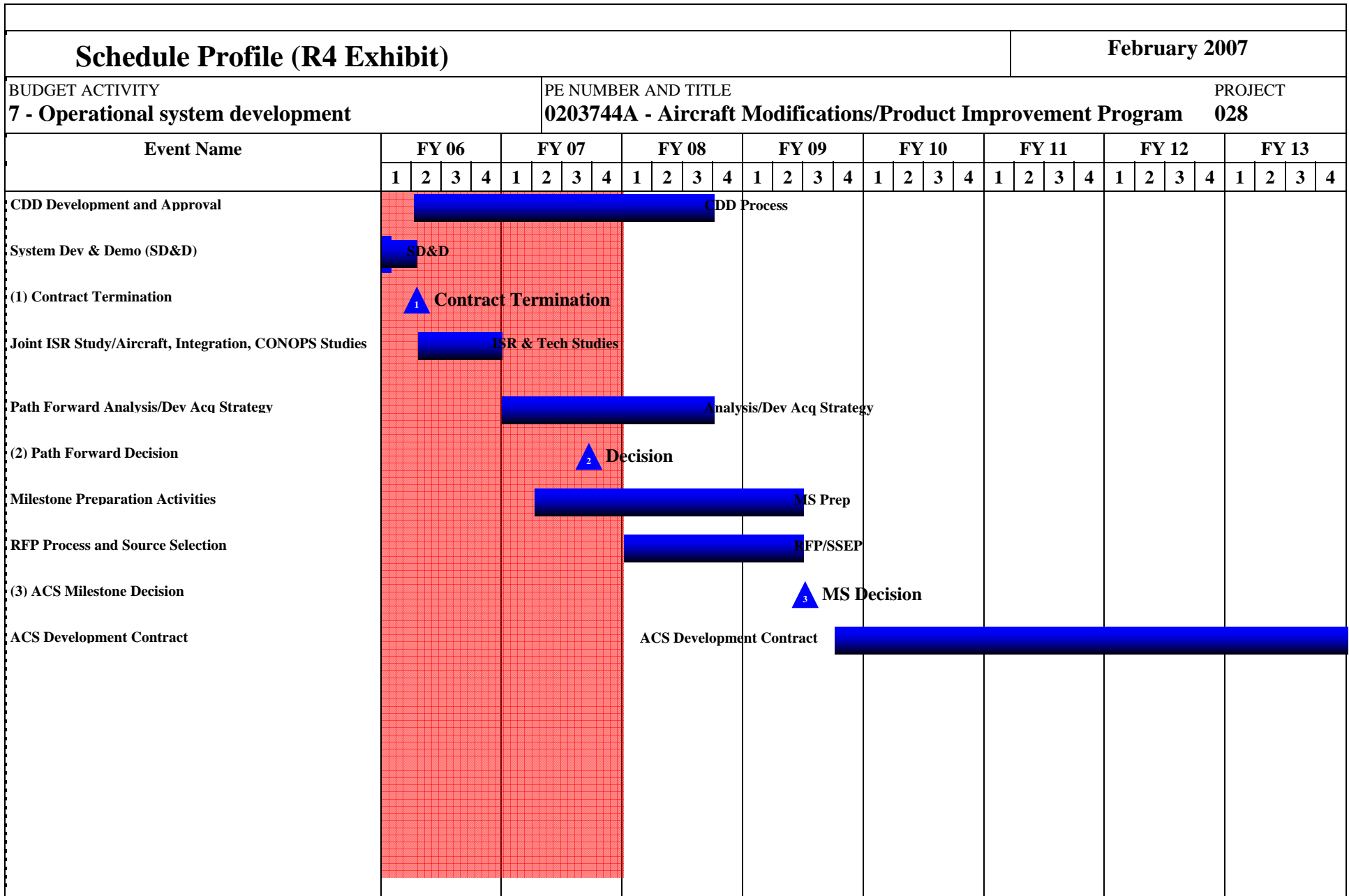
<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Modeling, Program Office, Matrix Engineering and Test support for the AC Sensors	16129			
Support Joint ISR, Aircraft, Integration & CONOPS Studies, Technical Maturation efforts - augment GRCS/ARL relevancy modernization	26303			
Program Office, Matrix Engineering and Test support for the AC Sensors, Payload RFI/SDD RFP/Source Selection activities/MS B Documentation/ASARC/DAB		6833	11051	12486
AoA Study, Payload & Platform Integration Studies, CONOPS studies and Analysis		3800	7840	7650
Modern Signal, Sensor prototype, COMINT Subsystem Development, Datalink Risk Reduction, CHALS-C		10785		
Modern Signal, Sensor prototype, COMINT Subsystem Development,			7500	20000

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>					PROJECT <b>028</b>	
SDD Contract										136000
Total						42432	21418	26391		176136
<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
ACS NSA MIP		3674	4310	4309	4309	7345	7345	7345	Continuing	Continuing
CHALS NSA MIP	1930	1460	4312	4313	4269	4269	4269	4269	Continuing	Continuing
GRCS NSA MIP	3643	3645	6825	6825	6806	3841	3841	3841	Continuing	Continuing
ARL NSA MIP			3817	3817	3817	3743	3743	3743	Continuing	Continuing
TSP NSA MIP		4119	7140	7141	7067	7036	7036	7036	Continuing	Continuing
0305206/DK98 Tactical Reconnaissance	5321								Continuing	Continuing
<p>Comment: FY08 Military Intelligence Program (MIP) funding provides for the development of ACS SIGINT technologies and needed to ensure applicability of ACS in the evolving future force architecture.</p> <p><b><u>C. Acquisition Strategy</u></b> MS B ADM was approved 4QFY04 for entry into the ACS SDD phase. The SDD contract was awarded on a competitive basis on 2 August 2004. The SDD contract was terminated for the convenience of the government on 12 January 2006. The funds remaining in the line will support CONOPS development, Payload, Aircraft and Integration studies, and sensor maturation efforts, which will reduce ACS risk through these current system capabilities enhancements. OSD directed Joint ISR study supports the need for a manned aerial ISR capability. Following Navy decision to go forward with larger aircraft than Army requirements, an analysis of Army alternatives will result in a decision regarding a path-forward for future ACS development. A milestone decision is currently planned for in FY 2009.</p>										

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203744A - Aircraft Modifications/Product Improvement Program								028		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ACS SDD Contract/Termination Liability	C-CPAF	Lockheed Martin, Littleton, CO	175807		1-2Q								175807	879000
Multi-Role-Tactical Command Data Link Development	SS-CPAF	L-3 Communications, Salt Lake City, UT	4591	2200	1-2Q	1455							8246	4590
CHALS Enhancement Development	SS-CPFF	Lockheed Martin, Owego, NY		6176	1-2Q	2500	1Q						8676	
Modern Signals Sensor Prototype	SS-CPFF	Radix, Mountain View, CA		3691	1-2Q	4530	1Q						8221	
Development/Enhanced Situational Awareness	C-CPFF	Northrop Grumman, Sunnyvale, CA		8000	1-3Q	2300	1Q						10300	
Special Signals Processing		Zeta, VA		582	2Q								582	
Sensor Development		TBD						7500	1Q	20000	1Q		27500	
SDD contract	TBD	TBD								136000	3-4Q		136000	
Subtotal:			180398	20649		10785		7500		156000			375332	883590
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ACS Operational Performance Model	SS-CPFF	TBD	11005	906	1-2Q			1490	2Q	1500	2Q	Cont.	Cont.	Cont.
Model Evalution Support	Gov't /Kr	Multiple	8201	590	1-3Q		1-3Q					Cont.	Cont.	Cont.
Aircraft, ISR and Integration Validation Studies	Gov/KR; TBD	TBD		1709	3Q	1800	2Q	1600	2Q	2900	2-3Q		8009	
Supplemental AoA	TBD	Various				500	1-3Q	3000	1-2Q	2500	1-3Q		6000	
Thread Analysis for ACS design CONOPS	IDA/TBD					1500	1-3Q	1000	1-2Q				2500	
CONOPS Studies, Analysis Support	IDA/TBD	Kr, Various					2-3Q	750	2-3Q	750			1500	

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0203744A - Aircraft Modifications/Product Improvement Program</b>								<b>028</b>		
and CDD Development														
Infrastructure Studies: Software, Security, Meta Data/Single Signal Archetitecture (SSA)	Kr/Various	Gov't, Various		1300	1-2Q								1300	
Studies and Analysis Support	C-T&M	Kr; Various		350	1-2Q								350	
Studies and Analysis Support	MIPR	Gov't		799	1-2Q								799	
Subtotal:			19206	5654		3800		7840		7650		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
AMRDEC	MIPR	Redstone Aresenal, AL	6150	190	1Q							Cont.	Cont.	Cont.
Test Support	MIPR/ CPFF	Gov't/Kr Various	2607	525	1-2Q	163	2-3Q	1000	2-3Q	1030	2-3Q	Cont.	Cont.	Cont.
Subtotal:			8757	715		163		1000		1030		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ACS Core Staff	In-House	PM, AC Sensors	16785	4726		1030	1-4Q	711		923		Cont.	Cont.	Cont.
Program Seta Support	C-T&M	CACI (ETOSS/S3), NJ/DC	6504	2130	1-3Q	1006	1-2Q	2160	1-2Q	2548	1-2Q		14348	7004
Engineering Seta Support	C-T&M	ILEX, Tinton Falls, NJ	400	1475	1-2Q	1000	1-2Q	1130	1-2Q	1209	1-2Q	Cont.	Cont.	Cont.
Seta Mgmt Support	Kr; Various	Multiple	6028	1470	1-3Q	949	1-3Q	1350	1-3Q	1447	1-3Q	Cont.	Cont.	Cont.
Matrix Support	CPFF	BAH, Eatonwotn, NJ	9559	1343	1-2Q	872	1-2Q	1515	1-2Q	1709	1-2Q	Cont.	Cont.	Cont.
Matrix Support	MIPR	CRDEC/I2WD, Ft Monmouth, NJ	2130	1922	1-2Q	1239	1-3Q	1650	1-2Q	1885	1-2Q	Cont.	Cont.	Cont.
Matrix Support	MIPR/CPFF	Gov't; Various		2348	1-2Q	574	1-2Q	1535	1-2Q	1735	1-2Q		6192	
Subtotal:			41406	15414		6670		10051		11456		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)								February 2007							
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program								PROJECT 028			
Project Total Cost:				249767	42432		21418		26391		176136		Cont.	Cont.	Cont.



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>				PROJECT <b>028</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Concept Exploration								
Tech Dev (TD) Decision Review								
Technology Development								
TD Contractor Demonstrations								
MS B								
CDD Development and Approval	2Q - 4Q	1Q - 4Q	1Q - 3Q					
System Dev & Demo (SD&D)	1Q - 2Q							
Contract Termination	2Q							
Joint ISR Study/Aircraft, Integration, CONOPS Studies	2Q - 4Q							
Path Forward Analysis/Dev Acq Strategy	4Q	1Q - 4Q	1Q - 3Q					
Path Forward Decision		3Q						
Milestone Preparation Activities		2Q - 4Q	1Q - 4Q	1Q - 2Q				
RFP Process and Source Selection			1Q - 4Q	1Q - 2Q				
ACS Milestone Decision				2Q				
ACS Development Contract				3Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
ACS Contract Termination and Closeout	1Q - 4Q	1Q - 4Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							430	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
430 IMPR CARGO HELICOPTER	41571	28929	11173	9971	11053	11253				113950	

**A. Mission Description and Budget Item Justification:** The CH-47 Chinook is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. As the Army's only heavy lift helicopter, the CH-47F Improved Cargo Helicopter is an essential component of the Army Future Force. The CH-47F program fills the Army's Aviation Transformation Chinook requirement. Key product improvements integrate the CH-47F Common Avionics Architecture System (CAAS) digital cockpit which will provide future growth potential to meet the Net-Ready Key Performance Parameters (KPPs) and also includes a digital data bus that permits installation of enhanced communication and navigation equipment for improved situational awareness, mission performance, and survivability. The CH-47F program funds completion of the Independent Operational Test and Evaluation program, developmental improvements to the T55-GA-714A engines which include a redesigned N1 drive train and Compressor Erosion Coating, and the Airframe Component Improvement Program consisting of Swashplate Redesign. The Health and Usage Monitoring System (HUMS) will develop, test and integrate advancements and extensions of the onboard HUMS system and ground station software.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Provide product technical support	1750			
Operational Test & Evaluation	2500	1536		
Continue Contract Live Fire Test & Evaluation	500			
Continue in-house and program management administration.	827	515	396	390
Continue Government Test & Evaluation.	2250			
Test Analysis	1000			
Low Maintenance Rotor Hub	5844			
714 Engine	3500	6041	4864	5000
Airframe Component Improvement Program		3823	5913	4581
Health and Usage Monitoring (HUMS)	23400	16200		
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		814		
Total	41571	28929	11173	9971

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
APA, SSN AA0252, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc and Initial Spares)	671203	1132072	581868	739518	704781	919358	1279039	767514	6381767	13177120

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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**BUDGET ACTIVITY**  
**7 - Operational system development**

PE NUMBER AND TITLE	PROJECT
<b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>430</b>

PE NUMBER AND TITLE	PROJECT
<b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>430</b>

PE NUMBER AND TITLE	PROJECT
<b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>430</b>

APA, SSN A05008, CH-47 CARGO HELICOPTER NEW BUILD (Including Adv Proc)
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190890	446980
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217680

213360

139800
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154870
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Continuing
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Continuing

Comment:




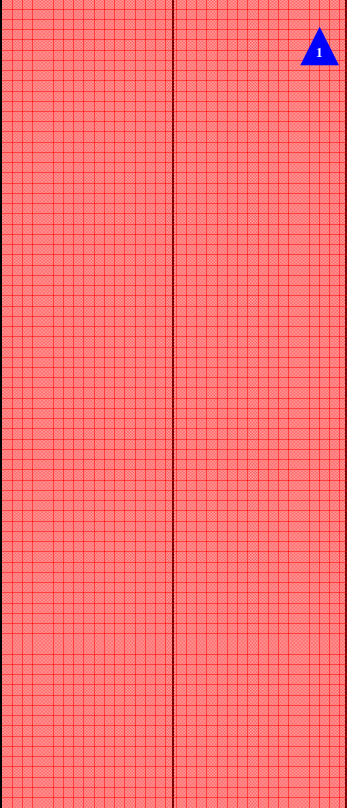
**C. Acquisition Strategy** The CH-47F rebuild program extends the service life by twenty years, incorporates a new machined airframe, and includes a new Common Avionics Architecture System (CAAS) cockpit with digital communication/navigation capability allowing improved interoperability on the digital battlefield. The CH-47F rebuild program includes recapitalization of key dynamic components, bringing them to a near zero time.

Comment:

**C. Acquisition Strategy** The CH-47F rebuild program extends the service life by twenty years, incorporates a new machined airframe, and includes a new Common Avionics Architecture System (CAAS) cockpit with digital communication/navigation capability allowing improved interoperability on the digital battlefield. The CH-47F rebuild program includes recapitalization of key dynamic components, bringing them to a near zero time.

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203744A - Aircraft Modifications/Product Improvement Program								430		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
EMD	CPIF	Various	117221										117221	117098
TOCR	CPIF	Various	1600										1600	1600
SBIR/STTR						814	1-2Q						814	
Technical Support	CPFF	Various	6658	1750	1-2Q								8408	
Blade Coating	CPIF	Honeywell		1000	1-2Q								1000	
714 Engine	CPIF	Various	7634	2500	1-2Q	6041	1-2Q	4864	1-2Q	5000	1-2Q		26039	
Low Maintenance Rotor Hub	CPIF	Boeing	7685	5844	2-3Q								13529	
Airframe Component Improvement Program						3823	2Q	5913	2Q	4581	2Q		14317	
Health and Usage Monitoring (HUMS)				23400	2-3Q	16200	2Q						39600	
Subtotal:			140798	34494		26878		10777		9581			222528	118698
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PMO/OGA	Reimbursable	Various government	12680	827	2-3Q	515	2-3Q	396	2-3Q	390	2-3Q		14808	
Subtotal:			12680	827		515		396		390			14808	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT/OT	Reimbursable	Various government	14221	4750	1-2Q	1536	1-2Q						20507	
Live Fire Test & Eval	Reimbursable	Contract/Govt	6365	500	1-2Q								6865	

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>									PROJECT <b>430</b>		
Live Fire Test & Eval	Contract		50										50		
Test Analysis	Reimbursable	Various Government	1500	1000	1-2Q								2500		
Subtotal:			22136	6250		1536							29922		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
CAMBER/Westar	SS/FP	Huntsville, AL	3901										3901	3901	
Subtotal:			3901										3901	3901	
Project Total Cost:			179515	41571		28929		11173		9971			271159	122599	

Schedule Profile (R4 Exhibit)																				February 2007																					
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT													
7 - Operational system development										0203744A - Aircraft Modifications/Product Improvement Program																		430													
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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
Low Rate Initial Production																																									
Full Rate Production																																									
IOT&E Phase II																																									
(1) FUE																																									

Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>					PROJECT <b>430</b>
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Long Lead (Lot 1)								
LRIP Decision								
LRIP Lot 1 Contract Award								
Low Rate Initial Production	1Q							
LRIP Lot 2 RFP								
LRIP Lot #2 Contract Award								
Full Rate Production RFP								
IOT&E Phase I								
MS III/FRP								
Full Rate Production	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
IOT&E Phase II	1Q - 4Q	1Q - 2Q						
FUE		4Q						
Milestone III								
Full Rate Pdn								
Initial Oper Test & Eval (IOT&E) Phase II	1Q - 2Q							

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							504	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
504	BLACK HAWK RECAPITALIZATION/MODERNIZATION	116292	125589	87864	34129	35497	40924	44745	44745	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. It is used for air assault, general support, aeromedical evacuation (MEDEVAC), and command and control in active and reserve component theater, corps, division, and Table of Distribution and Allowances (TDA) units. The UH-60A entered service in fiscal year 1978 (FY78), and the newer model UH-60L in FY89. The Army's last procurement of UH-60L helicopters was FY06. The Army has established a recapitalization goal for its systems of maintaining the fleet's average age at the design half-life or less. The UH-60 was designed for a 20 year service life. The oldest UH-60As are now over 25 years old, and the average age of the UH-60A fleet is 21 years old. The increased operational tempo, coupled with the technological age of the basic airframe, components, and systems, is having an adverse impact on the operational readiness (OR) and operating and support (O&S) costs of the over 1500 aircraft UH-60 fleet. In addition, the UH-60A/L helicopters lack the necessary digital avionics architecture to meet current and future Army and Joint Service interoperability communication requirements. The Army has determined that an upgrade program is required to address these issues. An Operational Requirements Document (ORD) for recapitalization of the BLACK HAWK fleet was approved by the Joint Requirements Oversight Council (JROC) in March, 2001. The ORD describes an evolutionary, block approach to transform the utility helicopter force to one that is more deployable, responsive, and less expensive to operate. A revised ORD was signed by the JROC on July 24, 2006 updating key performance parameters for survivability and force protection. The UH-60M provides a common platform for the modernized air ambulance MEDEVAC mission equipment package (MEP). RDTE funds are required to develop, integrate, test and qualify the UH-60M configuration. FY05 funded the initial efforts to move the UH-60M program to an Upgrade configuration which includes the Fly By Wire (FBW), Composite Tailcone, Full Authority Digital Engine Control (FADEC) and the Common Avionics Architecture System (CAAS), which is the common cockpit to be used by UH-60M, CH-47 and Special Operations. Incorporation of CAAS will minimize the future sustainment costs for these aircraft platforms. A succesful UH-60M Upgrade IPR decision was obtained in January 2006. Also in FY05, funds are included for incorporation of Integrated Vehicle Health Management System (IVHMS) on the UH-60M. FY05 funds continued UH-60M integration and testing. FY05 also funded the Integrated Mechanical Diagnostic - Health Monitoring System (IMD-HUMS) and Maintenance Analysis Safety and Training (MAST) demonstration programs and initiation of the Helicopter Autonomous Landing Systems (HALS).

FY06 Funds the continuation of the UH-60M Upgrade program, continuation of the Helicopter Autonomous Landing Systems (HALS) and continued the UH-60M testing and integration efforts of the Baseline contract.

FY07 Funds the continuation of the Upgrade program. FY07 includes funds for the Full Authority Digital Engine Control (FADEC) Development.

FY08 and out include the on-going FADEC Development program and continues efforts for the development and test of the UH-60M Upgrade aircraft.

FY11 and out funds the Improved Turbine Engine Program (ITEP) development and qualification.

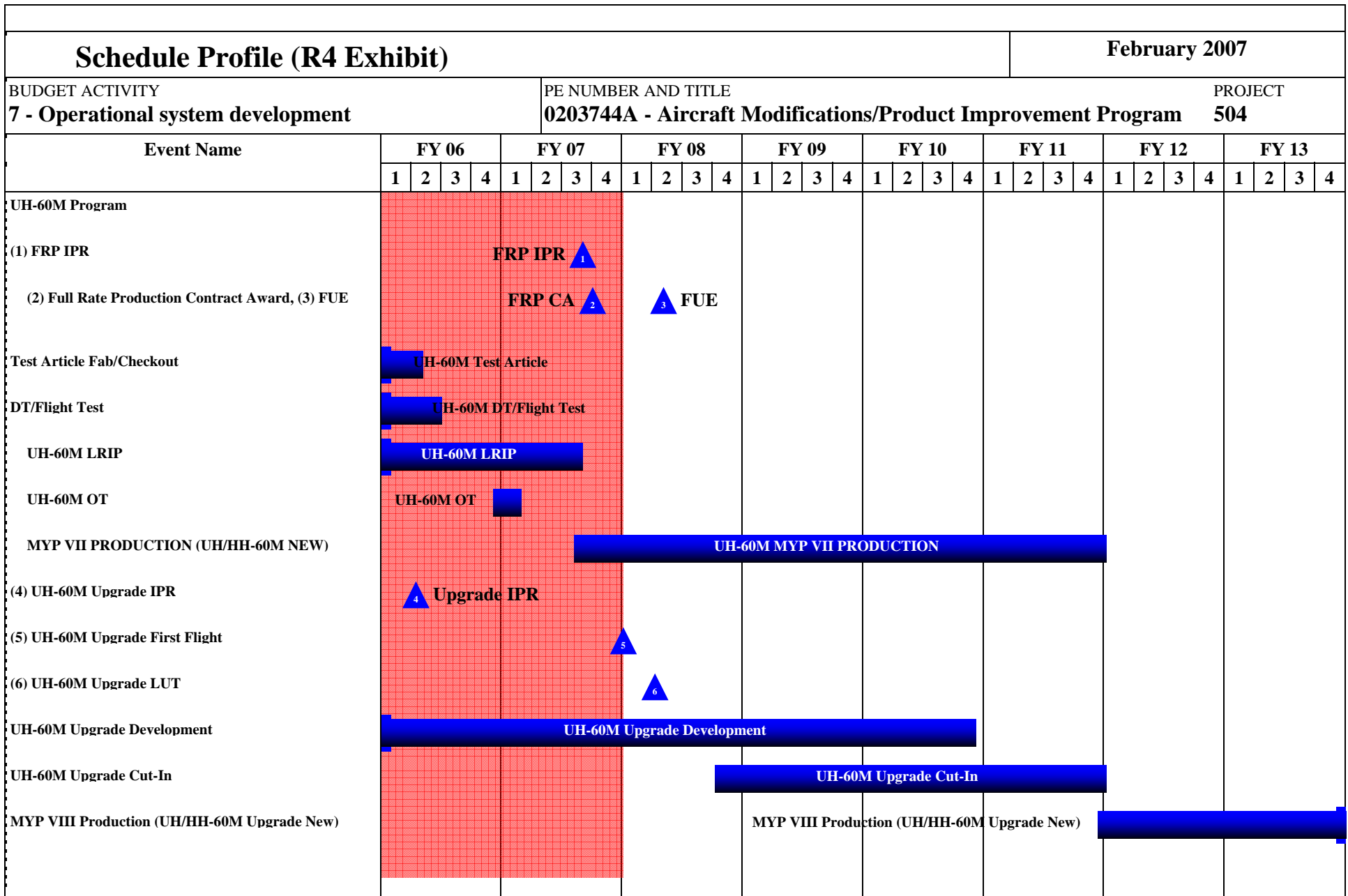
ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2007					
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT				
7 - Operational system development				0203744A - Aircraft Modifications/Product Improvement Program					504				
.													
<b><u>Accomplishments/Planned Program:</u></b>								<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>		
Continue airframe, avionics and powerplant development based on finalized configuration as a result of airframe CDR. Conduct System Preliminary Design Review and Critical Design Review.								34219	39450	22620	2655		
Software Development - includes failure modes and effects criticality analysis; software design descriptions; qualification testing of mission critical computer resources; update software requirements specifications and multiplex interface control documents; and prepare software design descriptions.								20599	31287	17080	3312		
Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.								4698	7840	4752	1554		
Prototype build and delivery to support Development Testing (DT).								25515	4364	3454	3390		
Testing (Conduct flight testing, EME testing and ground testing).								16644	28071	23252	7267		
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.								1193	943	3169	841		
Conduct training course to support test.								2841	934		1029		
Maintain Continuous Acquisition and Life Cycle Support (CALS)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's).								665	712	807	330		
Support Equipment								223	333	144	141		
Full Authority Digital Engine Control (FADEC)									8120	12586	13610		
Helicopter Autonomous Landing System (HALS) - Development and delivery of a complete unit; technical support; and integration of the unit.								6695					
Transfer to Apache								3000					
Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)									3535				
Total								116292	125589	87864	34129		
<b><u>B. Other Program Funding Summary</u></b>				<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>To Compl</u>	<u>Total Cost</u>
A05002 BLACK HAWK (MYP)				672216	1080728	705446	1031725	1058590	919986	1133844	1228322	Continuing	Continuing
Comment:													

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>504</b>
<p><b>C. Acquisition Strategy</b> The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. The Army revised the acquisition strategy for the UH-60M to procure new UH-60M helicopters in lieu of Recap/Upgrade. This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) and increasing O&amp;S costs, including all top-ten cost drivers, and provides a common, modernized platform for the UH-60 utility and MEDEVAC fleet of the future. The program will be executed over four phases: pre-System Development/Demonstration Phase (FY00-01), System Development/Demonstration Phase (Baseline FY01-07) (Upgrade FY05-10), Production/Readiness Phase (FY05-26), and Operations and Sustainment Phase (FY06-FY45).</p>		

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY			PE NUMBER AND TITLE										PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program										504	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co 6900 Main Street Stratford, CT 06601	338098	24654	1-2Q	1463	1-2Q						364215	
UH-60M Upgrade Pre-Planned Product Improvement Contract	SS/CPAF	Sikorsky Aircraft Co 6900 Main Street Stratford, CT 06601	21695	64261	1-2Q	91190	1-2Q	68459	1-2Q	12377	1-2Q	12394	270376	
Development Support - Organic	MIPR	UH PMO/matrix	13809	5872	1-3Q	1832	1-3Q	529	1-3Q	921	1-3Q	324	23287	
Development Support - Contractor	C/FP	Support Contractors	12032	1647	1-3Q	2060	1-3Q	1586	1-3Q	1475	1-3Q	972	19772	
IMD-HUMS Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	6953										6953	
IMD-HUMS Development Support - Contractor	C/FP	Goodrich, 100 Pantan Road, Vergennes, Vermont 05491	46862										46862	
MAST Development Support - Organic	MIPR'S	Other Government Agency Support	1429										1429	
MAST Development Support - Contractor	MIPR	Smith Industries Clear Water , FLI	5708										5708	
Full Authority Digital Engine Control (FADEC) Development - Organic						922	1-2Q	1429	1-2Q	1545	1-2Q	1709	5605	
Full Authority Digital Engine Control (FADEC) Development - Contractor						7198	1-2Q	11157	1-2Q	12065	1-2Q	13350	43770	
Internal Reprogramming - Payback for FY03			3413										3413	
HALS			1980	6695									8675	
Performance Support System - NG (Apache)	MIPR	Other Government Agency Support	1000										1000	
Transfer to Apache				3000									3000	

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>								PROJECT <b>504</b>		
Improved Turbine Engine Program (ITEP) Engine Development and Qualification	C	TBS										130414	130414	
Subtotal:			452979	106129		104665		83160		28383		159163	934479	
Remarks: IMD-HUMS demonstration program was funded in FY02-05 and is separate from the UH-60M program. MAST demonstration program was funded in FY04 and FY05 and is separate from the UH-60M and the HUMS programs.														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Cost Analysis Support	MIPR	AMCOM Matrix	646	75	1-3Q	77	1-3Q	78	1-3Q	80	1-3Q	81	1037	
Logistics Analysis Support - Organic	MIPR	AMCOM Matrix	287	542	1-3Q	640	1-3Q	423	1-3Q	393	1-3Q	259	2544	
Logistics Analysis Support - Support Contractor	MIPR	Support Contractor	502	466	1-3Q	640	1-3Q	352	1-3Q	327	1-3Q	216	2503	
Subtotal:			1435	1083		1357		853		800		556	6084	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Planning, Test and Evaluation	MIPR	Various Activities	12680	6646	1-3Q	12508	1-3Q	1829	1-3Q	3060	1-3Q	4963	41686	
Test Planning, Test and Evaluation	MIPR	Various Activities	125	257	1-3Q	230	1-3Q	134	1-3Q	137	1-3Q	105	988	
Subtotal:			12805	6903		12738		1963		3197		5068	42674	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Support - Organic	MIPR	UH PMO/matrix	5656	1395	1-4Q	1869	1-4Q	1139	1-4Q	1052	1-4Q	665	11776	
PM Support - Contract	C/FP	O2K Contractor	2640	782	1-3Q	1425	1-3Q	749	1-4Q	697	1-3Q	459	6752	

ARMY RDT&E COST ANALYSIS (R3)										February 2007			
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>								PROJECT <b>504</b>	
SIBR/STTR			4383			3535						7918	
Subtotal:				12679	2177	6829		1888		1749		1124	26446
Project Total Cost:				479898	116292		125589		87864		34129		165911 1009683



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>				PROJECT <b>504</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
UH-60M Program	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q			
FRP IPR		3Q						
Full Rate Production Contract Award		3Q						
FUE			2Q					
Test Article Fab/Checkout	1Q - 2Q							
DT/Flight Test	1Q - 2Q							
UH-60M LRIP	1Q - 4Q	1Q - 3Q						
UH-60M OT	4Q	1Q						
MYP VII PRODUCTION (UH/HH-60M NEW)		3Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
UH-60M Upgrade IPR	2Q							
UH-60M Upgrade First Flight			1Q					
UH-60M Upgrade LUT			2Q					
UH-60M Upgrade Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
UH-60M Upgrade Cut-In			4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
MYP VIII Production (UH/HH-60M Upgrade New)						4Q	1Q - 4Q	1Q - 4Q
OT preparation and conduct	1Q							
Closeout of Integration and Qualification	2Q							
Full Rate Production IPR (UH-60M)	3Q							
First Unit Equipped (FUE) (UH-60M)		2Q						
UH-60M Upgrade Low Rate Cut-In			4Q					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							D17	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D17	APACHE BLOCK III	104113	122043	193680	194639	135208	110934	83090	53790	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Project D17, Apache Block III funding is for the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture of 634 Apache aircraft into Block III-configured aircraft (deliveries to begin in FY11). The Block III program will provide Network-Centric capabilities for 634 Apache Longbows at a critical time as the Army transitions from the current force to the Future Force (FF). Block III capability enhancements are achieved via planned technology insertions such as: FF Connectivity-Seamless Global Information Grid Communications (Interim Communications Suite embedded in an Open Systems Architecture (OSA)); extended range sensing; increased survivability; Cognitive Decision Aiding System (CDAS), which speeds critical battle tasks; improved aircraft performance: reduced Operations and Support (O&S) cost and logistics footprint, and increased aircraft readiness. As a result of United States Army transformation, emerging FF organizational and operational structure, lessons learned from OEF and OIF, and a changing operational environment, the Modernized Apache is integral to achieving air-ground synergy during FF operations. The Block III Modernized Apache fleet, with its upgraded system architecture, will enable FF compatibility and enhanced war-fighting capability.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Boeing NRE Contracts	71937	82800	146000	141600
Joint Venture NRE Contracts	25000	25000	22000	24000
Block III NRE Program Support Activities	1514	8028	15996	16677
Operational Assessments	365	410	3767	6430
Management Services	5297	5805	5917	5932
Total	104113	122043	193680	194639

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
APA, SSN AA6605	953420	1417652	715599	683693	456865	455719	628252	654238	5356440	11321878
APA, SSN AA6670	83380								Continuing	Continuing

Comment: FY08 increase is due primarily to support changes in requirements for software and testing which consist of the Critical Design Review (Limited User Test) which is scheduled for the 2nd quarter in FY08, others will include award of incremental funding for Boeing NRE contract and continued work; award of incremental funding for Joint Venture contract and to continue work and planning activities.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>D17</b>
<p><b>C. Acquisition Strategy</b> The NRE will encompass subsystem integration resulting in a Critical Design Review (CDR) and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and flight testing. The LRIP effort will include a total quantity of 59 aircraft which will take 18 months for delivery and therefore will be two separate contractual actions (FY 09 &amp; FY 10). These 59 Low Rate Initial Production (LRIP) aircraft are to be used for operational testing, First Unit Equipped (FUE) and training base fielding.</p> <p>In FY 11, a contract for Apache Block III Lot 3 (33 aircraft), initiating full rate production, will be awarded with options for Lot 4 (48 aircraft), Lot 5 (48 aircraft) and Lot 6 (48 aircraft), and continuing through to a total of 634 aircraft.</p> <p>Interim Contractor Support is anticipated throughout LRIP to Apache Block III Lot 6 deliveries. Training device concurrency will be maintained with each technical insertion. Advanced material procurement is planned for award in FY 09 to support the LRIP deliveries in FY 11. All NRE efforts will be awarded as Cost Reimbursable. The LRIP and production efforts will be awarded as Firm Fixed Price (FFP) and include the Advanced Procurement requirements.</p> <p>As the acquisition strategy and plan unfolds Multi-Year authority may be requested for the out-years.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203744A - Aircraft Modifications/Product Improvement Program								D17		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Boeing Contracts	Cost Reimb	Mesa, AZ	31440	71937	1-2Q	82800	1-2Q	146000	1-2Q	141600	1-2Q	281299	755076	755076
Joint Venture Contracts	Cost Reimb	Orlando, FL	24000	25000	1-2Q	25000	1-2Q	22000	1-2Q	24000	1-2Q	28754	148754	148754
Lockheed Martin Contracts	Cost Reimb	Orlando, FL										18831	18831	18831
Subtotal:			55440	96937		107800		168000		165600		328884	922661	922661
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Block III NRE Support	Various	Various Activities	82	1514	1-3Q	8028	1-3Q	15996	1-3Q	16677	1-2Q	25460	67757	67757
Subtotal:			82	1514		8028		15996		16677		25460	67757	67757
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	MIPR, Various	Various Activities	307	365	1-2Q	410	1-2Q	3767	1-2Q	6430	1-2Q	7351	18630	18630
Subtotal:			307	365		410		3767		6430		7351	18630	18630
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Management Svcs (In-House, Travel, etc.)	Various	PMO AAH, Matrix Support, AMCOM	1171	5297	1-2Q	5805	1-2Q	5917	1-2Q	5932	1-2Q	21326	45448	45448

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY			PE NUMBER AND TITLE										PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program										D17	
		Express												
Subtotal:			1171	5297		5805		5917		5932		21326	45448	45448
Project Total Cost:			57000	104113		122043		193680		194639		383021	1054496	1054496

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY										PE NUMBER AND TITLE															PROJECT							
7 - Operational system development										0203744A - Aircraft Modifications/Product Improvement Program															D17							
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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				
NRE Contracts - Boeing	NRE Contracts - Boeing NRE																															
NRE Contracts - Joint Venture	NRE Contracts - Joint Venture																															
Lockheed Martin Contracts	Lockheed Martin Contracts																															
(1) Preliminary Design Review	PDR																															
(2) Critical Design Review (CDR)	CDR																															
(3) Limited User Test (LUT) I	Limited User Test (LUT) I																															
(4) Milestone C	MS C																															
(5) Initial Operating Capablity (IOC)	IOC																															

Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>				PROJECT <b>D17</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
NRE Contracts - Boeing	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q
NRE Contracts - Joint Venture	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q
Lockheed Martin Contracts					1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q
Preliminary Design Review		3Q						
Critical Design Review (CDR)			2Q					
Limited User Test (LUT) I					1Q			
Milestone C					3Q			
Initial Operating Capablity (IOC)								2Q

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)									February 2007	
BUDGET ACTIVITY			PE NUMBER AND TITLE						PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program						D17	
Funding in \$000										
Program			FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
D17, Apache Block III			10400	12200	19500	19500	13500	11000	8300	5380
Total Termination Liability Funding:			10400	12200	19500	19500	13500	11000	8300	5380

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational system development		0203744A - Aircraft Modifications/Product Improvement Program								D18	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
D18 UTILITY FW CARGO AIRCRAFT		5512	6535	3036						15083	

**A. Mission Description and Budget Item Justification:** This Project supports Test and Evaluation of the Joint Cargo Aircraft. The RDT&E funds are to support statutorily-mandated Live Fire Test and Evaluation (LFT&E) including survivability/susceptability assessment and Initial Operational Test and Evaluation (IOT&E). The LFT&E will involve system, subsystem- and component-level live fire testing. Additionally, survivability/susceptability characterization assessments of nuclear, biological, chemical, and electromagnetic capabilities will be performed.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Production Qualification Test (PQT)		187	1148	864
Live Fire Test & Evaluation (LFT&E) Testing		723	5351	712
Live Fire Test & Evaluation (LFT&E) Hardware		4602		
Initial Operational Test & Evaluation (IOT&E)			36	1460
Total		5512	6535	3036

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
A11000 UTILITY F/W CARGO AIRCRAFT	4860	71864	157043	258622	303824	427737	303700	307400	Continuing	Continuing
USAF PE0401138F/Project 5259 Joint Cargo Aircraft		3150	1916	9695	439				Continuing	Continuing

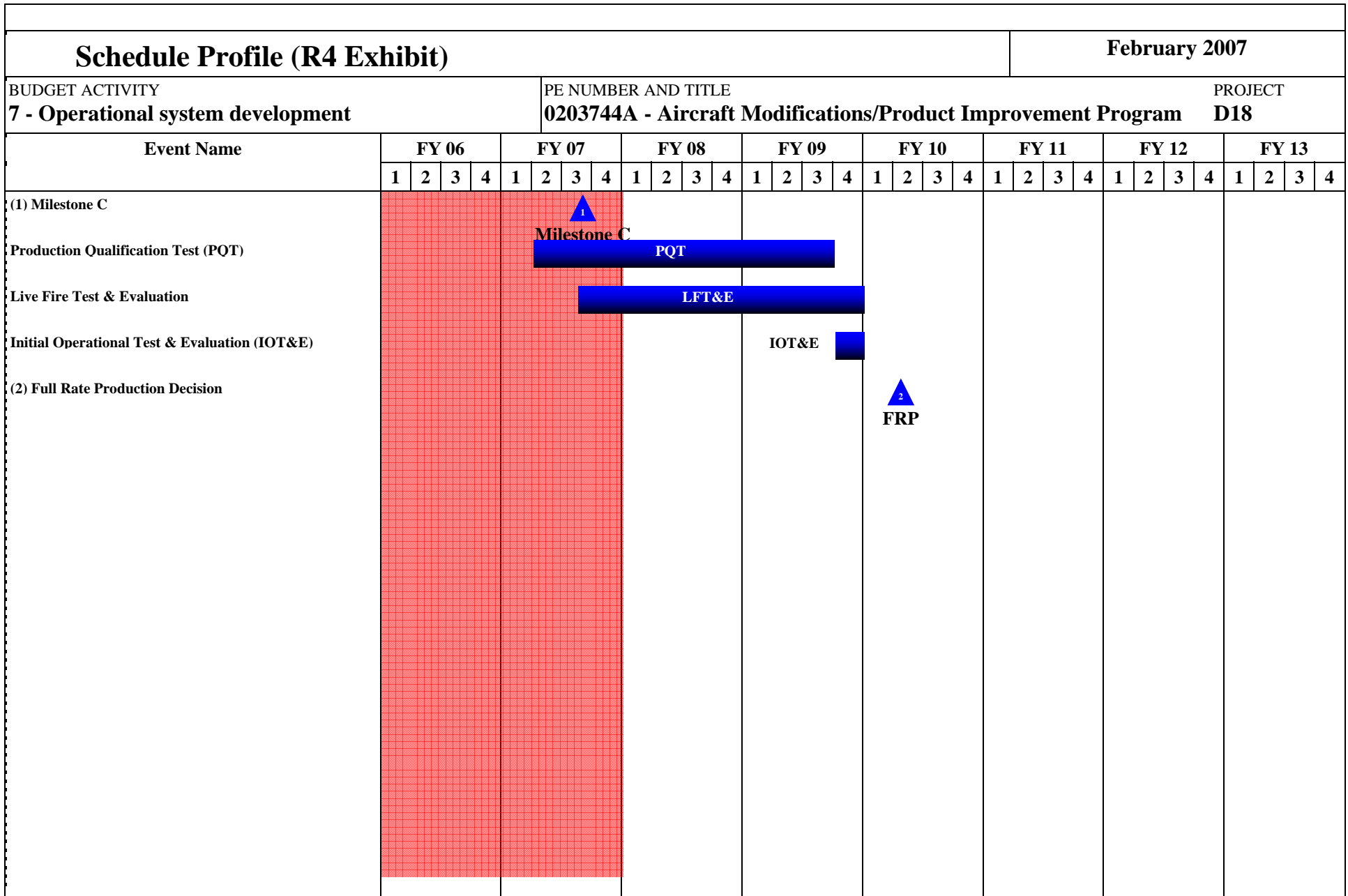
Comment: The Joint Cargo Aircraft test program is a joint effort between the Army and the Air Force. Each service will provide 50% of the required funding critical to complete aircraft testing to include PQT, LFT&E and IOT&E. This agreement was approved in the Memorandum of Agreement (MOA) signed Jun 06. Air Force PE: 0401138F (Joint Cargo Aircraft), Project: 5259

**C. Acquisition Strategy** The Joint Cargo Aircraft's acquisition strategy is based on leveraging the commercial market. The intent is to procure a previously developed and fielded, low-risk, commercially available aircraft and Mission Equipment Package (MEP). Commercially available aircraft exist that will meet the Army's immediate requirements. Additionally, these aircraft possess open architecture systems that will support technology insertions as improvements become available.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>D18</b>
<p>The JCA program was established to correct operational shortfalls to cargo mission requirements, provide commonality with other aviation platforms, and replace multiple retiring aircraft systems. This aircraft addresses these shortfalls, and replaces retiring C-23 fleets, and selected C-12s.</p>		

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0203744A - Aircraft Modifications/Product Improvement Program</b>								<b>D18</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Production Qualification Test (PQT)	MIPR	Various				187	2-4Q	1148	2-4Q	864	2-3Q		2199	
LFT&E Testing	MIPR	Various				723	3Q	5351	2Q	712	2Q		6786	
LFT&E Hardware	C/FFP	TBD				4602	3Q						4602	4642
Initial Operational Test & Evaluation (IOT&E)	MIPR	PEO STRI, Orlando, Florida								634	2Q		634	
Initial Operational Test & Evaluation (IOT&E)	MIPR	Army Test Evaluation Command (ATEC), Alexandria, VA						36	3Q	826	2Q		862	
Subtotal:						5512		6535		3036			15083	4642
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														

ARMY RDT&E COST ANALYSIS (R3)								February 2007						
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203744A - Aircraft Modifications/Product Improvement Program								D18		
Project Total Cost:							5512		6535		3036		15083	4642



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT D18	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Milestone C		3Q						
Production Qualification Test (PQT)		2Q - 4Q	1Q - 4Q	1Q - 3Q				
Live Fire Test & Evaluation		3Q - 4Q	1Q - 4Q	1Q - 4Q				
Initial Operational Test & Evaluation (IOT&E)				4Q				
Full Rate Production Decision					2Q			

<b>Termination Liability Funding For Major Defense Acquisition Programs, RDT&amp;E Funding (R5)</b>						<b>February 2007</b>		
BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>						PROJECT <b>D18</b>
Funding in \$000								
<b>Program</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Joint Cargo Aircraft								
<b>Total Termination Liability Funding:</b>								
<b>Remarks:</b> Joint Cargo Aircraft's acquisition strategy is based on leveraging the commerical market. The intent is to procure a previously developed and fielded, low-risk, commercially available aircraft and Mission Equipment Package (MEP). Based on this rationale, no Termination Liability Funding has been budgeted. RDTE funding in the JCA program is associated with PQT, OT and LFT&E only.								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203758A - Digitization**

PROJECT

**374**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
374 HOR BATTLEFLD DIGITIZN	12878	14709	9737	11056	10453	8097	8262	8460	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situational awareness (SA) and command and control information. It applies digital information technologies to acquire, exchange, and employ data throughout the battlespace, providing a clear and accurate common relevant picture for leaders at all levels. This timely sharing of information significantly improves the ability of commanders and leaders to quickly make decisions, synchronize forces and fires, and increase the operational tempo. Digitization is a means of realizing a fully integrated command and control capability to the platoon level, including interoperability links with joint and multi-national forces. The major efforts included in the program element are: 1) Integration and synchronization of the Army's interoperability efforts; coordination of interoperability efforts between joint and multi-national forces; and the synchronization of combat material and training efforts to develop and deploy Army information technologies. 2) Systems engineering and integration of hardware and software interfaces between and across multiple battlefield operating systems and across multiple Program Executive Offices, providing System of Systems (SOS) capabilities that satisfy warfighter requirements and enable the prosecution of mission operations by providing one Common Operational Picture (COP). 3) Software Blocking to synchronize system developments in order to support System of System (SOS) interoperability for legacy, interim and objective forces. 4) Unit Set Fielding operationally releases, fields and incorporates materiel systems as part of the whold C4ISR system of systems architecture. 5) Field integration to Active and Reserve Components both CONUS and OCONUS to support field use of digitized equipment.

## Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct technical interoperability assessments, perform interoperability/integration analyses, analyze networked weapon system and Situational Awareness (SA), Command and Control (C2), Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems compatibility, and assess technical and operational test plans, activities, and results.	2713	3158	1782	2250
Manage cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation.	3530	4115	2505	3105
Integrate and synchronize interoperability across SA/C2/C4ISR programs in support of acquisition synchronization, testing, training, and fielding System of Systems capabilities to the Army Force. Continue application across current and future force.	1909	2100	1650	1781
Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.	1615	1500		
Support Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements.			600	620
Support digitization technical integration with Active and Reserve Components both CONUS and OCONUS.	3111	3836	3200	3300
Total	12878	14709	9737	11056

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>					<b>February 2007</b>
BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0203758A - Digitization</b>			PROJECT <b>374</b>
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	13152	13373	10187	11456	
Current BES/President's Budget (FY 2008/2009)	304408	303491	325643	417911	
Total Adjustments	291256	290118	315456	406455	
Congressional Program Reductions					
Congressional Rescissions					
Congressional Increases		1336			
Reprogrammings	-274				
SBIR/STTR Transfer					
Adjustments to Budget Years			-450	-400	
FY 2006/2006 Congressional increases for University XXI at University of Texas/University of Texas A & M.					
<b><u>C. Other Program Funding Summary</u></b> Not applicable for this item.					
<b><u>D. Acquisition Strategy</u></b> To validate/demonstrate concepts and requirements, near term efforts are focused on developing a seamless battlefield software architecture and digitized hardware systems to include: evaluation of the horizontal battlefield digitization resources for systems, acquisition, integration, and testing of digital capability across multiple command and control, communications, sensors, and weapons platforms. The result will be an integrated, synchronize capability designed to meet the near-term requirements of the Stryker Brigade Combat Teams and the Army Future Force. Also supports the Army's role in joint and multi-national digitization programs, battle command efforts and Joint Battlefield Situational Awareness.					

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203758A - Digitization								374		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System/Software Integration	MIPR/PWD	Various	95563	5252	2-3Q	6423	2-3Q	3483	2-3Q	4515	2-3Q	Cont.	Cont.	
International Digitization	MIPR/PWD	Various	11001										11001	
Technical Analysis	MIPR	MITRE, McLean, VA	8156	1600	2Q	1600	1Q	1650	1Q	1780	1Q	Cont.	Cont.	
Other Government Agencies	MIPR	Various	6522											
Single Integrated Ground Picture	MIPR		7281											
Subtotal:			128523	6852		8023		5133		6295		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	10472	1300	1-4Q	1350	1-4Q	1404	1-4Q	1461	1-4Q		15987	
Digitization Planning, Internet and graphics support	MIPR	General Dynamics Corp. Pentagon, Arlington, VA	6999										6999	
Info Ops, System Eng. & Field Integration, Internet and graphics support.	PWD	Quantum Res International, Pentagon & NC3, Arlington, VA, Ft. Monroe, VA, & Ft. Hood, TX and others	19894											
Other Integration Support	MIPR	L3Com, Pentagon	2119										2119	
System Eng. & Field Integration, Internet and graphics support.	PWD	Quantum Res International, Pentagon & Arlington, VA, Ft. Monroe, VA, & Ft. Hood, TX		3111	4Q	3836	4Q	3200	4Q	3300	4Q		13447	
Subtotal:			39484	4411		5186		4604		4761			38552	

ARMY RDT&E COST ANALYSIS (R3)											February 2007					
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203758A - Digitization											PROJECT 374	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Comple <sup>t</sup> e	Total Cost	Target Value of Contract		
Other Govt. Agencies	MIPR	Various	5062										5062			
University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	14742	1615	4Q	1500	1Q						17857			
Studies/Analyses	MIPR	Pentagon, Arlington, VA	2116										2116			
DISM Battalion Test	MIPR/PWD		1000										1000			
Subtotal:			22920	1615		1500							26035			
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Comple <sup>t</sup> e	Total Cost	Target Value of Contract		
Subtotal:																
Remarks: Not Applicable																
Project Total Cost:			190927	12878		14709		9737		11056		Cont.	Cont.			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120							120	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
120	Force XXI Battle Cmd, Brigade & Below (FBCB2)	18535	26083	32446	13666						90730

**A. Mission Description and Budget Item Justification:** The Force XXI Battle Command Brigade and Below (FBCB2) is a digital, battle command information system that provides integrated, on-the-move, timely, relevant battle command information to tactical combat, combat support and combat service support leaders and soldiers. FBCB2 incorporates state-of-the-art information technology to allow commanders to concentrate combat system effects rather than combat forces, enabling units to be both more survivable and more lethal. FBCB2 provides the capability to pass orders and graphics allowing the warfighter to visualize the commander's intent and scheme of maneuver. FBCB2 affords combat forces the capability to retain the tactical/operational initiatives under all mission, enemy, terrain, troops, and time available conditions to enable faster decisions, real/near-real-time communications and response. The system includes a Pentium based processor, display unit, keyboard and removable hard disk drive cartridge. FBCB2 supports situational awareness (blue and red force positions) and command and control down to the soldier/platform level across Battlefield Operating Systems (BOS) and echelons. FBCB2 as a key component of the Army Battle Command System (ABCS), completes the information flow process from brigade to platform and across platforms within the brigade task force and across brigade boundaries. FBCB2-Blue Force Tracking (BFT) is a part of the FBCB2 program, which built upon both the FBCB2 program and experience with the Enhanced Information System (EIS), also known as Balkan Digitization Initiative (BDI) deployed in the Balkans. An L-Band transceiver employing commercial satellite services is used in lieu of tactical, terrestrial radios. The FBCB2-BFT system is deployed in the Gulf region in support of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) and has remained with those units in the Continental United States (CONUS) that have returned from OIF/OEF. FBCB2-BFT satisfies the operational needs of the warfighter by providing near real-time tracking capabilities for joint and coalition forces in the Central Command (CENTCOM) Area of Responsibility (AOR). FBCB2-BFT enhances effectiveness by providing automated tools to facilitate the battle command process. It enhances the ability for the soldiers to operate in an unpredictable and changing environment where units are Beyond Line Of Sight (BLOS) within the battle space and across the spectrum of conflict by using multiple commercial satellites, which send the FBCB2-BFT data to a central processing facility known as the FBCB2 Operations Center.

FY08 and FY09 funds continue execution of Chief of Staff of the Army Directives for Battle Command Architecture and Joint Requirements Oversight Council Memorandum (JROCM) efforts. Efforts include Type 1 Encryption, development of an L-Band antenna to meet data and accuracy requirements, security network architecture requirements, and interoperability between TI and L-Band based FBCB2 systems. Funds will be used to provide platform-level situational awareness and provide interoperability with ABCS System of Systems, Bradley, Abrams, Aviation, Stryker and support mandated Army/DoD protocol/system updates.

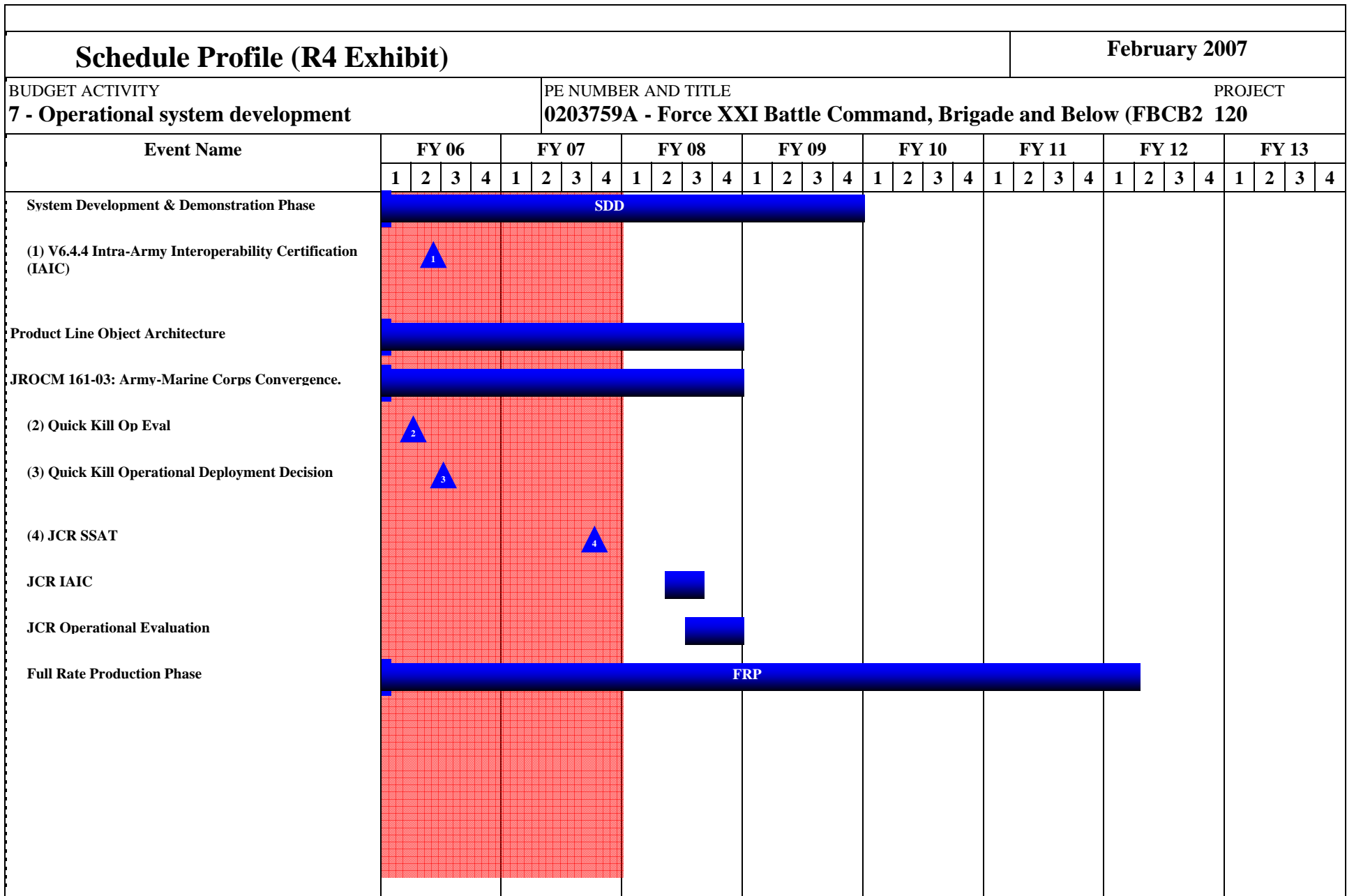
<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue to design, develop, fabricate and test a Type 1 Encryption Device (T1ED) to meet requirements for processing secret messages.	7261	3332	4720	
Continue test and evaluation efforts to support Army Software Blocking schedule.	2131	2438	8400	4000
PM FBCB2 Program Management	1944	2424	2500	1250
Continue development of FBCB2 Joint Capabilities Release (JCR) V1.0 to include joint (USMC), Common Battle Command Product Line (BCPL) initiatives and Cross Domain Solution (CDS) Netcentric services.	2718	5041	13966	8416

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
<b>7 - Operational system development</b>	<b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>		<b>120</b>	
Design, develop, fabricate and test prototype L-Band antennas to achieve data capacity and situation awareness accuracy requirements. Will utilize low cost INMARSAT and Broadband Global Access Network (BGAN) commercial satellite networks.	1481	11641	2360	
Comm Connectivity Improvements	3000	500	500	
Small Business Innovative Research/Small Business Technology Transfer Programs		707		
Total	18535	26083	32446	13666

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>								<b>February 2007</b>					
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>					PROJECT <b>120</b>				
<b><u>B. Program Change Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009						
Previous President's Budget (FY 2007)				19913	26375	33835	14813						
Current BES/President's Budget (FY 2008/2009)				304408	303491	325643	417911						
Total Adjustments				284495	277116	291808	403098						
Congressional Program Reductions					-100								
Congressional Rescissions													
Congressional Increases													
Reprogrammings				-1378	-192								
SBIR/STTR Transfer													
Adjustments to Budget Years						-1389	-1147						
<b><u>C. Other Program Funding Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
OPA - W61900				283307	159689	175975	125687	121707	90730	90572	71921	Continuing	Continuing
OPA - BS9736 (Spares)				3546	378	2831	6455					Continuing	Continuing
OMA - 432142				38294	30647	19901	19901					Continuing	Continuing
Comment: <div style="border: 1px solid black; height: 100px; margin-top: 10px;"></div>													
<b><u>D. Acquisition Strategy</u></b> The FBCB2 development effort follows an evolutionary acquisition strategy to support Product Line Architecture, Army/Marine Corps convergence, Army Battle Command System (ABCS) interoperability and Army Software Blocking requirements. A Full Rate Production (FRP) decision review conducted by the Army Systems Acquisition Review Council (ASARC) in Aug 2004 and authorized FBCB2 program to enter into the Production and Deployment phase. Development efforts are executed via an Indefinite Delivery/Indefinite Quantity (ID/IQ) Cost Plus Award/Fixed Fee type contract. The current contract was awarded in Sep 2004.													

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT			
7 - Operational system development			0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120											
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Systems Engineering	CPIF/CPAF	Northrup Grumman, CA	183210	2152	2Q	1460	1-2Q	3472	1-2Q	2020	1-2Q	Cont.	Cont.	
Hardware Development	FFP	Northrup Grumman, CA	27645	8742	2-3Q	14973	1-3Q	7080	1-2Q				58440	
Software Development	CPIF/CPAF	Northrup Grumman, CA	249212	3566	2Q	4081	1-2Q	10994	1-2Q	6396	1-2Q	Cont.	Cont.	
TACNAV	CPIF	TRW CA	1000										1000	
Systems Eng, Training and Log Development	CPAF	Lockheed Martin, NJ	11196										11196	
Systems Eng, Training and Log Development	Various	Various Contracts	1504										1504	
Subtotal:			473767	14460		20514		21546		8416		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Office Support	N/A	CECOM, Ft. Monmouth	14268	750	1-4Q	900	1-4Q	927	1-4Q	956	1-4Q	Cont.	Cont.	
Matrix Support	MIPR	CECOM, Ft. Monmouth	4635	350	1-2Q	100	1-2Q	106	1-2Q	106	1-2Q	Cont.	Cont.	
Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	27599	844	1-2Q	1424	1-2Q	1467	1-2Q	188	1-2Q	Cont.	Cont.	
Subtotal:			46502	1944		2424		2500		1250		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CTSF	MIPR	CTSF	3274	34	1-2Q	65	1-3Q	100	1-4Q	75	1-4Q		3548	
ATEC	MIPR	ATEC	35655	1422	1-2Q	1030	1-3Q	6000	1-4Q	2500	1-4Q	Cont.	Cont.	
EPG	MIPR	EPG	19624	375	1-2Q	1000	1-3Q	1800	1-4Q	1000	1-4Q	Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>								PROJECT <b>120</b>		
CRTC	MIPR	CRTC	1040									1040		
Misc Contract Support			2969	300	1-2Q	343	1-3Q	500	1-4Q	425	1-4Q		4537	
Subtotal:			62562	2131		2438		8400		4000		Cont.	Cont.	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Small Business Innovative Research/Small Business Technology Transfer Programs						707	1-4Q						707	
Subtotal:						707							707	
Remarks: Actual dollars received on funding authorization document in FY04 was 46,652.														
JROCM Development efforts are included in the Software/Systems Engineering and Software Development.														
<b>Project Total Cost:</b>			<b>582831</b>	<b>18535</b>		<b>26083</b>		<b>32446</b>		<b>13666</b>		<b>Cont.</b>	<b>Cont.</b>	



Schedule Detail (R4a Exhibit)						February 2007			
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120						PROJECT
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
System Development & Demonstration Phase	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q					
V6.4.4 Intra-Army Interoperability Certification (IAIC)	2Q - 3Q								
Product Line Object Architecture	1Q - 4Q	1Q - 4Q	1Q - 4Q						
JROCM 161-03: Army-Marine Corps Convergence.	1Q - 4Q	1Q - 4Q	1Q - 4Q						
Quick Kill Op Eval	2Q								
Quick Kill Operational Deployment Decision	3Q								
JCR SSAT		4Q							
JCR IAIC			2Q - 3Q						
JCR Operational Evaluation			3Q - 4Q						
Full Rate Production Phase	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0203801A - Missile/Air Defense Product Improvement Program

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15516	10651	30219	38115	40867	25974	11000	11000		183342
036 PATRIOT PROD IMP PGM	15516	10651	10899	11235	12227	12734				73262
DF8 DF8			4320	11880	8640	3240				28080
DF9 DF9			15000	15000	20000	10000	11000	11000		82000

**A. Mission Description and Budget Item Justification:** PATRIOT is an advanced Surface-to-Air guided missile system with a high probability of kill capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes. Program Development efforts address Mode V/S Identification Friend or Foe (IFF), launcher and design improvements.

DF8 The PATRIOT advanced missile system plays a critical part in the integrated battlefield. DF8 funding was provided by OSD to support expanding ongoing current Joint efforts to advance integrated battlefield capabilities. This project will be merged in FY09 with project 036, PATRIOT Product Improvement Program.

DF9 DF9 funding was provided to the Army by OSD as part of an ongoing Joint OSD-managed effort. This project will be merged in FY09 with project 036, PATRIOT Product Improvement Program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203801A - Missile/Air Defense Product Improvement Program**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	15957	10770	11051	11297
Current BES/President's Budget (FY 2008/2009)	15516	10651	30219	38115
Total Adjustments	-441	-119	19168	26818
Congressional Program Reductions		-41		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-441	-78		
SBIR/STTR Transfer				
Adjustments to Budget Years			19168	26818

The FY07 President's Budget listed above does not reflect the SBIR/STTR reductions. Those reductions are listed in the FY07 Accomplishments/Planned Program section.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational system development		0203801A - Missile/Air Defense Product Improvement Program								036	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
036 PATRIOT PROD IMP PGM	15516	10651	10899	11235	12227	12734				73262	

**A. Mission Description and Budget Item Justification:** PATRIOT is an advanced Surface-to-Air guided missile system with a high probability of kill capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes. Program Development efforts address Mode V/S Identification Friend or Foe (IFF), launcher and design improvements.




<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Post Deployment Software Development	7204	10351	10899	11235
Recapitalization	8312			
Small Business Innovative Research/Small Business Technology Transfer Programs		300		
Total	15516	10651	10899	11235

**B. Other Program Funding Summary** Not applicable for this item.

**C. Acquisition Strategy** The design objective of the Patriot system was to provide a baseline system capable of modification to cope with the evolving threat. This alternative minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The Patriot Product Improvement program upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0203801A - Missile/Air Defense Product Improvement Program								036		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Post Deployment Software Development	SS-CPIF	Multiple	11979	4879	2Q	8631	2Q	8899	2Q	9056	2Q		43444	
Recapitalization	SS-CPIF	Multiple	80977	8312	2Q								89289	
SIAP	SS-FP	Raytheon, MA	14852										14852	
Advanced Composite Radome	SS-CPIF	Multiple	3100										3100	
Subtotal:			110908	13191		8631		8899		9056			150685	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Missile Command	MIPR	RSA, AL	17821	400		330	2-3Q	375	2-3Q	400	2-3Q	Cont.	Cont.	
White Sands Missile Range	MIPR	WSMR, NM	13767	275		230	2-3Q	250	2-3Q	270	2-3Q	Cont.	Cont.	
RDEC and Other Govt Agent	MIPR	RSA, AL	99192	800		600	2-3Q	625	2-3Q	684	2-3Q	Cont.	Cont.	
Subtotal:			130780	1475		1160		1250		1354		Cont.	Cont.	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203801A - Missile/Air Defense Product Improvement Program</b>							PROJECT <b>036</b>			
In-House Support	N/A	RSA, AL	16761	450	1-4Q	480	1-4Q	450	1-4Q	475	1-4Q	Cont.	Cont.	
Matrix Support	N/A	RSA, AL	4737	400	1-2Q	380	1-2Q	300	1-2Q	350	1-2Q	Cont.	Cont.	
Subtotal:			21498	850		860		750		825		Cont.	Cont.	
<b>Project Total Cost:</b>			<b>263186</b>	<b>15516</b>		<b>10651</b>		<b>10899</b>		<b>11235</b>		<b>Cont.</b>	<b>Cont.</b>	

Schedule Profile (R4 Exhibit)																				February 2007																					
BUDGET ACTIVITY										PE NUMBER AND TITLE																				PROJECT											
7 - Operational system development										0203801A - Missile/Air Defense Product Improvement Program																				036											
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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
RECAPITALIZATION										Recapitalization																															
Mode V IFF										Mode V IFF																															
Launcher Electronics										Launcher																															
Surveillance/Detection																																									
Post Deployment Software Build										Post Deployment Software Build																															
(1) PBD 6 Event Start: 5416 vposition: 3135										 PBD 6																															
(2) PBD 6.5 Event Start: 7800 vposition: 3630																		 PBD 6.5																							
(3) PBD 7 Event Start: 10400 vposition: 4125																										 PBD 7															



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program				PROJECT 036	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
RECAPITALIZATION	1Q - 4Q	1Q - 4Q						
Mode V IFF	1Q - 4Q	1Q						
Launcher Electronics	1Q - 4Q	1Q						
Surveillance/Detection	1Q							
Post Deployment Software Build	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
PBD 6 Event Start: 5416 vposition: 3135		1Q						
PBD 6.5 Event Start: 7800 vposition: 3630				1Q				
PBD 7 Event Start: 10400 vposition: 4125						1Q		
MSE Development (Transferred to CAP)	1Q							
BLOCK 2002 PRODUCTION DELIV	1Q - 3Q							
BLOCK 2004 PRODUCTION DELIV	3Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 3Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0203802A - Other Missile Product Improvement Programs

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	25105	22554	1897	1537						51093
781 Hellfire UAV	7301	7615	1897	1537						18350
786 APKWS Simulator Upgrade		12								12
788 ATACMS PIP	17804	14927								32731

**A. Mission Description and Budget Item Justification:** The Laser HELLFIRE II missile requires replacement of the gyro and software modification to facilitate deployment from high altitudes and increased engagement geometries to defeat a broad target set ranging from heavy armor to urban structures. Modifications will be made to both the current AGM-114K-2A (shaped charge) and N (blast fragmentation) model missiles and result in an AGM-114 P+ configuration. The missile will be backwards compatible with current rotary wing platforms.

The Advanced Precision Kill Weapon System (APKWS) Training Simulator upgrades will consist of the development, testing, and installation of the software/hardware necessary for pilot training. These software upgrades will be developed, tested, and installed on Army helicopter simulators. The training simulator upgrades will aid the pilot and maintainers in the initial and annual training required for firing and maintaining the APKWS munition system. The training simulator upgrades will significantly reduce the number of munitions required for initial and annual training.

The Army Tactical Missile Systems (ATACMS) Unitary is the next spiral development of the ATACMS Quick Reaction Unitary (QRU) missile. The ATACMS Unitary incorporates a qualified military "off the shelf" WDU-40 warhead. The Navy's WDU-40 warhead replaces the current WDU-18 plus the addition of a tri-modal fuze system providing an air-burst capability for area targets; impact detonation for surface targets; and delay-detonation for underground targets or multi-story buildings, or, for targets with collateral damage adverse circumstances. The WDU-40 warhead plus the fuze extends the missile service-life by approximately 10-years. ATACMS is the U.S. Army primary 24/7 all-weather surface-to-surface artillery precision missile used by current and future Joint Force Commands to shape the battlefield with long-range fires against hard and soft stationary targets in Open, Complex and Urban environments. ATACMS supports Army modularity. ATACMS missile variants are employed by Army modular Fires Brigades supporting Brigade Combat Teams (BCT). ATACMS continues to support the Global War on Terror (GWOT). In Operation Iraqi Freedom (OIF), 479 ATACMS precision missile variants were launched from Multiple Launch Rocket System (MLRS) M270A1 and High Mobility Artillery Rocket System (HIMARS) launchers by the Joint Land Component Command and Joint Special Operations Command (JSOC), providing critical Operational Shaping/Precision Strike fires. The missile provides the Joint Force Command with a 24/7 all-weather 300 kilometer long-range fires capability to attack high-payoff, time-sensitive targets without placing aircraft and crews at risk. Its precision accuracy, along with the absence of potential submunition duds and reduced lethal radii, mitigate the warfighter's collateral damage concerns against hard and soft targets in complex and urban environments.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203802A - Other Missile Product Improvement Programs**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	18414	19706	23346	5747
Current BES/President's Budget (FY 2008/2009)	25105	22554	1897	1537
Total Adjustments	6691	2848	-21449	-4210
Congressional Program Reductions		-86		
Congressional Rescissions	-100			
Congressional Increases	7301	3100		
Reprogrammings		-166		
SBIR/STTR Transfer	-510			
Adjustments to Budget Years			-21449	-4210

Project 781 -

FY07 Congressional increase of \$7.301 for HELLFIRE UAV.

FY08 decrease of \$21,449. Funds realigned to higher priority requirements.

FY09 decrease of \$4,210. Funds realigned to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
781	Hellfire UAV	7301	7615	1897	1537						18350

**A. Mission Description and Budget Item Justification:** The Laser HELLFIRE II missile requires replacement of the gyro and software modification to facilitate deployment from high altitudes and increased engagement geometries to defeat a broad target set ranging from heavy armor to urban structures. This change will facilitate deployment from high altitudes and increased engagement geometries to defeat a broad target set ranging from heavy armor to urban structures. The missile will also be backwards compatible with current rotary wing platforms. The summary activities of the project are: a) replace the missile attitude gyro with an Inertial Measurement Unit (IMU), b) develop a modified digital communication link between the missile and the launcher/platform required to perform UAV functions, c) modify autopilot algorithms and associated software to take advantage of the enhanced engagement envelope offered by the IMU, and d) fully develop, test, and qualify the hardware and software for materiel release. Modifications will be made to both the current AGM-114K-2A (shaped charge) and N (blast fragmentation) model missiles and result in an AGM-114 P+ configuration. These missiles will be designated the P-4A (shaped charge warhead, with sleeve) and N-4 (metal augmenting charge warhead) configurations.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Define and develop system requirements and preliminary design.	4080	3055	200	100
Develop test plans, test support equipment and testing.	2292	2272	1369	1184
Perform government engineering support	929	2074	328	253
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		214		
Total	7301	7615	1897	1537

<b><u>B. Other Program Funding Summary</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013</u></b>	<b><u>To Compl</u></b>	<b><u>Total Cost</u></b>
C70100 Laser HELLFIRE Missile (Basic/IHW/HFII)	76535		46000	49000	32000	33000				236535

Comment:

**C. Acquisition Strategy** The HELLFIRE AGM-114 P+ configuration is an in-house development effort that "leverages" previous experience associated with integration of HELLFIRE on the Air Force Predator Unmanned Aerial Vehicle (UAV) and the current Warrior System Design and Development effort (reviews, testing, and documentation). The end result of the missile modification/integration effort will be an Engineering Change Proposal (ECP) defining the hardware and software changes to be incorporated into production of the missiles for the Warrior UAV.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs									781		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	CPFF	Longbow Limited Liability Company, Orlando, FL		2285	1-4Q								2285	
Support Contracts	Various	Various		1708	1-4Q	2759	1-4Q	200	1-4Q	100	1-4Q		4767	
Developmental Engineering	Various	Various		795	1-4Q	2075							2870	
Subtotal:				4788		4834		200		100			9922	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	Various		2292	1-4Q	2272	1-4Q	1369	1-4Q	1184	1-4Q		7117	
Subtotal:				2292		2272		1369		1184			7117	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
In-House Support	Various	Various		221	1-4Q	295	1-4Q	328	1-4Q	253	1-4Q		1097	
SBIR/STTR						214	2Q						214	
Subtotal:				221		509		328		253			1311	

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

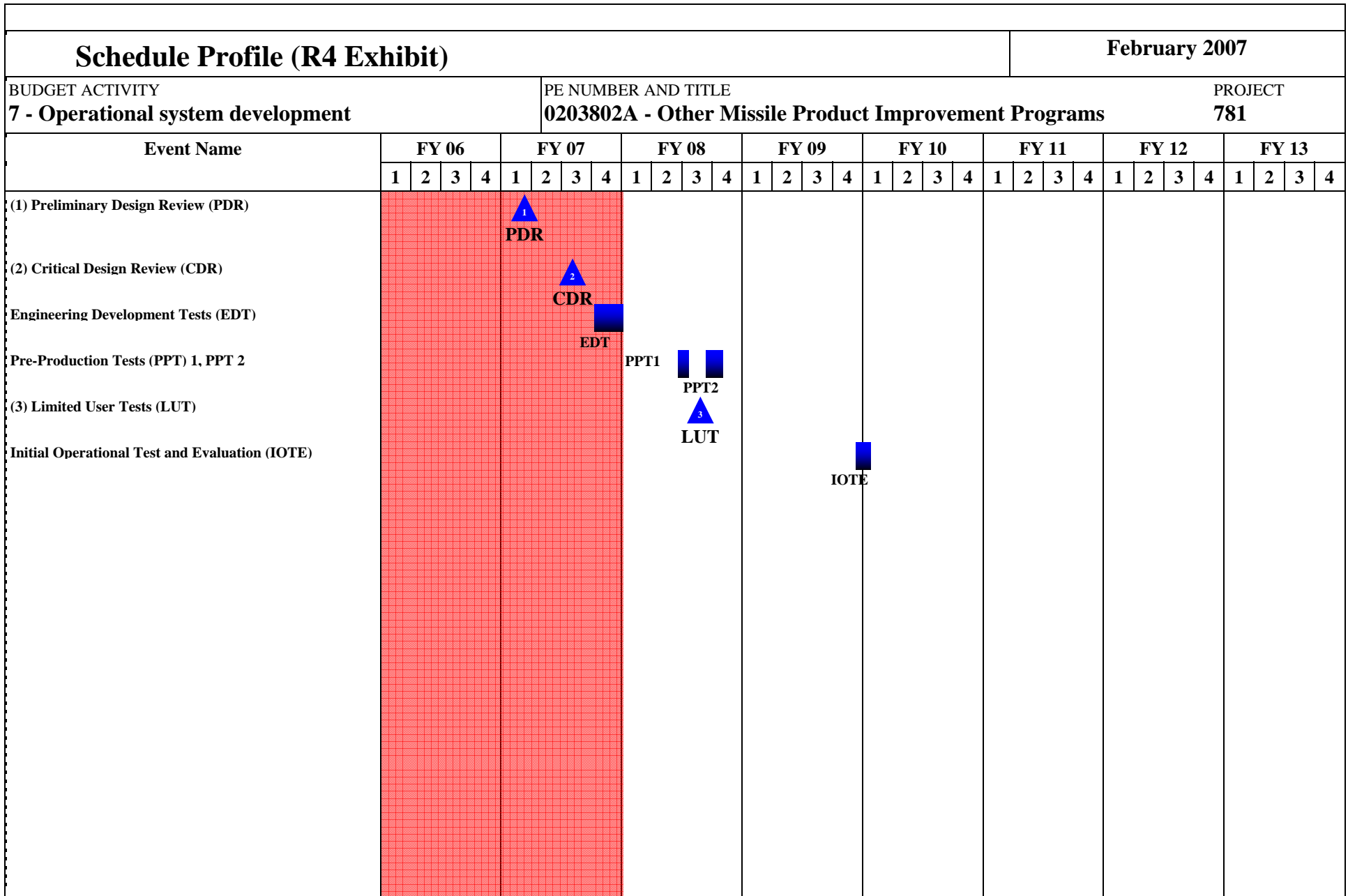
ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							PROJECT 781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350

ARMY RDT&E COST ANALYSIS (R3)							February 2007					
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							781		
Project Total Cost:				7301		7615		1897		1537		18350





Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs				PROJECT 781	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Preliminary Design Review (PDR)		1Q						
Critical Design Review (CDR)		3Q						
Engineering Development Tests (EDT)		4Q						
Pre-Production Tests (PPT) 1			2Q - 3Q					
PPT 2			3Q - 4Q					
Limited User Tests (LUT)			3Q					
Initial Operational Test and Evaluation (IOTE)				4Q	1Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0208010A - Joint Tactical Communications Program (TRI-TAC)

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	22909	5740	1536	926						31120
01D	TACTICAL INTERNET MANAGEMENT SYSTEM	22909	5732	1536	926						31103
107	ISYSCON DEVELOPMENT		8								17

**A. Mission Description and Budget Item Justification:** The ISYSCON (V)4 Tactical Internet Management System (TIMS) provides network planning and management for the Lower Tactical Internet and Tactical Operations Center (TOC) Local Area Network (LAN). ISYSCON(V)4 will perform network planning, initialization, management, and monitoring of the Tactical Internet for Force XXI Brigade and Below (FBCB2), Army Battle Command System (ABCS) and TOC LANs. The ISYSCON(V)4 is the Army's communication planning and engineering system for current, future, and contingency operations. It will manage LANs, battalion through division, and perform network management functions critical for the ABCS and FBCB2 operations. It will be located at TOCs and Command Posts.

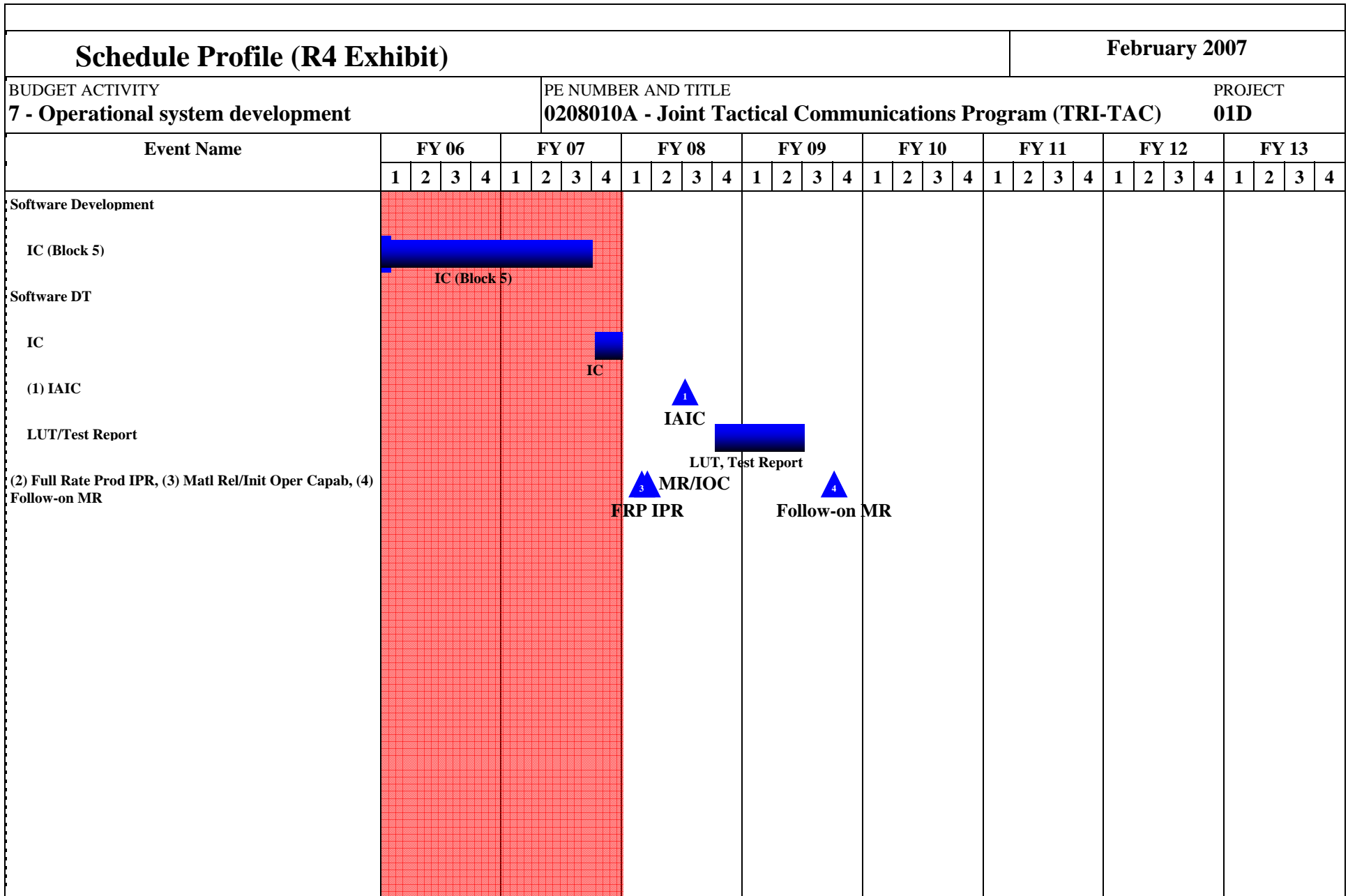


<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>									<b>February 2007</b>		
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>			<b>PE NUMBER AND TITLE</b> <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>						<b>PROJECT</b> <b>01D</b>		
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
01D TACTICAL INTERNET MANAGEMENT SYSTEM	22909	5732	1536	926						31103	
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> - Army's communication planning and engineering system for current, future, and contingency operations, brigade and below</p> <ul style="list-style-type: none"> <li>- Manage Local Area Networks (LANs) devices, battalion through theater</li> <li>- Performs network device management functions critical for Army Battle Command Systems (ABCS) and Force XX1 Battle Command, Brigade and Below (FBCB2)</li> <li>- Located at Tactical Operation Centers (TOCs) and Command Posts (CPs)</li> </ul>											
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>		
Test & Evaluation							100	250	250		
Requirement Analysis, System Engineering, Software Development "Must Have Beyond Good Enough" Block 5 requirements(Objective Initialization Capability)						22909	5471	1286	676		
Small Business Innovative Research/Small Business Technology Transfer Programs							161				
Total						22909	5732	1536	926		
<b><u>B. Other Program Funding Summary</u></b>		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
B93900 TIMS		61718	11309	9215	3914					Continuing	Continuing
<p>Comment:</p>											
<p><b><u>C. Acquisition Strategy</u></b> The Tactical Internet Management System (ISYSCON (V)4/TIMS) was developed from Army Warfighter Experiments that showed tactical network management and planning to be extremely time consuming. An Operational Requirements Document (ORD) was approved in May 02 and updated and approved in April 05 which identified the need for Tactical Internet and Tactical Operation Command (TI and TOC) Local Area Network management. Milestone C Limited Deployment was approved June 21, 2001 and amended June 17, 2002 and June 24, 2004. Blocks 2 and 4 of the ISYSCON (V)4 ORD requirements have been deployed to combat units in support of OIF/OEF. The current ISYSCON (V)4 release satisfies the Chief of Staff, Army approved ABCS 6.4 "Good Enough" requirements. The ISYSCON(V)4 IOTE was completed in Mar 05. Full Rate Production IPR and Material Release are scheduled for FY08. In FY05, development of the Block 5 Initialization Capability (IC) Key Performance Parameters began as part of the CSA approved ABCS 6.4 "Beyond Good Enough" initiative. The IC Software Development Test is scheduled for 3rd and 4th quarter FY07; a Limited User</p>											

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>	<b>01D</b>
<p>Test is scheduled for FY08.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0208010A - Joint Tactical Communications Program (TRI-TAC)								01D		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TIMS Software Development and Upgrade	CPIF	NGMS, Carson, CA	19407	12102	2Q	2758	2Q	586		576		Cont.	Cont.	
Objective Initialization Capability	T&M	CSC, Falls Church, VA	1580	9459	3Q	1877	3Q	500				Cont.	Cont.	
Subtotal:			20987	21561		4635		1086		576		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TIMS Contractor Engr	MIPR/PWD	Various	1167	732	2Q	350	2Q					Cont.	Cont.	
TIMS Government Engr	MIPR	Various	1614	616	2-4Q	647	2-4Q	200		100		Cont.	Cont.	
Subtotal:			2781	1348		997		200		100		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TIMS IOT&E	MIPR	AEC-Various	2756										2756	
IC Op Eval (Block 5)	MIPR	AEC-Various				100	2-3Q	250		250			600	
Subtotal:			2756			100		250		250			3356	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MITRE	MIPR/PWD	Eatontown, NJ	2831											

ARMY RDT&E COST ANALYSIS (R3)								February 2007			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)						PROJECT 01D	
Subtotal:				2831							
Project Total Cost:				29355	22909		5732		1536		926
										Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)					PROJECT 01D
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Software Development	1Q							
IC (Block 5)	1Q - 4Q	1Q - 3Q						
Software DT	1Q							
ABCS 6.4								
CTSF Certification								
IC		4Q						
IOTE/ Test Report	1Q							
IAIC			3Q					
LUT/Operational Test	1Q							
LUT/Test Report			4Q	1Q - 2Q				
Full Rate Prod IPR			1Q					
Matl Rel/Init Oper Capab			1Q					
Follow-on MR				3Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0208053A - Joint Tactical Ground System**

PROJECT

**635**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
635 JOINT TACT GRD STATION-P3I(TIARA)	12358	14878	23462	7954	19274	7986	8200	9300		103412

**A. Mission Description and Budget Item Justification:** This program element supports development of critical improvements and insertion of technological upgrades to the Joint Tactical Ground Station (JTAGS) and the research and development of the JTAGS Pre-Planned Product Improvement (P3I). JTAGS is a transportable information processing system that receives and processes in-theater, direct down-linked data from Defense Support Program (DSP) satellites. JTAGS disseminates warning, alerting, and cueing information on Tactical Ballistic Missiles (TBMs) and other tactical events of interest throughout the theater using existing communication networks. This program is designated as a DoD Space program. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System. JTAGS supports all Theater Missile Defense pillars and by being located in-theater, provides the shortest sensor to shooter connectivity. JTAGS is required to remain viable through FY13. The objectives of the improvements are to upgrade JTAGS to a new configuration for operation with the next generation of Space Based Infrared System (SBIRS), and to improve warning accuracy and timeliness. The P3I follow on program is no longer a fiscally cooperative effort but is still a joint interest development effort with the U.S. Air Force.

**Accomplishments/Planned Program:**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Complete Rebaseline Block I & Begin Block II P3I Follow On Integrated Product and Process Development (IPPD)	7369	7548	10027	5954
Continue Block II P3I Follow On Development	4969	6830	13335	1250
JTAGS Test and Evaluation Support	20	500	100	750
Total	12358	14878	23462	7954

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>								<b>February 2007</b>					
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0208053A - Joint Tactical Ground System</b>					PROJECT <b>635</b>				
<b><u>B. Program Change Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009						
Previous President's Budget (FY 2007)				12670	15044	23644	7968						
Current BES/President's Budget (FY 2008/2009)				22909	5740	1536	926						
Total Adjustments				10239	-9304	-22108	-7042						
Congressional Program Reductions					-57								
Congressional Rescissions													
Congressional Increases													
Reprogrammings				-312	-109								
SBIR/STTR Transfer													
Adjustments to Budget Years						-182	-14						
<b><u>C. Other Program Funding Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
BZ8420 Joint Tactical Ground Station Mods (JTAGS)				4505	328			7309	5649				17791
BZ8430 JTAGS M3P Institutional Training Equipment				1905	9484								11389
<p>Comment:</p>   <p><b><u>D. Acquisition Strategy</u></b> Under this program element, critical improvements will be developed making maximum use of Non-Developmental Items(NDI)/Commercial Off-The-Shelf (COTS) componets. After design and integration, the system will be subject to a thorough developmental and operational testing to verify performance and operational effectiveness and suitability. All Block I (referred to as DSP Only M3P (DM3P)) activities (including development and testing) were rebaselined and resources refocused to maintain viability of JTAGS. P3I Block II was a joint interest developmental effort with the U.S. Air Force; however Block II (formerly referred to as SBIRS High, Geosynchronous M3P) activities are currently being rebaselined to develop a new P3I JTAGS to replace the current fielded systems.</p>													

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0208053A - Joint Tactical Ground System									635		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Lockheed / Sunnyvale, CA	29191			5000	2-3Q	13035	2-3Q	1250	2-3Q	Cont.	Cont.	Cont.
Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	5076	4969	3-4Q	1830	1-3Q	300	2Q				12175	
Government Furnished Equipment	N/A	Multiple	919			216	2-3Q						1135	
Subtotal:			35186	4969		7046		13335		1250		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering IPPD Support	C/CPFF	Multiple	13630	2336	2-3Q	2457	2-3Q	2525	2-3Q	1550	1-3Q	Cont.	Cont.	
Subtotal:			13630	2336		2457		2525		1550		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
WSMR	N/A	White Sands Missile Range, NM	690									Cont.	Cont.	Cont.
ATEC	N/A	Army Test Evaluation Command Ft. Bliss, TX	1802									Cont.	1802	
JITC	N/A	Joint Interoperability Test Center, Ft. Huachuca, AZ	1258			500	2-3Q	100	2-3Q	750	2-3Q	Cont.	Cont.	
Aberdeen	N/A	Aberdeen Proving Grounds, MD	22									Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0208053A - Joint Tactical Ground System</b>								PROJECT <b>635</b>		
CECOM	N/A	FT. Monmouth, NJ		20	3-4Q							20		
Subtotal:			3772	20		500		100		750		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
In-House IPPD	N/A	Multiple	18606	3916	1-3Q	3330	1-3Q	5803	1-3Q	2679	1-3Q	Cont.	Cont.	Cont.
Government Engineering IPPD	N/A	Multiple	15449	1117	1-3Q	1545	1-3Q	1699	1-3Q	1725	1-3Q	Cont.	Cont.	Cont.
Subtotal:			34055	5033		4875		7502		4404		Cont.	Cont.	Cont.
Project Total Cost:			86643	12358		14878		23462		7954		Cont.	Cont.	Cont.

Schedule Profile (R4 Exhibit)																				February 2007																					
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT													
7 - Operational system development										0208053A - Joint Tactical Ground System																		635													
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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
P3I Follow on Block II																																									
P3I Development																																									
SBIRS System Test (SST) - 9000 Combined DT/OT																																									
P3I Production Unit 2 Fielding (Army) Colorado Springs)																																									
P3I Production Unit 3 Fielding (Army) CENTCOM)																																									
P3I Production Unit 4 Fielding (Army) Colorado Springs)																																									
P3I Production Unit 5 Fielding (Army) (EUCOM)																																									
P3I Production Unit 1 Fielding (Army) PACOM)																																									



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0208053A - Joint Tactical Ground System</b>				PROJECT <b>635</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
P3I Follow on Block II								
P3I Development		2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q		
SBIRS System Test (SST) - 9000 Combined DT/OT						2Q - 4Q	1Q - 2Q	
P3I Production Unit 2 Fielding (Army) Colorado Springs)							2Q	
P3I Production Unit 3 Fielding (Army) CENTCOM)							3Q	
P3I Production Unit 4 Fielding (Army) Colorado Springs)								1Q
P3I Production Unit 5 Fielding (Army) (EUCOM)								2Q
P3I Production Unit 1 Fielding (Army) PACOM)								2Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)									February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0208058A - Joint High Speed Vessel (JHSV)</b>						PROJECT <b>JH1</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
JH1 JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY	3126	20172	5148	2955	3155	3274	3274	3400		44504
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> The Joint High Speed Vessel (JHSV) program is a merger of the Army's Theater Support Vessel (TSV) program and the Marine Corps/Navy High Speed intra-theater surface Connector (HSC) program into a joint (multi-service) High Speed Vessel program. The JHSV program takes advantage of inherent commonality hull forms to create a more flexible asset for the Department of Defense and leverage the Navy's core competency in ship acquisition. The JHSV program will provide high speed intra-theater surface connector capability to rapidly deploy selected portions of the Joint Force that can immediately transition to execute, even in the absence of developed infrastructure, and conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns. The primary missions include: support to Theater Security Cooperation Program (TSCP) and Global War on Terrorism (GWOT), littoral maneuver, and seabasing support. Department of Army (DA) and Department of Navy (DoN) will maintain separate and distinct funding streams to support this joint program. DA will resource to the critical Army requirement set validated for the joint Initial Capabilities Document (ICD) for High Speed Intra-theater Surface Connector (HSC) and the Capability Development Document (CDD) for JHSV. DA and DoN will focus on the development of common capabilities, each Department will source their unique developmental costs for unique service capabilities that cannot be incorporated into a combined solution set.</p>										
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
FY06-FY07: Provide Program Management Support.						800	950	1000	1050	
FY06-FY07: Provides Acquisition/Documentation Development.						2326	1845	1700	500	
FY07: Continues Technical/Design Development							16809	2448	1405	
SBIR/STTR							568			
Total						3126	20172	5148	2955	



ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0208058A - Joint High Speed Vessel (JHSV)									JH1		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Acquisition/Documentation Development	MIPR	PEO Ships Washington Navy Yard, DC		2326	1-2Q	1845	1-2Q	1700	1-2Q	500	1-2Q		6371	
Technical/Design Development	MIPR	PEO Ships Washington Navy Yard, DC				16809	1-2Q	2448	1-2Q	1405	1-2Q		20662	
Subtotal:				2326		18654		4148		1905			27033	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	PWD	PM Force Projection, TACOM, Warren, MI		800	1-2Q	950	1-2Q	1000	1-2Q	1050	1-2Q		3800	
SBIR/STTR						568							568	
Subtotal:				800		1518		1000		1050			4368	



Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY 7 - Operational system development										PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)																		PROJECT JH1				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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) Acquisition Milestones, (2) Acquisition Milestones	<div><div>1</div><div>MS A</div></div>								<div><div>2</div><div>MS B</div></div>																							
Source Selection																																
(3) Award Lead Vessel									<div><div>3</div></div>																							



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)				PROJECT JH1	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Acquisition Milestones	3Q							
Acquisition Milestones			3Q					
Source Selection		2Q - 4Q	1Q - 2Q					
Award Lead Vessel			2Q					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0303140A - Information Systems Security Program

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	51831	25466	28332	26720	28637	26978	24783	25623	Continuing	Continuing
491	INFORMATION ASSURANCE DEVELOPMENT	8844	8537	14014	11799	12388	12151	9467	9807		87007
501	ARMY KEY MGT SYSTEM	1421	1537	988	1034	1929					6909
50B	BIOMETRICS	41566	15392	13330	13887	14320	14827	15316	15816	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Communications Security Equipment Program develops Information Systems Security (ISS) equipment and techniques required to combat threat Signal Intelligence capabilities and to insure the integrity of data networks. The Army's Research Development Test and Evaluation (RDTE) ISS program objective is to implement National Security Agency (NSA) developed security technology in Army information systems. Communications Security Equipment (COMSEC) technology ensures total signal and data security for all Army information systems to include any operational enhancement and specialized Army configurations. The Army Key Management System (AKMS) automates key generation and distribution while supporting joint interoperability. It provides communications and network planning with key management. AKMS is a part of the management/support infrastructure for the Warfighter Information Network - Tactical (WIN-T) program. Additional modifications to the AKMS baseline are required to support the emerging WIN-T architecture. System security engineering, integration of available Information Security (INFOSEC) products, development, and testing are provided to ensure that Command, Control, Communications and Computer Intelligence (C4I) systems are protected against malicious or accidental attacks. Several joint service/NSA working groups exist in the area of key management in order to avoid duplication and assure interoperability between all systems, including the establishment of standards and testing. The Defense Information Systems Agency (DISA) Multi-Level Security (MLS) working group coordinates all the different ongoing technology efforts. This program will also develop, integrate, and demonstrate Command and Control (C2) Protect Common Tools into C4I systems that manage, protect, detect and react to C2 system vulnerabilities, threats, reconfigurations, and reconstitutions. Modeling, simulation, and risk management tools will be used to develop C2 Protect capabilities, enabling the warfighter to distribute complete and unaltered information and maintain a dynamic, continuous synchronous operational force.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303140A - Information Systems Security Program**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	26323	23828	21082	23137
Current BES/President's Budget (FY 2008/2009)	51831	25466	28332	26720
Total Adjustments	25508	1638	7250	3583
Congressional Program Reductions	-115	-285		
Congressional Rescissions	-265			
Congressional Increases	3800	1923		
Reprogrammings	22088			
SBIR/STTR Transfer				
Adjustments to Budget Years			7250	3583

FY06 additional funding is for Army Info Dominance Center (Information Assurance) and for Retinal/Iris technology (Biometrics)

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE							PROJECT		
7 - Operational system development		0303140A - Information Systems Security Program							491		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
491	INFORMATION ASSURANCE DEVELOPMENT	8844	8537	14014	11799	12388	12151	9467	9807		87007

**A. Mission Description and Budget Item Justification:** This project implements National Security Agency (NSA) developed security technology in Army information systems. Project objectives are to provide systems security mechanisms through encryption, trusted software or standard operating procedures, and to integrate these mechanisms into specified systems, securing operations in as transparent a manner as possible. This entails architecture studies, modeling, system integration and testing, installation kits, and certification and accreditation of Automation Information Systems. Project will also assess, develop, integrate and demonstrate information assurance (IA) common tools (hardware and software) providing protection for fixed infrastructure post, camp and station networks as well as efforts on tactical networks. The cited work is consistent with Strategic Planning Guidance, and the Army Modernization Plan.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Crypto Mod and Key Management Program. FY06: Provided planning on Crypto Mod program program. Formed Key Management PMO. Completed evaluation of KG175B, KIV7M and SecNet54. Supported Joint Blue Force Tracking. Evaluated Secure Voice Over IP transition of the Tactical Network. Developed Key Management Plan for FCS and WIN-T. Transitioned Proof-of-Concept studies to field. FY07: Support development of net centric technologies for the Tactical Network, Modularity and the Global War on Terror. Implemented Inline Network Encryptor (INE) and Link Encryption Family (LEF) Evolution Plans. Plan Army Secure Wireless Local Area Network (LAN) Strategy using SecNet54 and other products for Div and Below. Develop Information Assurance Plan for FCS. Complete evaluation and fielding of KG175C, KIV19M, KIV7M, KG175B, SecNet54 and Secure Wireless LAN. Conduct initial fielding of Secure Voice Over IP. Evaluate Secure Mobile Environment/Personal Electronic Device (SME/PED) including voice and data capability and email migration. Produce rollout/training plan for initial GO/SES deployment. FY08: Field Crypto Mod compliant devices, including KG-175D, Taclane Router KG-240A, KG-245A and KG-250B. Deploy HAIPE 3.0.1 IPv6 devices and software upgrades for existing devices including KG-175A, KG-175B and Talon. Deploy secure voice capability with Talon device. Strategic deployment of SME/PED device below GO/SES level, initial tactical deployment of device at GO level. Test and evaluation of Army secure network devices to HAIPE 3.0 and IPv6. FY09: Field CM compliant devices, including Taclane 10G, KG-245X and KG-250D. Evaluate and deploy software upgrades for all existing INE devices. Deploy initial Encrypted Network Interfaces. Deploy HAIPE 3.0 compliant devices. Initial pilot conversion of Army secure networks to HAIPE 3.0 and IPv6. Conduct tactical deployment of SME/PED device below GO level.	5217	4929	8408	7080
Tactical C2 Protect Tools / Tactical PKI. FY 07: Develop/validate/enhance IA tools for the tactical War fighter. Functionally evaluate, perform vulnerability assessments/performance testing and source code analysis on tools for fielding. Both commercial off-the-shelf/government off-the-shelf(COTS/GOTS) IA tools for deployment will be evaluated for use in support of Army priorities, modularity and the global war on terror. Develop TPKI solution for Future Force use as well as Current Systems planned to interface with Future Force systems. Perform necessary field experiments as well as integration testing, system level testing and Vulnerability testing. FY08: Develop/validate/enhance IA tools for the tactical War fighter. Functionally evaluate, perform vulnerability assessments/performance testing and source code analysis on tools for fielding. Both COTS/GOTS IA tools for deployment will be evaluated for use in support of Army priorities, modularity and the global war on terror. Validate TPKI solution for Future Force use as well as Current Systems	3627	3415	5606	4719

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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**BUDGET ACTIVITY**  
**7 - Operational system development**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0303140A - Information Systems Security Program</b>	<b>491</b>

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0303140A - Information Systems Security Program</b>	<b>491</b>

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0303140A - Information Systems Security Program</b>	<b>491</b>

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0303140A - Information Systems Security Program</b>	<b>491</b>

planned to interface with Future Force systems. Perform necessary field experiments as well as integration testing, system level testing and Vulnerability testing. Support FCS spinout 1 TPKI deployment. FY09 : Develop/validate/enhance IA tools for the tactical War fighter. Functionally evaluate, perform vulnerability assessments/performance testing and source code analysis on tools for fielding. Both COTS/GOTS IA tools for deployment will be evaluated for use in support of Army priorities, modularity and the global war on terror. Modify/enhance FCS TPKI spinout 1 baseline and validate/test final software/hardware for fielding in FY 10.				
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Small Business Innovative Research/Small Business Technology Transfer Program		193		
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Small Business Innovative Research/Small Business Technology Transfer Program		193		
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Total	8844	8537	14014	11799
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Total	8844	8537	14014	11799
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Total	8844	8537	14014	11799
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Total	8844	8537	14014	11799
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Total	8844	8537	14014	11799
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### B. Other Program Funding Summary

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

To Compl

Total Cost
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OPA TA0600

59047

	83280
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	47400
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47444
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Continuing

119154

Comment:

**C. Acquisition Strategy** The objective of this project is to develop, integrate and validate hardware and software solutions that will secure current and objective architecture and electronic business/commerce transactions. Project focuses on completing development and evaluation of Battle Command and control IA Common tools and the procurement and institutionalization of information assurance related hardware and software, as well as techniques and procedures. The objective of the DOD CRYPTO Modernization Program is to provide adaptive, flexible, and programmable cryptographic systems using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0303140A - Information Systems Security Program								491		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Engineering		CECOM, RDEC	28711	5249	1Q	5600	1Q	6650	1Q	5795	1Q	Cont.	Cont.	Cont.
Hardware/Software Engineering	Various	CECOM, RDEC	5224										5224	
C2 Protect Common Tools	Subcontracts reflected in d. through k. below	Subcontracts reflected in d. through k. below	6299	1800	1Q							Cont.	Cont.	Cont.
Engineering Support	Various	CECOM, RDEC	7847										7847	
Engineering Support	T&M	Lockheed Martin/SRI Int., Eatontown, NJ	1714	129	2Q	202	1Q	600	1Q	416	1Q	Cont.	Cont.	Cont.
Information Assurance System Engineering Support	C-Reimburs	MITRE, McLean, VA	1113	300		300	1Q	400	1Q	400	1Q		2513	
Malicious Mobile Code Analysis	T&M	ILEX Tinton Falls, NJ	577										577	
Information Assurance System Engineering Support	T&M	DSCI Consulting	1273	732	2Q	1631	1Q	2064	1Q	1688	1Q	Cont.	Cont.	Cont.
													370	
Tactical Intrusion Detection System	T&M	MIT, Cambridge, MA	135										135	
Model & Simulation for Information Assurance Trainer	T&M	Atlantic Consulting Services, GA	1020										1020	
DHIAP	Various	CIO/G6 BMO	12027										12027	
DoD Biometrics Program	Various	CIO/G6 BMO	18280										18280	
Crypto Mod	Various	CECOM, RDEC	124	150	2Q							Cont.	Cont.	Cont.
SEGATE	CPFF	VIASAT, Carlsbad, CA	1463									Cont.	Cont.	Cont.
													247	
Engineering Support	T&M	Booze Allen, Eatontown, NJ	450									Cont.	Cont.	Cont.
Engineering Support	T&M	CSC, Virginia	200	484	2Q	804	1Q	4300	1Q	3500		Cont.	Cont.	Cont.
Subtotal:			86457	8844		8537		14014		11799		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>								PROJECT <b>491</b>			
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal:															
Remarks: Not Applicable															
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal:															
Remarks: Not Applicable															
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal:															
Remarks: Not Applicable															
<b>Project Total Cost:</b>			<b>86457</b>	<b>8844</b>		<b>8537</b>		<b>14014</b>		<b>11799</b>		<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>	

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>									<b>February 2007</b>																							
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0303140A - Information Systems Security Program</b>					<b>PROJECT</b> <b>501</b>																							
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost																						
501 ARMY KEY MGT SYSTEM	1421	1537	988	1034	1929					6909																						
<p><b>A. Mission Description and Budget Item Justification:</b> Provides Commander with an automated capability to plan, engineer, distribute, and manage all systems that employ Electronic Key, Electronic Protection (EP), and Signal Operating Instructions (SOI).</p> <ul style="list-style-type: none"> <li>- AKMS consists of two Workstations, one hosting Local COMSEC Management Software (LCMS) for COMSEC Management, one hosting Automated Communication Engineering System (ACES) for Cryptonet Planning and the Data Transfer Device (DTD)/Simple Key Loader (SKL).</li> <li>- LCMS is the COMSEC accounting and generation software that provides Information Systems with Cryptographic Key capability.</li> <li>- ACES provides Information Systems with Cryptonet Planning &amp; SOI/EP Fill for Combat Net.</li> <li>- SKLs move the ACES/LCMS data to End Crypto Units (ECUs).</li> </ul>																																
<b>Accomplishments/Planned Program:</b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>																							
Continue development of next set of software tools for the AKMS workstation development environment to support Army modularity requirements.						1064	930	613	649																							
Engineering Support						307	438	325	335																							
Test and Evaluation						50	125	50	50																							
Small Business Innovative Research/Small Business Technology Transfer Programs							44																									
Total						1421	1537	988	1034																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;"><b>B. Other Program Funding Summary</b></td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2006</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2007</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2008</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2009</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2010</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2011</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2012</td> <td style="width: 5%; text-align: center; padding: 5px;">FY 2013</td> <td style="width: 5%; text-align: center; padding: 5px;">To Compl</td> <td style="width: 5%; text-align: center; padding: 5px;">Total Cost</td> </tr> <tr> <td style="padding: 5px;">BA1201 TSEC - AKMS</td> <td style="text-align: center; padding: 5px;">38407</td> <td style="text-align: center; padding: 5px;">14864</td> <td style="text-align: center; padding: 5px;">23225</td> <td style="text-align: center; padding: 5px;">16791</td> <td style="text-align: center; padding: 5px;">19449</td> <td style="text-align: center; padding: 5px;">7594</td> <td style="text-align: center; padding: 5px;">5803</td> <td style="text-align: center; padding: 5px;">6088</td> <td style="text-align: center; padding: 5px;">Continuing</td> <td style="text-align: center; padding: 5px;">Continuing</td> </tr> </table>											<b>B. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost	BA1201 TSEC - AKMS	38407	14864	23225	16791	19449	7594	5803	6088	Continuing	Continuing
<b>B. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost																						
BA1201 TSEC - AKMS	38407	14864	23225	16791	19449	7594	5803	6088	Continuing	Continuing																						
<p>Comment:</p>																																
<p><b>C. Acquisition Strategy</b> Milestone III was conducted in FY99 and the acquisition strategy and type classification for LCMS was approved. LCMS completed fielding to all COMSEC custodians as well as the IOC for ACES in 2Q FY02. Because of National Security Agency's (NSA) imposition of additional security requirements, the AKMS acquisition strategy to procure Simple Key Loaders was updated in an Acquisition Decision Memorandum (ADM) approved by the PEO C3T Milestone Decision Authority (MDA) in 3Q FY02. The production contract for the Simple Key Loader (SKL), the upgrade to the DTD, was awarded in FY03. SKL Fielding began in 3Q FY05. The RDTE effort continues in accordance with the approved Acquisition Strategy. The upgrade to ACES v1.7 Block II software was completed in 2Q FY06. ACES v1.8 upgrade effort began</p>																																

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>	PROJECT <b>501</b>
<p>in 2Q FY06 and is scheduled to be completed in 3Q FY07. The SKL initial software v3.0 was completed in FY06 and v4.0 is scheduled to be completed and released in 2Q FY07.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0303140A - Information Systems Security Program</b>								<b>501</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software development	C/T&M	SYPRIS, Tampa, FL	21009	460	4Q	647		363		394			22873	
Software development/Upgrade	C/T&M	ISS, Tinton Falls, NJ	4921	379	2Q		2Q					Cont.	Cont.	
Electronic Key Management Sys (EKMS)	MIPR	Navy, Washington	3900										3900	
Software Support	CPFF	SAIC, San Diego, CA	225	225	3Q	283		250		255		Cont.	Cont.	
Subtotal:			30055	1064		930		613		649		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Testing	MIPR	SPAWAR, San Diego, CA	75	50	2Q	125	2Q	50		50		Cont.	Cont.	
Subtotal:			75	50		125		50		50		Cont.	Cont.	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering	C/T&M	TELOS System Integration, Ashburn,	154										154	

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303140A - Information Systems Security Program								PROJECT 501		
		VA												
Government Engineeering	MIPR	CECOM, Fort Monmouth, NJ	1253	307	2-4Q	482	2-4Q	325		335		Cont.	Cont.	
Subtotal:			1407	307		482		325		335		Cont.	Cont.	
Project Total Cost:			31537	1421		1537		988		1034		Cont.	Cont.	

Schedule Profile (R4 Exhibit)																								February 2007																			
BUDGET ACTIVITY												PE NUMBER AND TITLE																PROJECT															
7 - Operational system development												0303140A - Information Systems Security Program																501															
Event Name												FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
												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
LCMS Software Dev Version 5.1, ACES V1.7 Block II Upgrades, ACES Block III Upgrades, ACES Block III Upgrades												ACES				ACES BLK III				ACES Block III Upgrades																							
Simple Key Loader/Data Transfer Device (SKL/DTD) (Tier 3)																																											
SKL Hardware Production/Fielding																				Hardware Production/Fielding																							
SKL Block Upgrades												DTD/SKL S/W																															
SKL Block Upgrades																DTD/SKL Block III Upgrade																											



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>				PROJECT <b>501</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Local COMSEC Management Software								
LCMS Software Dev Version 5.1	2Q - 4Q	1Q - 4Q						
ACES V1.7 Block II Upgrades	1Q - 2Q							
ACES Block III Upgrades	3Q - 4Q	1Q - 2Q						
ACES Block III Upgrades		3Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Simple Key Loader/Data Transfer Device (SKL/DTD) (Tier 3)								
SKL Hardware Production/Fielding	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
SKL Block Upgrades	1Q - 4Q							
SKL Block Upgrades		1Q - 4Q	1Q - 4Q	1Q - 4Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0303140A - Information Systems Security Program

## PROJECT

### 50B

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
50B BIOMETRICS	41566	15392	13330	13887	14320	14827	15316	15816	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Secretary of the Army (SA) is the Executive Agent for the DoD Biometrics (automated methods of human recognition) Program. The program consists of the department of the Army Biometrics Task Force (BTF) and BTF Biometrics Fusion Center (BFC). The BTF will synchronize and integrate existing and new technologies throughout DoD; provide identity dominance, protection, and management through integrated joint biometric programs; and establish and maintain an authoritative biometric data source in order to provide timely, accurate and comprehensive identity superiority to the warfighter. The BFC is establishing itself as the biometric technology center of excellence for the Army. The BFC performs test and evaluation of Commercial Off-the-Shelf (COTS) biometrics, supports the development of standards and performance measures, provides biometric repository support as required, and provides technical implementation and integration support to DoD Biometrics. The biometric program focuses on an enterprise approach, emphasizing interoperability and utilizing tested biometric technologies for incorporation into DoD business processes. This program was previously funded under PE 0303140A, Project 491. This system supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

### Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct test and evaluation of biometric commercial hardware and software to determine suitability for use within DoD. Conduct modeling and simulation efforts to support operational evaluation. Conduct DoD-wide working groups to synthesize enterprise biometric requirements and abilities into biometrics technology demonstrations and pilot activities. Support biometric integration in existing command and control and MIS systems.	15813	14959	13330	13887
Enterprise Joint Urgent Operations Need Statement was provided funding from Joint Requirements Advisory Council to support warfighter in CENTCOM AOR. This was a continuation of Biometrics Identification System Access (BISA) operations of vetting persons of interest attempting to enter US installations in CENTCOM AOR. Congression add for Retica project was cause of increase in FY07.	25753			
Small Business Innovative Research/Small Business Technology Transfer Program		433		
Total	41566	15392	13330	13887

### B. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TA0600 - Information Systems Security Program	7585	1465	3006	3881	3697	3476	3390	3301		29801
432144 - Operations and Maintenance Army	12958	10332	11977	11108	11468	11825	12085	12351		94104

Comment:

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>	PROJECT <b>50B</b>
<p><b>C. Acquisition Strategy</b> The objective of this project is to develop the DoD Automated Biometrics Identification System (ABIS) and biometric capability that will be managed at the enterprise level. ABIS currently provides a biometric matching capability that can identify national security threats in support of the Global War on Terrorism for a variety of functions. Primary focus for FY06 was to establish the biometrics program of record and develop a framework for leveraging technologies and processes to facilitate better sharing of biometric data on persons of interest collected and forwarded to other DoD agencies and to develop a biometric implementation strategy for Homeland Security Presidential Directive (HSPD)-12. The program will also continue to support the testing and evaluation of products and other analysis and evaluation of applicable technologies as well as finalize and synthesize an interoperable biometric enterprise approach. FY07 and beyond will continue to support technology, pilot test and evaluation activities and the deployment of biometric devices and systems used for biometric data collection and processing, physical access, logical access, identity proofing, intelligence exploitation, and law enforcement. A board selected Program Manager will be appointed at PEO EIS to ensure that biometric activities continue to serve the DoD communities that use biometric technology.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0303140A - Information Systems Security Program</b>								<b>50B</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Enterprise Development	Various	Various	30479	41566	2-4Q	15392	1-4Q	13330	1-2Q	13887	1-2Q	Cont.	Cont.	Cont.
Subtotal:			30479	41566		15392		13330		13887		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
N/A														
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
N/A														
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
N/A														
Subtotal:														
<b>Project Total Cost:</b>			<b>30479</b>	<b>41566</b>		<b>15392</b>		<b>13330</b>		<b>13887</b>		<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0303141A - Global Combat Support System

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	65960	47986	129689	105567	79862	31902	32338	33178	Continuing	Continuing
083 GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	49894	31307	89263	62898	51204	25356	25799	26575	Continuing	Continuing
08A PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)	16066	16679	40426	42669	28658	6546	6539	6603	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Global Combat Support System-Army (GCSS-Army) has two components: a functional component titled GCSS-Army (Field/Tactical) (F/T) and a technology enabler component titled Product Lifecycle Management Plus (PLM+). GCSS-Army (F/T) coupled with GCSS-Army (PLM+) are information and communications technology investments that will provide key enabling support to the transformation of the Army into a network-centric, knowledge-based future force. The GCSS-Army approved Joint Capability Description Document (CDD) requires an enterprise approach to replace current logistics and maintenance Standard Army Management Information Systems (STAMIS). As the tactical component of the Single Army Logistics Enterprise (SALE), GCSS-Army (F/T) will provide the Army's Combat Support/Combat Service Support (CS/CSS) warfighter with a seamless flow of timely, accurate, accessible and secure information management that gives combat forces a decisive edge. PLM+ will provide interfaces to external systems and limited Master Data Management. GCSS-Army will implement best business practices to streamline supply, accountability, maintenance, distribution, and reporting procedures in support of the future force transition path of the Army Campaign Plan.

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>	<b>February 2007</b>
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**BUDGET ACTIVITY**  
**7 - Operational system development**

PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>
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BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>
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<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	68264	55272	41074	7474
Current BES/President's Budget (FY 2008/2009)	65960	47986	129689	105567
Total Adjustments	-2304	-7286	88615	98093
Congressional program reductions		-6750		
Congressional rescissions		-183		
Congressional increases				
Reprogrammings	-2304	-353		
SBIR/STTR Transfer				
Adjustments to Budget Years			88615	98093

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
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Total Adjustments	-2304	-7286	88615	98093
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Total Adjustments	-2304	-7286	88615	98093
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Total Adjustments	-2304	-7286	88615	98093
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Total Adjustments	-2304	-7286	88615	98093
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Congressional program reductions		-6750	
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Congressional program reductions		-6750	
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Congressional rescissions	-183
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Congressional rescissions	-183
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Congressional increases				
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Reprogrammings	-2304	-353		
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Reprogrammings	-2304	-353		
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Reprogrammings	-2304	-353		
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SBIR/STTR Transfer				
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Adjustments to Budget Years			88615	98093
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Adjustments to Budget Years			88615	98093
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Adjustments to Budget Years			88615	98093
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Adjustments to Budget Years			88615	98093
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Adjustments to Budget Years			88615	98093
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
<b>7 - Operational system development</b>				<b>0303141A - Global Combat Support System</b>						<b>083</b>	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
083	GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	49894	31307	89263	62898	51204	25356	25799	26575	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Global Combat Support System-Army (Field/Tactical) will provide the Army's CS/CSS warfighter with a seamless flow of timely, accurate, accessible, actionable, and secure information not readily available today that gives combat forces a decisive edge. GCSS-Army will modernize automated logistics by implementing best business practices to streamline supply operations, maintenance operations, property accountability, and logistics management and integration procedures in support of the Future Force transition path of the Army Campaign Plan. This effort will implement a comprehensive logistics automation solution for the field (deployable) Army and provide the Commander on the battlefield with an integrated, interoperable view of the battle-space in time to support decisions that will affect the outcome of combat operations, combat power, and planning for future operations. This solution implements Commercial-Off-The-Shelf (COTS) Enterprise Resource Planning (ERP) products. This will also allow the Army to retire multiple custom designed standalone business software baselines optimized to existing Army business processes and replace it with a single integrated business software baseline that has been optimized to industry defined best business practices. It will eliminate the need for extensive maintenance and modification of aging, diverse software systems resulting in improved and efficient change control and configuration management through implementation of an enterprise system.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
GCSS-Army ERP	41575	27600	67900	39900
PM Operations	8319	2930	16000	16500
PM SALE Operations			5363	6498
Small Business Innovative Research/Small Business Technology Transfer Programs		777		
Total	49894	31307	89263	62898

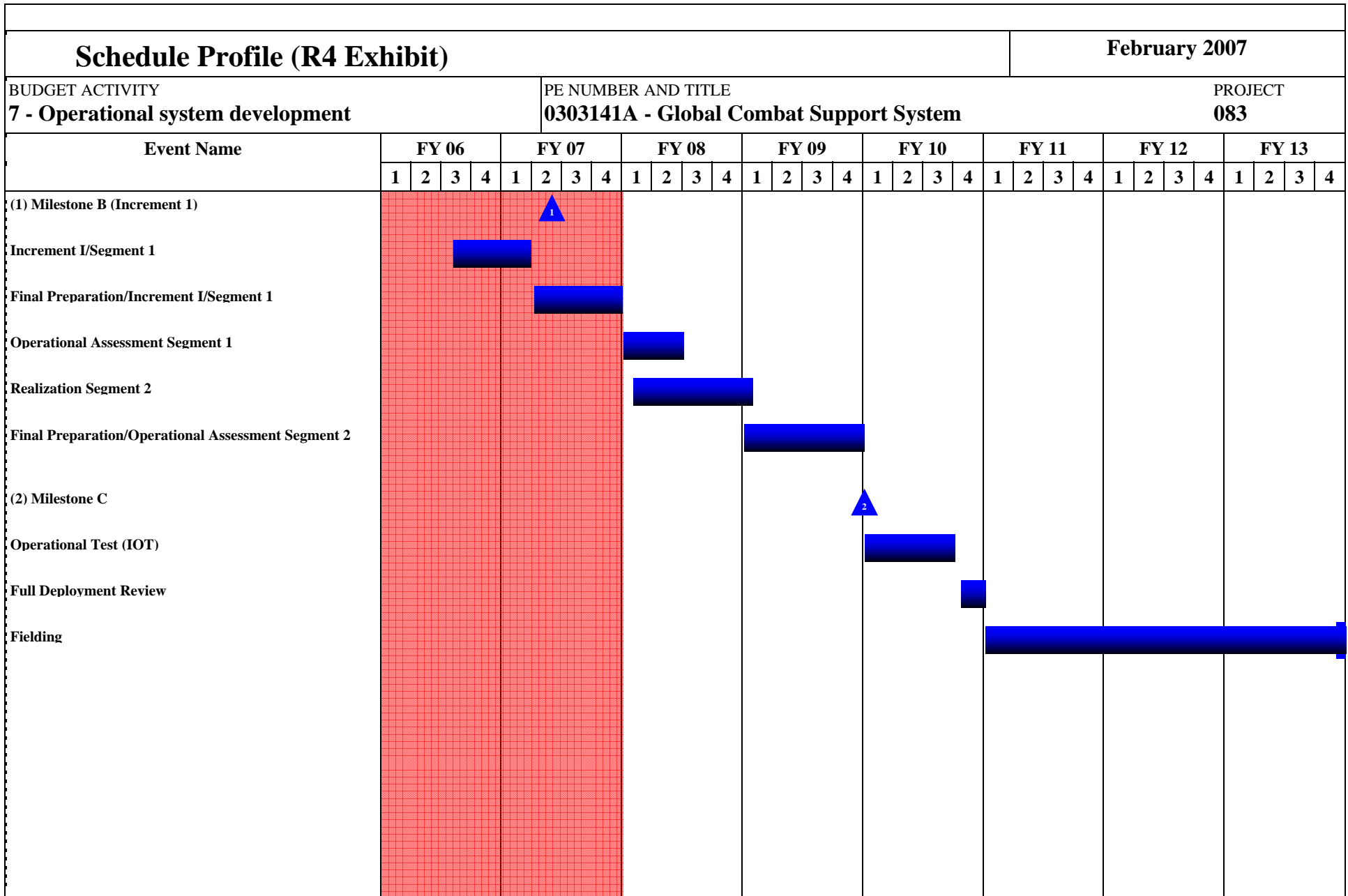
<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
OPA SSN: W00800, STACOMP	66360	75671	14864	20300	68700	183400	194651	198612	Continuing	Continuing
OMA APE: 432612	900		2100	17520	44897	74305	52686	103194	Continuing	Continuing
OPA SSN: BZ8889, AUTOMATION IDENTIFICATION TECHNOLOGY	23872	28029	76	3969	16377	17390			Continuing	Continuing

Comment: FY06/07 OPA funds were realigned to support refreshments for the legacy bridging systems.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>	PROJECT <b>083</b>
<p><b>C. Acquisition Strategy</b> GCSS-Army has an evolutionary acquisition strategy as defined in DoD Directive 5000.1 and DoD Instruction 5000.2 and will define, develop and produce/deploy an initial, militarily useful (and supportable) operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities in as short a time as possible. The system will be developed in multiple increments as functional capabilities are defined and as integration and synchronization opportunities with related systems present opportunities for subsequent increments. Increment I will be a viable stand alone capability that will not require subsequent increments to be operational.</p> <p>GCSS-Army Increment I will be implemented in two segments. Increment I, Segment 1, will consist of an integrated system focusing on direct support supply functionality at a single unit with the hooks to maintenance and other future modules as part of an Operational Assessment. increment I, Segment 2, integrates the maintenance, ammunition, and property book functionality for a complete integrated system.</p>		

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0303141A - Global Combat Support System									083		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Enterprise Resource Planning (ERP) Implementation	C/FP	Northrop Grumman, Chester, VA	121160	38402	1-4Q	22498	1-4Q					Cont.	Cont.	Cont.
Enterprise Resource Planning (ERP) Implementation	TBD	TBD						67900	1-4Q	39900	1-4Q		107800	
Tactical Combat Developer	MIPR	CASCOM, Ft Lee, VA	8215	1040	1-4Q	1060	1Q	1075	1-4Q	1095	1-4Q	Cont.	Cont.	Cont.
Subtotal:			129375	39442		23558		68975		40995		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Support	C/FP	Titan Corp, Colonial Heights, VA	16800	1865	1-4Q	900	1-4Q	1958	1-4Q	2006	1-4Q	Cont.	Cont.	Cont.
Engineering and Security	MPIR	ISEC, Ft Huachuca, AZ	12248	1600	1-4Q	1675	1-4Q	3400	1-4Q	3500	1-4Q	Cont.	Cont.	Cont.
Technical Services	C/FP	Log Mgt Institute, McLean, VA	10696	1841	1-4Q	250	1-4Q	300	1-4Q	325	1-4Q	Cont.	Cont.	Cont.
Subtotal:			39744	5306		2825		5658		5831		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Army Test & Evaluation Center/Operational Test Command	MIPR	ATEC/OTC, Ft Hood, TX	509	724	1-4Q	600	1-4Q	2000	1-4Q	4000	1-4Q	Cont.	Cont.	Cont.
Subtotal:			509	724		600		2000		4000		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303141A - Global Combat Support System								PROJECT 083		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PMO Operations	NA	NA	20188	4422	1-4Q	4324	1-4Q	7267	1-4Q	5574	1-4Q	Cont.	Cont.	Cont.
PM SALE Operations								5363	1-4Q	6498	1-4Q		11861	
Subtotal:			20188	4422		4324		12630		12072		Cont.	Cont.	Cont.
Project Total Cost:			189816	49894		31307		89263		62898		Cont.	Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>				PROJECT <b>083</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Milestone B (Increment 1)		2Q						
Increment I/Segment 1	3Q - 4Q	1Q						
Final Preparation/Increment I/Segment 1		2Q - 4Q						
Operational Assessment Segment 1			1Q - 2Q					
Realization Segment 2			1Q - 4Q	1Q				
Final Preparation/Operational Assessment Segment 2				1Q - 4Q				
Milestone C				4Q				
Operational Test (IOT)					1Q - 3Q			
Full Deployment Review					4Q			
Fielding					4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

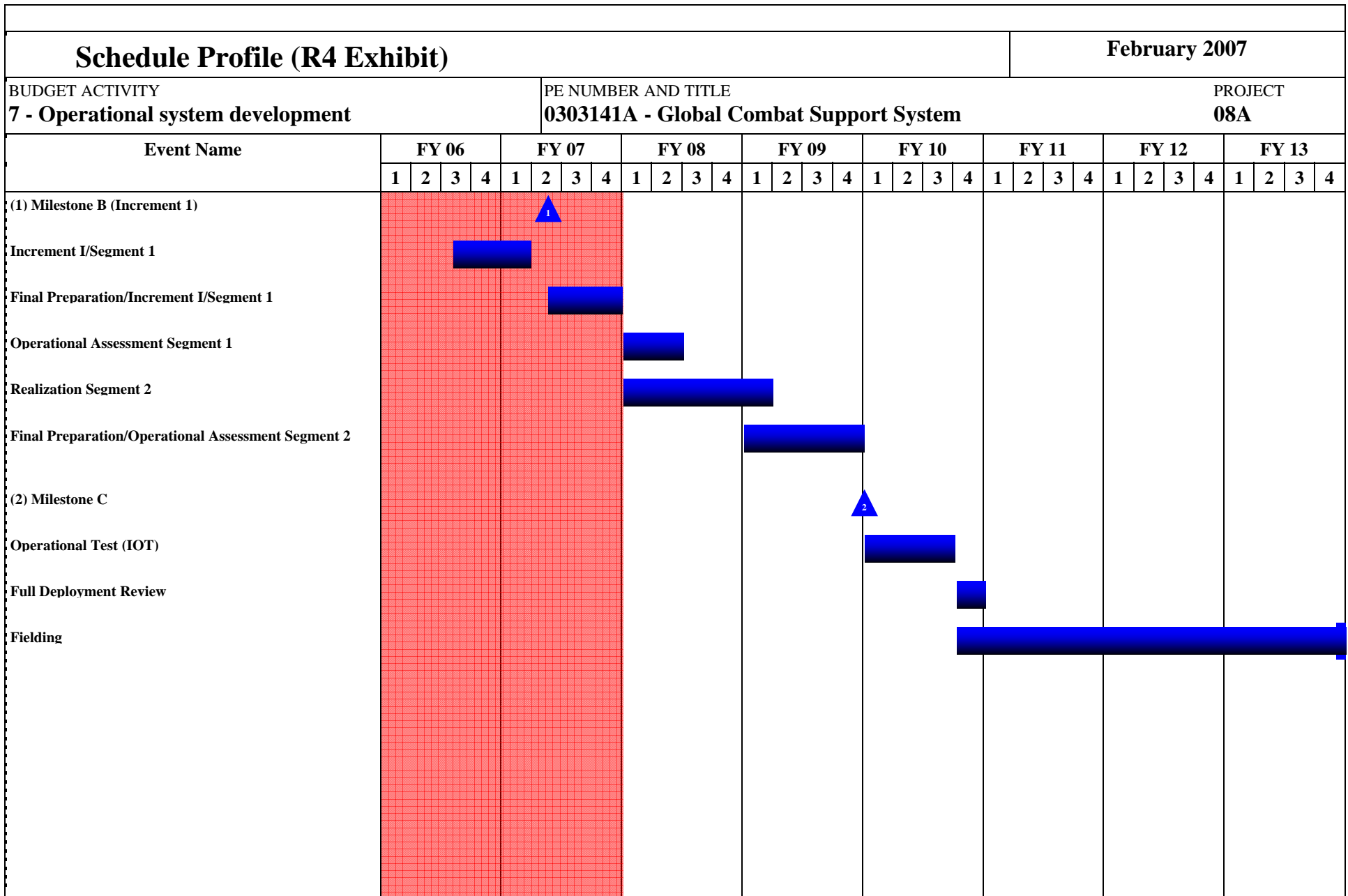
Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)						February 2007		
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0303141A - Global Combat Support System					083	
Funding in \$000								
Program	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Termination Liability Funding:								

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>									<b>February 2007</b>																																			
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0303141A - Global Combat Support System</b>					<b>PROJECT</b> <b>08A</b>																																			
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost																																	
08A	PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)	16066	16679	40426	42669	28658	6546	6539	6603	Continuing	Continuing																																	
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> As a component of the Global Combat Support System-Army (GCSS-Army), Product Life-Cycle Management Plus (PLM+) serves as the technical enabler supporting SALE requirements to integrate National &amp; field logistics components of SALE, harmonize functional product management business rules/processes, and establish a single point of entry for interfaces between LMP - GCSS-Army (F/T) instances and external systems. PLM+ will be an Army specific commercial off-the-shelf (COTS) web portal implementation via the NetWeaver Platform from developer Systems Applications and Products (SAP) AG to support GCSS-Army processes scenarios and requirements that will provide:</p> <p>Hub Services - For a service oriented, Single Point of Entry to connect, mediate, and control the exchange of data  Optimized Messaging - For routing and transforming message formats among appropriate trading partners  Customer/Vendor Master Data - The set of business processes and supporting application architecture to centralize the management of master data to ensure accuracy  Hence the GCSS-Army (PLM+) solution establishes a framework for a fully integrated logistics enterprise that will ultimately provide Commanders Total Visibility from Factory (LMP) to Foxhole (GCSS-Army F/T) thereby ensuring delivery of the right equipment to the right unit at the right time, while reducing backlogs of material on the battlefield.</p>																																												
<b><u>Accomplishments/Planned Program:</u></b>								<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>																																	
PLM+ Lead Systems Integrator (LSI)								15272	14401	37970	40145																																	
PM Operations								794	1809	2456	2524																																	
Small Business Innovative Research/Small Business Technology Transfer Programs									469																																			
Total								16066	16679	40426	42669																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b><u>B. Other Program Funding Summary</u></b></td> <td style="text-align: center; padding: 5px;">FY 2006</td> <td style="text-align: center; padding: 5px;">FY 2007</td> <td style="text-align: center; padding: 5px;">FY 2008</td> <td style="text-align: center; padding: 5px;">FY 2009</td> <td style="text-align: center; padding: 5px;">FY 2010</td> <td style="text-align: center; padding: 5px;">FY 2011</td> <td style="text-align: center; padding: 5px;">FY 2012</td> <td style="text-align: center; padding: 5px;">FY 2013</td> <td style="text-align: center; padding: 5px;">To Compl</td> <td style="text-align: center; padding: 5px;">Total Cost</td> </tr> <tr> <td style="padding: 5px;">OPA SSN: W11001, PLM+</td> <td style="text-align: center; padding: 5px;">4445</td> <td style="text-align: center; padding: 5px;">4136</td> <td style="text-align: center; padding: 5px;">3236</td> <td></td> <td></td> <td></td> <td style="text-align: center; padding: 5px;">5049</td> <td style="text-align: center; padding: 5px;">3688</td> <td style="text-align: center; padding: 5px;">Continuing</td> <td style="text-align: center; padding: 5px;">Continuing</td> </tr> <tr> <td style="padding: 5px;">OMA APE: 423612</td> <td></td> <td></td> <td style="text-align: center; padding: 5px;">1000</td> <td style="text-align: center; padding: 5px;">1584</td> <td style="text-align: center; padding: 5px;">5000</td> <td style="text-align: center; padding: 5px;">15885</td> <td style="text-align: center; padding: 5px;">2000</td> <td style="text-align: center; padding: 5px;">16583</td> <td style="text-align: center; padding: 5px;">Continuing</td> <td style="text-align: center; padding: 5px;">Continuing</td> </tr> </table>												<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost	OPA SSN: W11001, PLM+	4445	4136	3236				5049	3688	Continuing	Continuing	OMA APE: 423612			1000	1584	5000	15885	2000	16583	Continuing	Continuing
<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost																																		
OPA SSN: W11001, PLM+	4445	4136	3236				5049	3688	Continuing	Continuing																																		
OMA APE: 423612			1000	1584	5000	15885	2000	16583	Continuing	Continuing																																		
<p>Comment:</p>																																												
<p><b><u>C. Acquisition Strategy</u></b> GCSS-Army has an evolutionary acquisition strategy as defined in DoD Directive 5000.1 and DoD Instruction 5000.2, and will define, develop and</p>																																												

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>	PROJECT <b>08A</b>
<p>produce/deploy an initial, militarily useful (and supportable) operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities in as short a time as possible. The system will be developed in multiple increments as functional capabilities are defined and as integration and synchronization opportunities with related systems present opportunities for subsequent increments. Increment I will be a viable stand alone capability that will not require subsequent increments to be operational.</p> <p>GCSS-Army Increment I will be implemented in two segments. Increment I, Segment 1 will consist of an integrated SAP system focusing on direct support supply functionality at a single unit with the hooks to maintenance and other future modules as part of an Operational Assessment. Increment I, Segment 2 integrates the maintenance, ammunition, and property book functionality for a completely integrated system.</p> <p>GCSS-Army will provide a modern, state-of-the-art, web-based ERP solution that will use DoD approved web services standards to facilitate the objectives of "Data Sharing in a Net-Centric Department of Defense" (DoD 8320.2).</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0303141A - Global Combat Support System</b>								<b>08A</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Enterprise Resource Planning (ERP) Implementation		Computer Sciences Corporation		15272	1-4Q	14401	1-4Q	37970	1-4Q	40145	1-4Q	Cont.	Cont.	Cont.
Subtotal:				15272		14401		37970		40145		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Support	C/FP	Titan Corp, Colonial Heights, VA		435	1-4Q	951	1-3Q	974	1-4Q	998	1-4Q	Cont.	Cont.	Cont.
Subtotal:				435		951		974		998		Cont.	Cont.	Cont.
Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PMO Operations	NA	NA		359	1-4Q	1327	1-4Q	1482	1-4Q	1526	1-4Q	Cont.	Cont.	Cont.
Subtotal:				359		1327		1482		1526		Cont.	Cont.	Cont.
Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)														

ARMY RDT&E COST ANALYSIS (R3)								February 2007							
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303141A - Global Combat Support System								PROJECT 08A			
Project Total Cost:					16066		16679		40426		42669		Cont.	Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>				PROJECT <b>08A</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Milestone B (Increment 1)		2Q						
Increment I/Segment 1	3Q - 4Q	1Q						
Final Preparation/Increment I/Segment 1		2Q - 4Q						
Operational Assessment Segment 1			1Q - 2Q					
Realization Segment 2			1Q - 4Q	1Q				
Final Preparation/Operational Assessment Segment 2				1Q - 4Q				
Milestone C				4Q				
Operational Test (IOT)					1Q - 3Q			
Full Deployment Review					4Q			
Fielding					4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)						February 2007		
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0303141A - Global Combat Support System					08A	
Funding in \$000								
Program	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Termination Liability Funding:								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0303142A - SATCOM Ground Environment (SPACE)

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	48015	32420	107849	106999	132692	108916	104855	122187	Continuing	Continuing
253 DSCS-DCS (PHASE II)	11014	11963	7849	7928	7236	6649	8588	8780	Continuing	Continuing
384 SMART-T	5015	5512								25981
456 MILSATCOM SYSTEM ENGINEERING	8535	7460	26821	16313	8531	8855	8076	8103	Continuing	Continuing
562 MBAND INT SAT TERM MIST	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing
563 HC3 BLOCK 2 TSAT DEVELOPMENT					24976	25500	64955	80630		196061

**A. Mission Description and Budget Item Justification:** Military Satellite Communication (MILSATCOM) systems are joint program/project efforts to satisfy ground mobile requirements for each Service, the Joint Chiefs of Staff (JCS), the National Command Authority, the combatant commanders, the National Security Agency, the Office of the Secretary of Defense, and other governmental, non-DoD users. The worldwide MILSATCOM systems are: Ultra High Frequency (UHF) Follow-On Satellite System; Air Force Satellite (FLTSAT/AFSAT) system; the Mobile User Objective System (MUOS); the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Wideband Gapfiller System (WGS), the Extremely High Frequency (EHF) and Advanced Extremely High Frequency (AEHF) Mission Planning Element (AMPE); the Joint SATCOM Planning and Tools; and the Transformation Communication System (TCS), all of these systems are required to support legacy, interim and emerging communication space architectures and Objective Force requirements. The Army is responsible for developing and procuring satellite terminals, satellite control subsystems, communication subsystems, and all related equipment. This responsibility also includes maintaining the life cycle logistics support required to achieve end-to-end connectivity and interoperability, satisfying JCS Command, Control, Communications and Intelligence (C3I) in support of the President, JCS, combatant commanders, Military Departments, Department of State, and other government Departments and Agencies.

This program is designated as a DoD Space Program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

0303142A - SATCOM Ground Environment (SPACE)

<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	57822	41336	73380	97740
Current BES/President's Budget (FY 2008/2009)	48015	32420	107849	106999
Total Adjustments	-9807	-8916	34469	9259
Congressional Program Reductions		-8691		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-9807	-225		
SBIR/STTR Transfer				
Adjustments to Budget Years			34469	9259

### Change Summary Explanation:

FY06: D562 \$7.920M reduction due to Higher DA priorities.

FY07: D562 \$8.0M Congressional reduction

FY08:

Adjustments to projects in budget year as follows:

D456:+\$17.247M to fund Low Cost Point of Presence (LCP)SATCOM terminal development

D562:+\$18.031M to comply with MIST(HC3) Capability Development Document (CDD) requirements

D253:-\$ .809M adjustment in accordance with program requirements

FY09:

Adjustments to projects in budget year as follows:

D456:+\$6.924M to fund Low Cost Point of Presence (LCP)SATCOM terminal development

D562:+\$3.112M to comply with MIST(HC3) Capability Development Document (CDD) requirements

D253:-\$0.777M adjustment in accordance with program requirements

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)							253	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
253 DSCS-DCS (PHASE II)	11014	11963	7849	7928	7236	6649	8588	8780	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** This project provides funds to develop strategic and tactical Ground Subsystem equipment in support of Joint Chiefs of Staff (JCS) validated Command, Control, Communications and Intelligence (C3I) requirements for the worldwide Defense Enterprise Wideband SATCOM Systems. It is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and Wideband Gapfiller System (WGS) SATCOM programs. Continuing upgrades for the DSCS and WGS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS and WGS provide warfighters multiple channels of tactical connectivity as well as interfaces with strategic networks and national decision-makers.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	3760	4307	3875	3995
Continue the development of the Common Network Planning Software (CNPS) program	4062	3760	500	
Netcentric Systems Engineering	1202	1277	1214	1648
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	1990	2324	2260	2285
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		295		
Total	11014	11963	7849	7928

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
DSCS Other Procurement Army	62321	53400	87772	96469	166159	131168	128207	130673	Continuing	Continuing

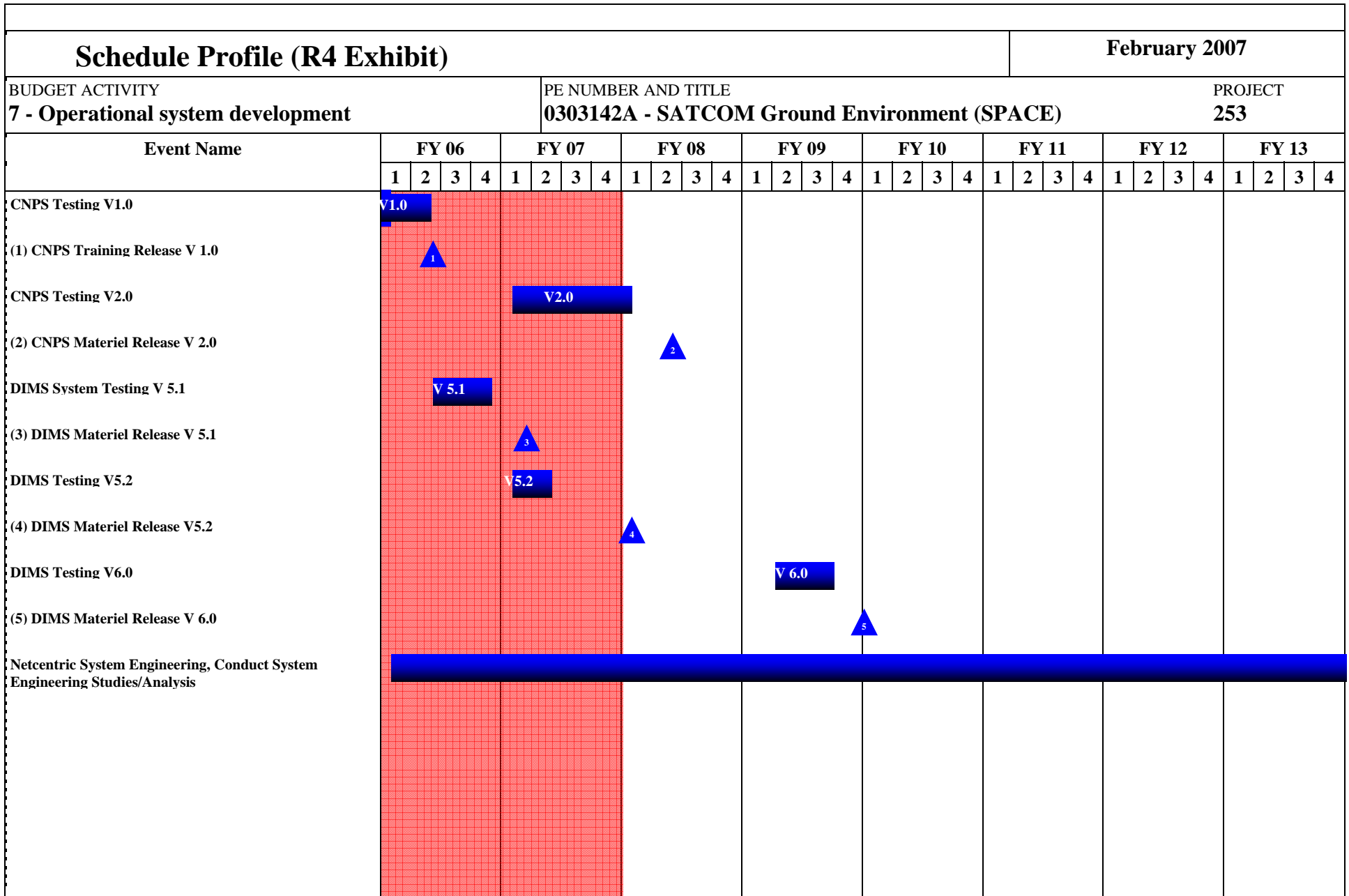
Comment:

**C. Acquisition Strategy** The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) are software programs. DIMS provides the capability to electronically disseminate network plans to the monitoring and controlling DSCS Operations Control System (DOCS) subsystems, and retrieve and display subsystem monitoring data. It also provides a comprehensive view of network operations at Wideband Operations Centers and DISA management sites. CNPS will plan strategic and Ground Mobile Forces (GMF) satellite communication networks for DSCS, Wideband Gapfiller, and commercial satellites. DIMS and CNPS will be installed at Wideband Operations Centers and DISA Management Sites at worldwide locations. PM DCATS will employ Netcentric Systems Engineering to develop the technology for new ground segment equipments which will include paper studies, Simple Management Network Protocol (SMNP), risk mitigation, system integration and demonstration to accomodate a multi-cast environment, technology insertion, and use of commercial technology to conform to Department of Defense (DoD) requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>253</b>

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0303142A - SATCOM Ground Environment (SPACE)								253		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DIMS Software	C / CPFF	JHU/APL, Laurel, MD	26194	3346	1-2Q	3840	1Q	3350	1-2Q	3465	1-2Q	Cont.	Cont.	Cont.
CNPS	C / FFP	Logicon, Winter Park, FL	24960	3261	1-2Q	2906	2Q					Cont.	Cont.	Cont.
MET	S/CPFF	Hypres, Elmsford, NY	1069										1069	
Subtotal:			52223	6607		6746		3350		3465		Cont.	Cont.	Cont.
Remarks: JHU/APL - John Hopkins University/Applied Physics Laboratory														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	Fort Monmouth, NJ	5266	805	1-2Q	1074	1-2Q	1010	1-2Q	665	1-2Q	Cont.	Cont.	Cont.
SETA Support	C / CPFF	Fort Monmouth, NJ	2434	410	1-2Q	499	1-2Q	300	1-2Q	150	1-2Q	Cont.	Cont.	Cont.
Engineering Support	C / CPFF	Fort Monmouth, NJ	558	1202	1-2Q	1277	1-2Q	1214	1-2Q	1648	1-2Q	Cont.	Cont.	Cont.
Core Support	Various	Fort Monmouth, NJ	2728	630	1-4Q	666	1-4Q	650	1-4Q	675	1-4Q	Cont.	Cont.	Cont.
Subtotal:			10986	3047		3516		3174		3138		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JSEC	MIPR	Fort Monmouth, NJ	6477	760	2Q	718	2Q	700	2Q	700	2Q	Cont.	Cont.	Cont.
Subtotal:			6477	760		718		700		700		Cont.	Cont.	Cont.
IV. Management Services	Contract Method &	Performing Activity & Location	Total PYs	FY 2006 Cost	FY 2006 Award	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complet	Total Cost	Target Value of

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)							PROJECT 253			
	Type		Cost		Date		Date		Date		Date	e		Contract
PM Admin	Various	Fort Monmouth, NJ	4184	600	1-4Q	688	1-4Q	625	1-4Q	625	1-4Q	Cont.	Cont.	Cont.
SBIR/STTR						295	1-4Q						295	
Subtotal:			4184	600		983		625		625		Cont.	Cont.	Cont.
Project Total Cost:			73870	11014		11963		7849		7928		Cont.	Cont.	Cont.





Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 253	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
CNPS Testing V1.0	1Q - 2Q							
CNPS Training Release V 1.0	2Q - 3Q							
CNPS Testing V2.0		1Q - 4Q	1Q					
CNPS Materiel Release V 2.0			2Q					
DIMS System Testing V 5.1	2Q - 4Q							
DIMS Materiel Release V 5.1		1Q						
DIMS Testing V5.2		1Q - 2Q						
DIMS Materiel Release V5.2			1Q					
DIMS Testing V6.0				2Q - 3Q				
DIMS Materiel Release V 6.0				4Q				
Netcentric System Engineering	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Conduct System Engineering Studies/Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

0303142A - SATCOM Ground Environment (SPACE)

## PROJECT

456

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
456 MILSATCOM SYSTEM ENGINEERING	8535	7460	26821	16313	8531	8855	8076	8103	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** FY08 - FY13, MILSATCOM System Engineering provides centralized funding for advanced systems engineering, product support and analysis, and experimentation of new and emerging communication / network architectures and technologies. It also supports the end to end system engineering and technology assessment efforts associated with the integration of network systems (WIN-T) with the SATCOM Roadmap in support of Transformational Communications for Army Land WarNet and the Joint Warfighter. Supporting documentation and requirements are SATCOM CRD, GIG CRD, TSAT CDD/ICDs/TRDs, WIN-T, AEHF, MUOS and WGS ORDs/CDDs.

In addition FY08 and FY09 funds the development of Low Cost Point of Presence (LCP) which reduces both projected SATCOM On The Move (SOTM) antenna and Inertial Navigation Unit (INU) costs.

### Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct various developmental efforts or analysis and trades to protect Army interests and enhanced system/network capability and joint interoperability in support of Transformational Communications and Joint Interoperability	2800	2316	3126	3065
System Engineering in support of technology assessment and transision for WIN-T network / communication systems	1244	1075	1389	1361
Experimentation and prototyping of critical communication and network technologies	2364	2004	2640	2559
AEHF, WGS, TC, MUOS System Engineering in support of network system / terminal acquisition and joint interoperability	2127	1872	2375	2328
Low Cost Point of Presence (LCP) SATCOM Terminal development in support of Mounted Battle Command On The Move (MBCOTM)/Triton/Prophet Programs of record (POR's) and hybrid Communications Archecture initiatives.			17291	7000
Small Business Innovative Research/Small Business Technology Transfer Programs		193		
Total	8535	7460	26821	16313

### B. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
373142/562 MIST/HC3 (RDTE)	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing

Comment:

**C. Acquisition Strategy** This project funds advanced systems engineering, research, development, test and evaluation of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation of the technology

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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## BUDGET ACTIVITY

### 7 - Operational system development

PE NUMBER AND TITLE
<b>0303142A - SATCOM Ground Environment (SPACE)</b>

PROJECT  
**456**

## 7 - Operational system development

## 0303142A - SATCOM Ground Environment (SPACE)

456

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0303142A - SATCOM Ground Environment (SPACE)								456		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Terminal Upgrades	TBD	TBS	1524					17300	2Q	7000	2Q		25824	
Advanced Wideband/TCS	Various	Various	19351										19351	
Subtotal:			20875					17300		7000			45175	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering (In-House)	MIPR	Various	12219	1226	2Q	1181	2Q	1238	2Q	1300	2Q	Cont.	Cont.	
Engineering (Contract)	Various	Various	14143	2956	2Q	2218	2Q	3898	2Q	3381	2Q	Cont.	Cont.	
System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	8503	1530	2Q	1500	2Q					Cont.		
Subtotal:			34865	5712		4899		5136		4681		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	3869	600	2Q	578	2Q	763		942		Cont.	Cont.	Cont.
Test Support	Various	Various	8886	1213	1Q	1039	1Q	1334		1240		Cont.	Cont.	Cont.
Subtotal:			12755	1813		1617		2097		2182		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT			
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)								456			
Advanced Architecture	MIPR	MIT Lincoln Labs Lexington, MA	6690	450	2Q	434	2Q	667		750		Cont.	Cont.	
Advanced Wideband System Architecture	MIPR	Various	3000	560	2Q	510	2Q	1621		1700		Cont.	Cont.	
Subtotal:			9690	1010		944		2288		2450		Cont.	Cont.	
Project Total Cost:			78185	8535		7460		26821		16313		Cont.	Cont.	Cont.

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY										PE NUMBER AND TITLE														PROJECT								
7 - Operational system development										0303142A - SATCOM Ground Environment (SPACE)														456								
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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				
Transformational Communication Architecture (TCA)	<div></div>																															
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	<div></div>																															
Advanced Component Experimentation/Prototyping	<div></div>																															
Joint Interoperability Test	<div></div>																															
Technology Assessment	<div></div>																															
Low Cost Point of Presence SATCOM Terminal development	<div></div>																															



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>				PROJECT <b>456</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Transformational Communication Architecture (TCA)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Advanced Component Experimentation/Prototyping	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Joint Interoperability Test	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Technology Assessment	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Low Cost Point of Presence SATCOM Terminal development			1Q - 4Q	1Q - 4Q				
AEHF System Engineering and Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Wideband Gapfiller and Ka Band System Engineering	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Advanced Component Experimentation / prototyping	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Technology Assessment /MUOS	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Joint Interoperability Tests	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Support AEHF AEST 8000 (System Test)				1Q - 4Q				
Transformational Communication Architecture (TCA)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Conduct Transformational Communication (TC) System Engineering Studies/Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
TC Technical Requirement Document / Interface Control Document Development	1Q - 4Q	1Q - 4Q	1Q - 4Q					
TC Design Review SDR / PDR / CDR		1Q - 4Q	1Q - 4Q	1Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT	
<b>7 - Operational system development</b>				<b>0303142A - SATCOM Ground Environment (SPACE)</b>					<b>562</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
562 MBAND INT SAT TERM MIST	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Multi-band Integrated Satellite Terminal (MIST) funds will develop the high capacity communications capability (HC3).

The HC3 will provide high data rate communications capabilities that will be pervasively integrated into the Army's Larger Operational Force communication architecture, as well as other Service and Joint communication architectures. HC3 will break traditional terminal architecture paradigms by developing a modular, open systems architecture that supports hardware and software module reuse across HC3 platforms, as well as other Joint Service applications. HC3 will leverage the HC3 Government Reference Architecture (GRA) principles in the hardware and software architecture design. HC3 will be a family of tactical Multi-band, modular, communications terminals that will provide inter-network and reach back communications services across the Army's Larger Operational Force tactical networks.

HC3, Increment 1 will develop high capacity, multi-band, protected Communications-At-The-Halt (CATH) satellite solutions to replace end-of-life AN/TSC-85/93 terminals in the 2014 timeframe. These initial HC3 capabilities satisfy Army high capacity communication requirements that are separable from the Transformational Communications Architecture (TCA). Increment 2 will develop the greatly enhanced Transformational Satellite (TSAT) capability that will be an upgrade to the Increment 1 CATH terminals. The increment 1 CATH terminals will be built to accept the Increment 2 software upgrade for the Transformational Satellite (TSAT) waveform. In addition, during Increment 2, the Warfighter Information Network-Tactical (WIN-T) will leverage Transformational Communications Architecture (TCA) as a technology insertion program. HC3 will be developing the TCA technology insertion into the JC4ISR radio for WIN-T. This upgrade will provide higher capacity, as well as low, near zero, probability of detection, interception (LPD/LPI), anti-jam (AJ), and exploitation capabilities.

The Increment 1 HC3 System Development and Demonstration (SDD) phase will commence in FY08. Various risk mitigation studies will be executed with tri-service participation in order to mature critical technologies prior to SDD. The program has been structured to allow for incremental enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures.

FY08 and FY09 funds will initiate the Increment 1 SDD contract for the HC3 Communications-At-The-Halt terminal.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
High capacity communications capability studies/efforts that include Waveform integration/porting issues for Multi-band Government Reference Architecture (GRA) compatible terminals and Modular, open systems investigations.	7468	2287	4072	3931
Antenna/RF and Architecture design efforts and risk mitigation efforts	13735	3045	4416	3821
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	2248	1942	1883	
HC3 Increment 1 (CATH) Development Contract (SDD)			62808	75006

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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## BUDGET ACTIVITY

### 7 - Operational system development

PE NUMBER AND TITLE
<b>0303142A - SATCOM Ground Environment (SPACE)</b>

PROJECT  
562

## 7 - Operational system development

## 0303142A - SATCOM Ground Environment (SPACE)

562

Small Business Innovative Research / Small Business Technology Transfer Program	
Total	

$$\begin{array}{r} 211 \\ \hline 7485 \end{array}$$

7485

7485

7485

Total
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23451

7485

73179

82758

<b><u>B. Other Program Funding Summary</u></b>
0303142A D456 - MILSATCOM SYSTEM ENG

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FY 2006  
853.

FY 2007  
746

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FY 2008  
2682

FY 2009  
1631

FY 2010
853

FY 2011
885

FY 2012
807

FY 2013
810

To Compl
Continuing

Total Cost
Continuing

0303142A D456 - MILSATCOM SYSTEM ENG

8535

7460

2682

163

853

8855

8076

8103

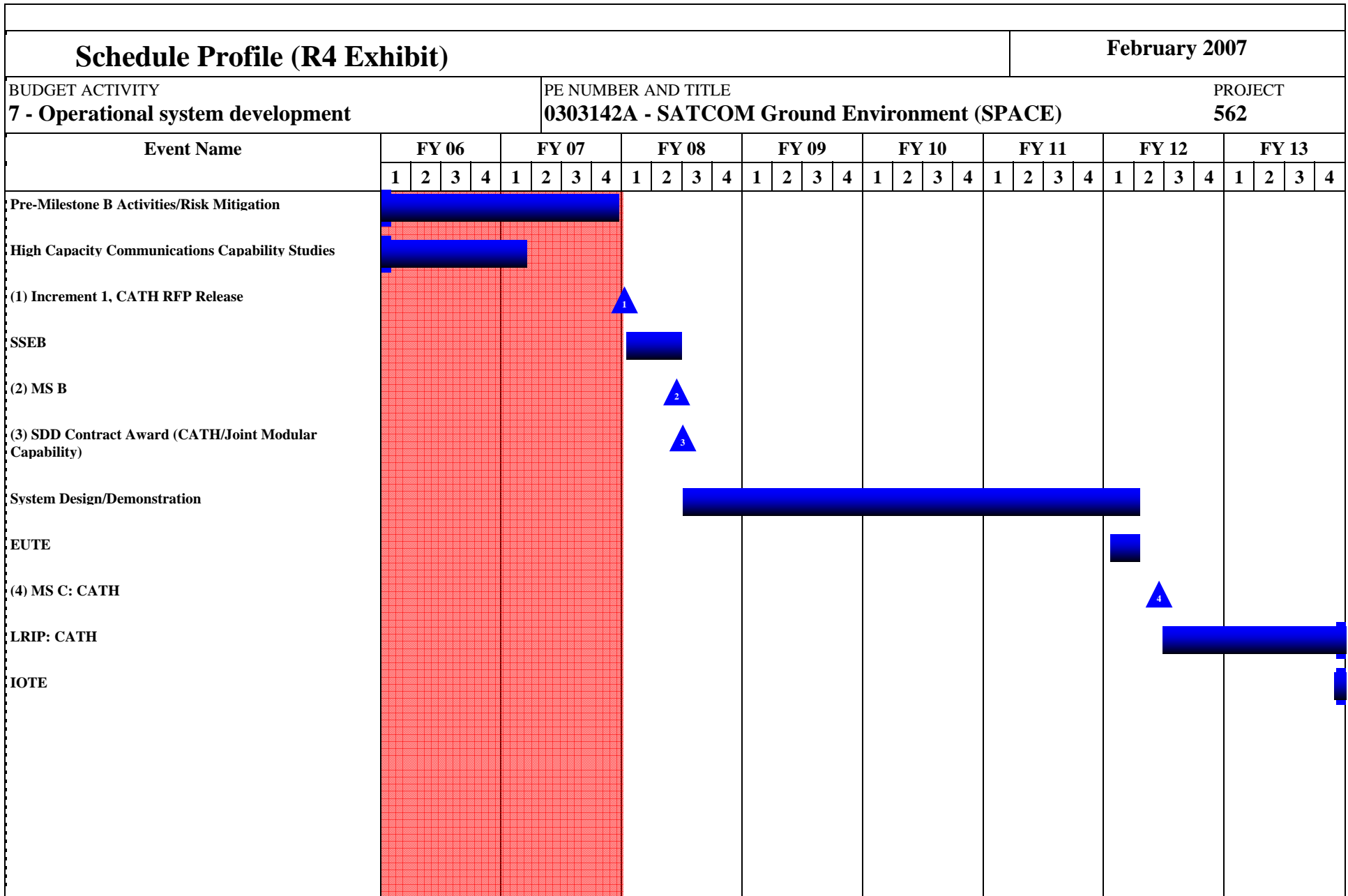
Continuing

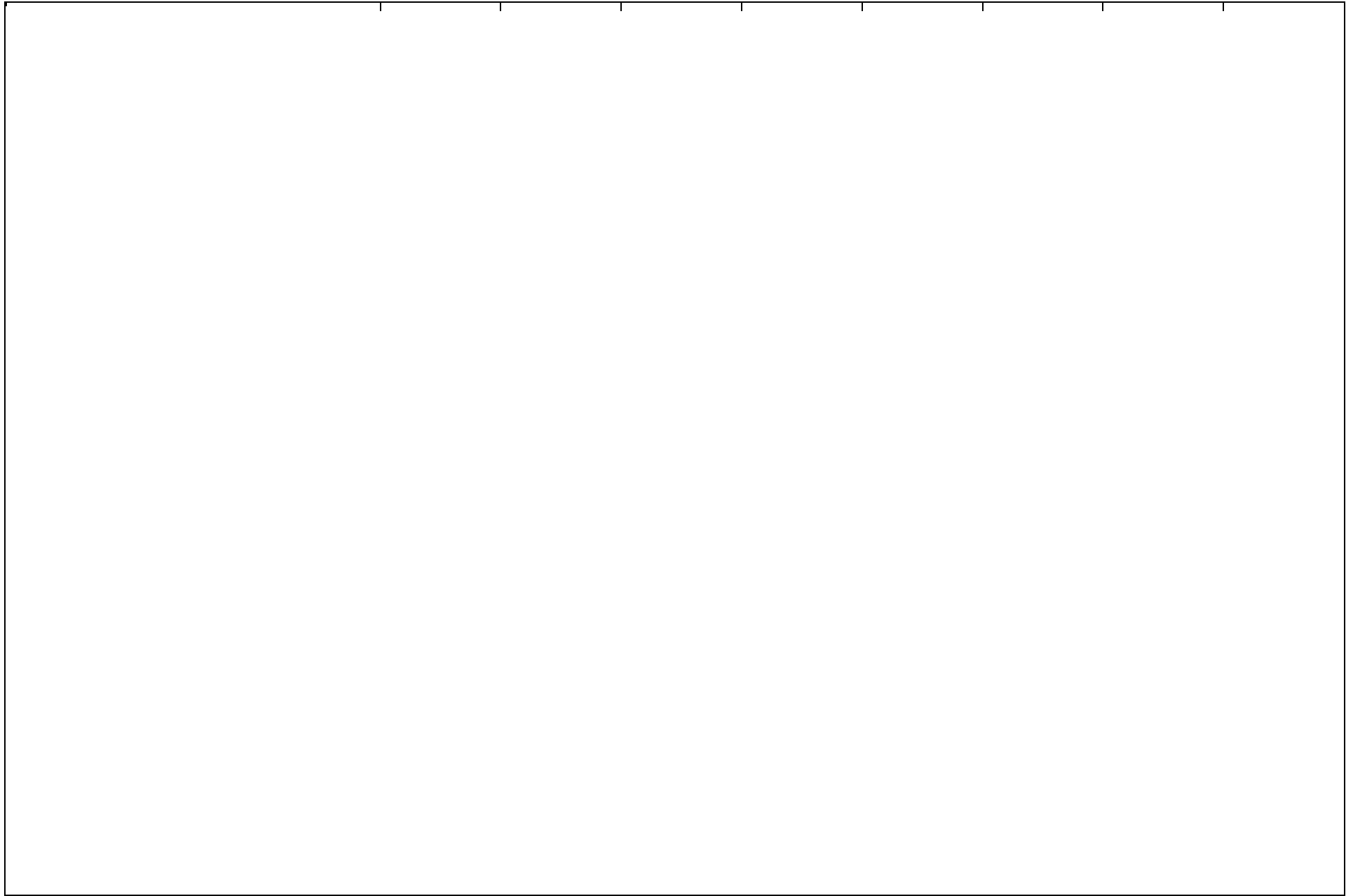
Continuing

**C. Acquisition Strategy** A competitive Increment 1 (Communications-At-The-Halt) high capacity communications capability SDD contract will be awarded in FY08, following comprehensive studies currently being performed. These studies are further supported by extensive risk mitigation efforts to enhance Technology Readiness Levels of critical higher risk technologies. The SDD phase will be Limited competition, (subject to No Foreign Nationals (NOFORN) restrictions) and will be structured to maximize competitive sub-contract opportunities throughout Low Rate Initial Production and Full Rate Production. The SDD phase will also set the framework to address the Increment 1 Transformational Communications (TC) upgrade for TSAT (Communications at the Halt) and the Communications on the Move (COTM) upgrade for the Warfighter Information Network-Tactical (WIN-T).

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)									562		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Development	MIPR	MIT Lincoln Labs, Lexington MA	2843	3745	1Q	112	1Q	1111	1Q	1152	1Q	Cont.	Cont.	
Pre-SDD Study Contracts	T&M	Raytheon, Marlborough, Mass and Boeing, Anaheim, Ca.	5079	2996	1-2Q								8075	
Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	2105	2394	1-2Q	1722	1-2Q	2610	1-2Q	2558	1-2Q	Cont.	Cont.	
SDD Development Contract	C/CP	TBS						61022	2Q	72251	1Q	Cont.	Cont.	
Risk Mitigation Efforts/Other Contracts	Various	Various	1194	10180	1-2Q	1789	1-2Q	1653	1-2Q			Cont.	Cont.	
Engineering Services	Various	Various				343	1-2Q	213	1-2Q	224	1-2Q		780	
Subtotal:			11221	19315		3966		66609		76185		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	N/A	Fort Monmouth, NJ	1309	2292	1-2Q	1550	1-2Q	3193	1-2Q	3192	1-2Q	Cont.	Cont.	
Other Contracts	Various	Various				406	1-2Q	48	1Q			Cont.	Cont.	
Subtotal:			1309	2292		1956		3241		3192		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering (In-House)	N/A	PM WIN-T, Fort Monmouth, NJ		230	1-2Q	34	1-2Q	514	1-2Q	541	1-2Q	Cont.	Cont.	
Subtotal:				230		34		514		541		Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)								PROJECT 562			
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Government Support	N/A	PM WIN-T, Fort Monmouth, NJ	735	1614	1-2Q	1318	1-2Q	2815	1-2Q	2840	1-2Q	Cont.	Cont.		
SBIR/STTR						211	1Q						211		
Subtotal:			735	1614		1529		2815		2840		Cont.	Cont.		
Project Total Cost:			13265	23451		7485		73179		82758		Cont.	Cont.		





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>				PROJECT <b>562</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Pre-Milestone B Activities/Risk Mitigation	1Q - 4Q	1Q - 4Q						
High Capacity Communications Capability Studies	1Q - 4Q	1Q						
Increment 1, CATH RFP Release			1Q					
SSEB			1Q - 2Q					
MS B			2Q					
SDD Contract Award (CATH/Joint Modular Capability)			2Q					
System Design/Demonstration			2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q	
EUTE							1Q - 2Q	
MS C: CATH							2Q	
LRIP: CATH							2Q - 4Q	1Q - 4Q
IOTE								4Q

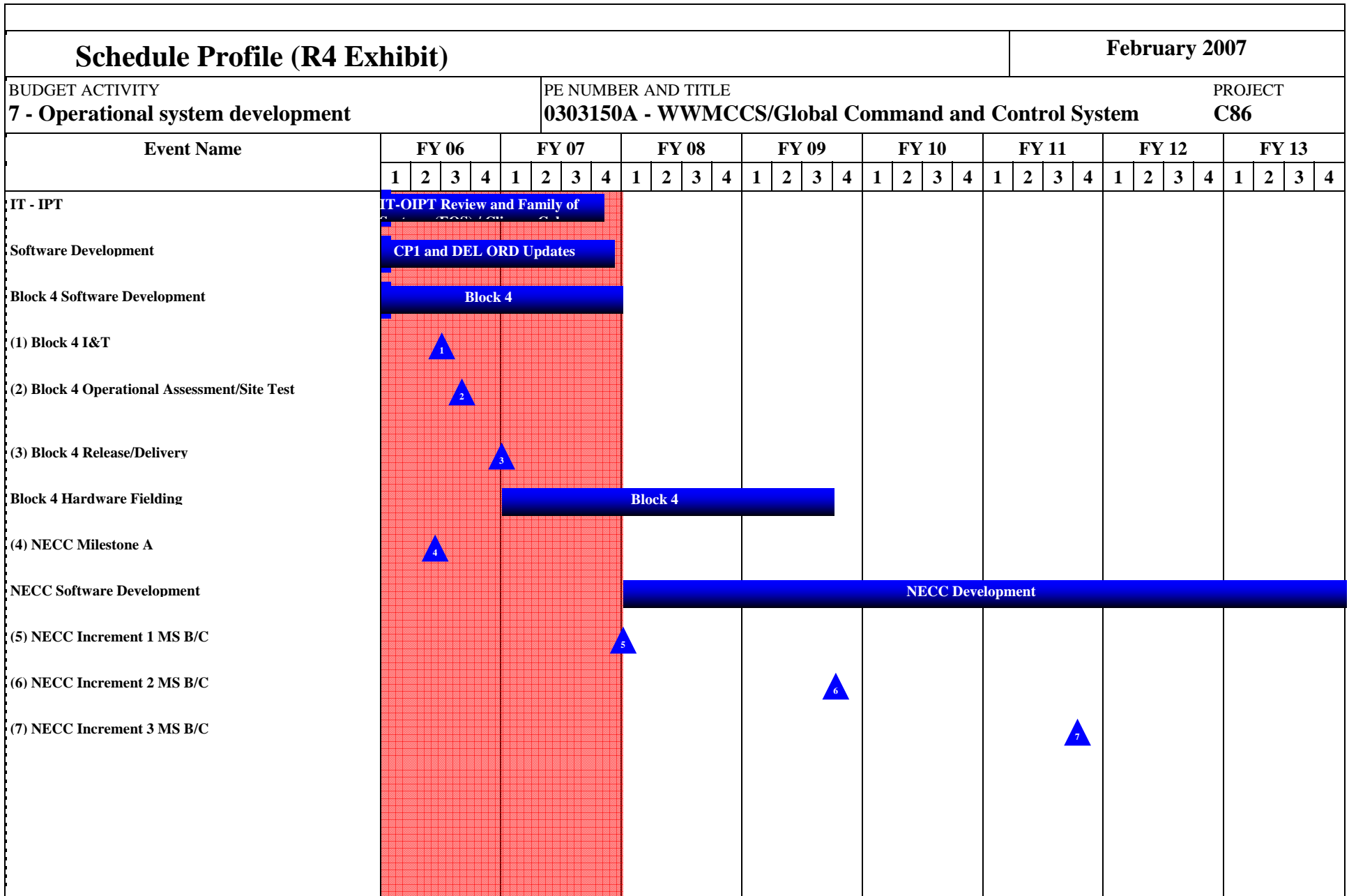
<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>									<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>			<b>PE NUMBER AND TITLE</b> <b>0303150A - WWMCCS/Global Command and Control System</b>						<b>PROJECT</b> <b>C86</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
C86 ARMY GLOBAL C2 SYSTEM	16122	12065	24836	14112	8744				Continuing	Continuing
<b>A. Mission Description and Budget Item Justification:</b> Global Command and Control System-Army (GCCS-A): This project is the Army component system that directly supports the implementation of the Global Command and Control System-Joint (GCCS-J). GCCS-A provides automated command and control tools for Army Strategic and Operational Theater Commanders to enhance warfighter capabilities throughout the spectrum of conflict during joint and combined operations in support of the National Command Authority (NCA). The GCCS-A developed software systems will dramatically improve the Army's ability to analyze courses of action; develop and manage Army Forces; and ensure feasibility of war plans. GCCS-A will provide a client-server layered architecture and functional best-of-breed software applications to develop a totally integrated component of the Global Command and Control System-Joint (GCCS-J).										
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
Perform Systems Engineering						744	810	1798	1107	
Software Development						9144	8084	19922	10420	
Perform Data Engineering						3865	501	526	553	
Conduct Test and Evaluation						823	873	1000	400	
Perform Program Support and Management Efforts						1546	1535	1590	1632	
Small Business Innovative Research/Small Business Technology Transfer Programs							262			
Total						16122	12065	24836	14112	

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>								<b>February 2007</b>		
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0303150A - WWMCCS/Global Command and Control System</b>					PROJECT <b>C86</b>	
<b><u>B. Program Change Summary</u></b>				FY 2006	FY 2007	FY 2008	FY 2009			
Previous President's Budget (FY 2007)				13452	12200	38387	47837			
Current BES/President's Budget (FY 2008/2009)				48015	32420	107849	106999			
Total Adjustments				34563	20220	69462	59162			
Congressional Program Reductions										
Congressional Rescissions										
Congressional Increases										
Reprogrammings				2670	-135					
SBIR/STTR Transfer										
Adjustments to Budget Years						-13551	-33725			
FY 2006: 2670 funds systems engineering FY 2007: -135 funds realigned to higher priority requirements FY 2008: -13551 funds realigned to higher priority requirements FY 2009: -33725 funds realigned to higher priority requirements										
<b><u>C. Other Program Funding Summary</u></b>										
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
BA8250 Global Command & Control System-Army (GCCSA)	17358	16997	60314	82751	23095				Continuing	Continuing
Comment: <div style="border: 1px solid black; height: 100px; margin-top: 10px;"></div>										
<b><u>D. Acquisition Strategy</u></b> The GCCS-A Acquisition Decision Memorandum (ADM) dated 28 May 2002 directed development of a Block Implementation Plan (BIP), which identifies the Block 4-Operational requirements that will be developed from the GCCS-A unblocked 16 November 2000 Operational Requirement Document (ORD). GCCS-A Strategic Block 4 and the Operational Block 4 will coincide with the GCCS-J Blocks 4 and 5 [which begins the transition to Global Information Grid (GIG) Enterprise Services (GES)] Common Operating Environment (COE) 4.X, and Army Battle Command System (ABCS) 6.4 (Army Software Block 1). The next major block for GCCS-A will be Block 1 of Joint Command and Control (JC2). GCCS-A utilizes Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) software products, in addition to developed software. Common Hardware (HW) platforms will be used within the Army to implement GCCS-A/GCCS-J, and include products from the Army's Common Hardware/Software-2 (CHS-2) contract. GCCS-A Block 4-Operational will be the next release and will coincide with GCCS-J Block 4.x , COE 4.7, and ABCS 6.4. GCCS-A Block 4 will coincide with GCCS-J Block V and Net-Centric Enterprise Services (NCES) Block I/II. Follow-on development of GCCS-A 4.1 and 4.2 releases maintains concurrency with GCCS-J and begins implementation of NET-CENTRIC Web Based services.										

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System	PROJECT C86

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System								PROJECT C86		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software Development	HYBRID	Lockheed Martin Corp, Springfield, VA	116021	5010	1-2Q	5619	1-2Q	5899	1-2Q		1-2Q	Cont.	Cont.	Cont.
Software Development	HYBRID	Follow-on Contract TBD						11335	1-2Q	7598	1-2Q		18933	
COE Support	MIPR	Various	1766										1766	1766
GFE	MIPR	Various	1464										1464	1465
ABCS System Engineering & Integration Efforts	MIPR	PEO C3T, NJ	1514										1514	1514
Matrix	MIPR	CECOM, NJ & Fort Belvoir, VA	4935	127	1-2Q	98	1-2Q	203	1-2Q	212	1-2Q	Cont.	Cont.	Cont.
Product Studies	MIPR	SAIC, VA	2391										2391	2391
Technical Management	In House	PM BC, NJ	28805	4007	1-4Q	2367	1-4Q	2485		2610		Cont.	Cont.	Cont.
System Engineering	MIPR	Various	1800	744	2-4Q	972	2-4Q	1798	2-4Q	1107	2-4Q	Cont.	Cont.	Cont.
Subtotal:			158696	9888		9056		21720		11527		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
FCBS/CSC	MIPR/Del Ord	Various	2389										2389	2389
INRI	MIPR	Various	200										200	200
Support Contractors			903	3865	2Q	501	2Q	526	2Q	553	2Q	Cont.	Cont.	Cont.
Subtotal:			3492	3865		501		526		553		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method &	Performing Activity & Location	Total PYs	FY 2006 Cost	FY 2006 Award	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complet	Total Cost	Target Value of

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System								PROJECT C86		
	Type		Cost		Date		Date		Date		Date	e		Contract
Government	MIPR	Various	3660	273	2Q	411	2Q	600	2Q				4944	5106
EPG	MIPR	Various	786										786	786
ATEC	MIPR	Various	1502	550	1Q	300	1Q	400	1Q	400	1Q	Cont.	Cont.	Cont.
Subtotal:			5948	823		711		1000		400		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Office Management	In House	PM GC C2, NJ	4699	1546	1-4Q	1535	1-4Q	1590	1-4Q	1632	1-4Q	Cont.	Cont.	Cont.
SBIR/STTR						262	2Q						262	
Subtotal:			4699	1546		1797		1590		1632		Cont.	Cont.	Cont.
Project Total Cost:			172835	16122		12065		24836		14112		Cont.	Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303150A - WWMCCS/Global Command and Control System</b>				PROJECT <b>C86</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
IT - IPT	1Q - 4Q	1Q - 4Q						
Software Development	1Q - 4Q	1Q - 4Q						
Block 4 Software Development	1Q - 4Q	1Q - 4Q						
Block 4 I&T	2Q							
Block 4 Operational Assessment/Site Test	3Q							
Block 4 Release/Delivery	4Q							
Block 4 Hardware Fielding		1Q - 4Q	1Q - 4Q	1Q - 3Q				
NECC Concept Decision OIPT								
NECC Milestone A	2Q							
NECC Software Development			1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
NECC Increment 1 MS B/C			1Q					
NECC Increment 2 MS B/C				4Q				
NECC Increment 3 MS B/C						4Q		
GCCS-A Block 4 Development	1Q - 4Q							
NECC Milestone A	2Q							
NECC Increment 1 Development		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q			
NECC Increment 2 Development			4Q	1Q - 4Q	1Q - 4Q			
NECC Increment 3 Development							1Q - 4Q	1Q - 4Q

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)						February 2007		
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0303150A - WWMCCS/Global Command and Control System					C86	
Funding in \$000								
Program	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Termination Liability Funding:								

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303158A - Joint Command and Control - Army**

PROJECT

**714**

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
714 JOINT COMMAND AND CONTROL - ARMY	1626	4013	10415	10386	10259	23600	727	7390	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Joint Requirements Oversight Council Memorandum 163-03 (JROCM 163-03 established a need for, and directed evolving the current Global Command and Control System (GCCS) Family of Systems into a single joint command and control (C2) architecture and capabilities-based implementation. This implementation will be based on Global Information Grid (GIG) Enterprise Services (GES) and consists of joint mission capability packages.

The Net-Enabled Command Capability (NECC)(formerly JC2) is the DoDs principal command and control capability that will be accessible in a net-centric environment and focused on providing the commander with the data and information needed to make timely, effective and informed decisions. NECC draws from the C2 community to evolve current and provide new C2 capabilities into a fully integrated, interoperable, collaborative Joint solution. Warfighters can rapidly adapt to changing mission needs by defining and tailoring their information environment and drawing on capabilities that enable the efficient, timely and effective command of forces and control of engagements. The Net-Enabled Command Capability (NECC) Program will deliver continuous C2 enhancements to the Warfighter. The Program will be founded on a single, net-centric, services-based C2 architecture and provide the decision support infrastructure that will enable the Warfighter to access, display, and understand the information necessary to make efficient, timely, and effective decisions. The Program will be responsive to the Warfighter through tightly coupled capability needs, development, test, and user engagement processes. The Program will leverage existing and evolving C2 capabilities and centers of excellence with its ABC commitment to Adopt-before-Buy, Buy-before-Create. Key to ABC is adaptation of commercial best practices, architectures and standards for C2. The NECC Program will ensure that our C2 capability evolves towards increased net-centricity and Joint mission integration.

Net-Enabled Command Capability (NECC) (formerly known as JC2) will provide a net-centric transformation of the Joint Force Commander's current C2 capabilities via a top-driven, capability-based approach that emphasizes jointness and is inclusive of our coalition partners.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
System Engineering		551	579	607
Software Development		204	5662	6118
Data Engineering		800	848	899
Test and Evaluation			745	100
Program Management	1626	2345	2581	2662
Small Business Innovative Research/Small Business Technology Transfer Programs		113		
Total	1626	4013	10415	10386

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

**7 - Operational system development**

## PE NUMBER AND TITLE

**0303158A - Joint Command and Control - Army**

## PROJECT

**714**

	FY 2006	FY 2007	FY 2008	FY 2009
<b><u>B. Program Change Summary</u></b>				
Previous President's Budget (FY 2007)	1672	4057	3958	1760
Current BES/President's Budget (FY 2008/2009)	48015	32420	107849	106999
Total Adjustments	46343	28363	103891	105239
Congressional program reductions		-15		
Congressional rescissions				
Congressional increases				
Reprogrammings	-46	-29		
SBIR/STTR Transfer				
Adjustments to Budget Years			6457	8626

FY06: -46 funds realigned to higher priority requirements.

FY07: -44 funds realigned to higher priority requirements.

FY08: +6457 funds NECC development, integration and test

FY09: +8626 funds NECC development, integration and test

## **C. Other Program Funding Summary** Not applicable for this item.

**D. Acquisition Strategy** Formal analysis was initiated to refine the Network-Enabled Command Capability (NECC) concept (formerly known as Joint Command and Control (JC2)). The Assistant Secretary of Defense (ASD) approved NECC (formerly JC2) capability for entry into the Concept Refinement Phase. The Assistant Secretary of Defense (ASD) directed the Deputy Assistant Secretary of Defense (DASD), C3, Space, and IT Programs to initiate and lead the completion of a successful NECC (formerly JC2) Capability Analysis of Alternatives (AoA) conducted in accordance with the approved guidance.

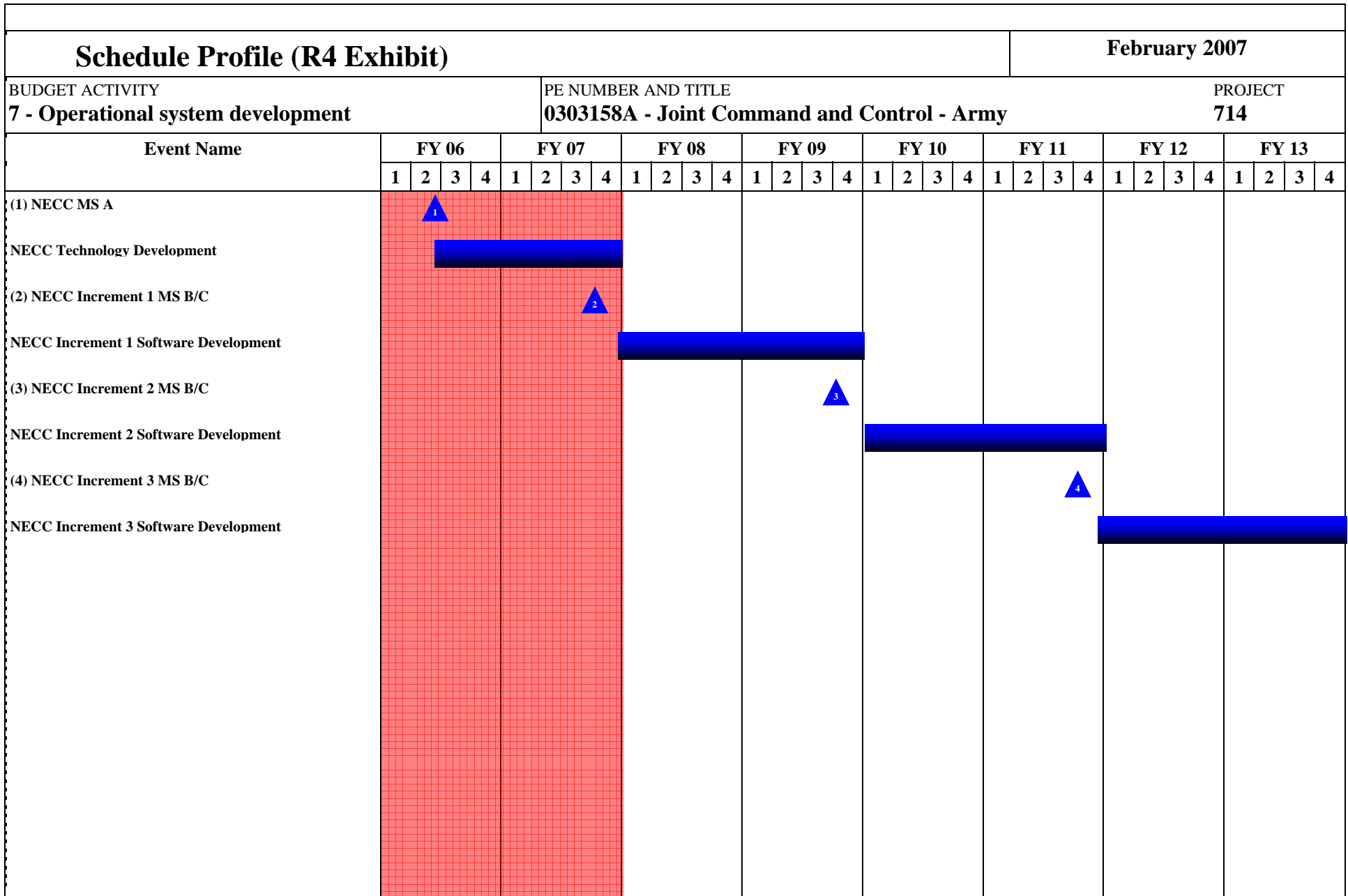
The Analysis of Alternative (AoA) will be completed in two parts: Part I is the Capabilities Refinement Analysis, and Part II the Cost Effectiveness Analysis. During Phase I, the capabilities were refined to frame alternative implementations for Part II. These alternatives have been presented by National Information Infrastructure (NII), and were accepted for approval. The capabilities recommended to move forward for Part II are Situational Awareness, Force Projection and Force Mobilization. The ASD (NII) Acquisition Decision Memorandum issued 7 March 2006 approved Milestone A, authorized entry into the Technology Development phase and renamed Joint Command and Control (JC2) as the Net-Enabled Command Capability (NECC) program.

During the NECC (formerly JC2) Technology Development Phase, required acquisition documentation for milestone decisions will be prepared and/or updated, as necessary; the system architecture and technical baseline will be further defined, including test strategy development and lifecycle management considerations; collaboration/coordination will occur with Joint Forces Command (JFCOM), Training and Doctrine Command (TRADOC) and other organizations, as appropriate, to refine and finalize the Capability

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303158A - Joint Command and Control - Army</b>	PROJECT <b>714</b>
<p>Development Document (CDD) to assure an achievable requirement; and in accordance with the Clinger/Cohen Act, an Analysis of Alternatives (AoA) was completed and formal updates will be done, as required.</p>		

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0303158A - Joint Command and Control - Army								714		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	Time and Materiels	Mitre, McClean, VA				551	1Q	579	1Q	607	1Q		1737	
Software Development	Government Matrix	C2D, Fort Monmouth, NJ				204	2Q	5662	1-4Q	6118	1-4Q		11984	
Subtotal:						755		6241		6725			13721	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Data Engineering	Time and Materiels	Booz Allen Hamilton, Eatontown, NJ				800	2Q	848	2Q	899	2Q		2547	
Subtotal:						800		848		899			2547	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Government (AEC)		Aberdeen Proving Ground, Aberdeen, MD						745	2Q	100	2Q		845	
Subtotal:								745		100			845	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Time and	Various		1626	1Q	2345	1-2Q	2581	1-2Q	2662	1-2Q	Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303158A - Joint Command and Control - Army								PROJECT 714		
	Materiels													
SBIR/STTR						113							113	
Subtotal:				1626		2458		2581		2662		Cont.	Cont.	Cont.
Project Total Cost:				1626		4013		10415		10386		Cont.	Cont.	Cont.





Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0303158A - Joint Command and Control - Army</b>				PROJECT <b>714</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
NECC MS A	2Q							
NECC Technology Development	2Q - 4Q	1Q - 4Q						
NECC Increment 1 MS B/C		4Q						
NECC Increment 1 Software Development		4Q	1Q - 4Q	1Q - 4Q				
NECC Increment 2 MS B/C				4Q				
NECC Increment 2 Software Development					1Q - 4Q	1Q - 4Q		
NECC Increment 3 MS B/C						4Q		
NECC Increment 3 Software Development						4Q	1Q - 4Q	1Q - 4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0305204A - Tactical Unmanned Aerial Vehicles

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	144801	153227	97947	62836	35224	24439	27976	28564	Continuing	Continuing
114	Tactical Unmanned Aerial Vehicle (TUAV) (JMIP)	24000	15945	7950	8209	7854	8123	9100	9375	Continuing	Continuing
11A	Advanced Payload Develop & Spt (JMIP)	9336	6804	40531	17440	18955	7654	7945	8005	Continuing	Continuing
11B	TSP DEVELOPMENT (JMIP)	16908	7134								39510
123	JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2318	2411	2245	2359	2483	2538	2506	2559	Continuing	Continuing
D09	EXTENDED RANGE UAV (JMIP)	92239	120933	45236	32832	3932	4124	6425	6625	Continuing	Continuing
D10	SUAV (JMIP)			1985	1996	2000	2000	2000	2000		11981

**A. Mission Description and Budget Item Justification:** Project 114 TUAV Shadow provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The Shadow system air vehicle meets the required range of 50 km and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). The TUAV Shadow system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF). The TUAV Shadow has logged over 123,000 flight hours.

Project 11A Advance Payload Development supports the Army's transformation by developing payloads for brigade combat team, division, and corps UASs in accordance with Headquarters Department of the Army and Training and Doctrine Command UAS priorities. The Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI payload is a complementary system of the Army's Future Combat System (FCS) Class IV UAV and is a principal payload for the Extended Range Multi-Purpose (ERMP) UAS. The EO/IR w/Laser Designator (LD) is currently in development for the ERMP system and has potential application to other platforms. The EO/IR/LD will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force.

Project 11B Tactical SIGINT Payload (TSP) is an Unmanned Aerial Vehicle (UAV) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, a key FCS component, is capable of providing the Brigade Combat Team (BCT) Land Commander with an overwatch and a penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations (AO). The BCT commander will deploy TSP to provide sensor coverage where FCS ground vehicles cannot perform the SIGINT mission due to radio line of sight blockage. TSP is developing sensors for BCT applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time (NRT) actionable intelligence that can

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational system development	0305204A - Tactical Unmanned Aerial Vehicles	
<p>immediately be used in the commanders; decision cycle. The TSP electronic emitter information will be correlated with data from other systems, e.g. Prophet and Aerial Common Sensor (ACS) to provide precise targeting information for immediate engagement. The TSP sensors are critical to providing full coverage Intelligence, Surveillance and Reconnaissance (ISR) information for Future Force capabilities for FCS and contributing to the Joint ISR net.</p> <p>Project 123 JTC/SIL is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e. TUAV Tactical Unmanned Control System (TUCS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.</p> <p>Project D09 Extended Range Multi-Purpose (ERMP) UAS provides much improved real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (4 HELLFIRE). ERMP addresses an ever-increasing demand for greater range, altitude, endurance and payload flexibility and allows for mission change while in flight. ERMP will be fielded as a system to a company level organization with one company being assigned to each of the 10 Army Divisions. This will provide a capability that is responsive to the lowest level of command facilitating dynamic re-tasking. The ERMP system consists of 12 aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar, and communications relay payloads, Ground equipment includes 5 Ground Control Stations, 5 Ground Data Terminals, 2 Portable Ground Control Stations, 2 Portable Ground Data Terminals, and other associated ground support equipment. The acquisition strategy capitalized upon competitive forces, bringing cutting-edge improvements at the best cost and value that support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. The ERMP system includes a heavy fuel engine, endurance of 30 hours, TCDL, network connectivity that reduces information cycle time and enhances overall battlespace awareness through liberal dissemination, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. ERMP has a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing (ATLS) and the flexibility to operate with or without SATCOM data links. The ERMP One System Ground Control Station has the ability to operate multiple ERMP aircraft simultaneously and is interoperable with the Shadow UAS. With more weapons, payloads, and endurance than any other current system in its class, ERMP gives the Army the required capability defined by years of wartime experience and codified by the Joint Requirement Oversight Council (JROC).</p> <p>Project D10 The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with unprecedented situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of ISR tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval on 6 Oct 05 and successfully completed IOT&amp;E June 06. The program obtained Full Rate Production authority on 5 Oct 06.</p>		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

## **B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	147040	114087	49403	15520
Current BES/President's Budget (FY 2008/2009)	144801	153227	97947	62836
Total Adjustments	-2239	39140	48544	47316
Congressional Program Reductions		-1710		
Congressional Rescissions				
Congressional Increases		40850		
Reprogrammings	-2239			
SBIR/STTR Transfer				
Adjustments to Budget Years			9244	31116

Change Summary Explanation:

FY 07: Project 114 Congressional plus up of \$3.2 million for Heavy Fuel Engine. Project 11A Congresssional plus up of \$2.6 million for Tactcial Signals Intelligence Payload. Project D09 Congressional plus up of \$35 million

<b>Schedule Detail (R4a Exhibit)</b>	<b>February 2007</b>
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>
<b><u>Schedule Detail:</u></b> Not applicable for this item.	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							114	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
114	Tactical Unmanned Aerial Vehicle (TUAV) (JMIP)	24000	15945	7950	8209	7854	8123	9100	9375	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow system air vehicle meets the required operating range of 50 kilometers and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). Procurement of attrition air vehicles originated in FY 2001 and was re-established in FY 2006. The TUAV Shadow system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF). The TUAV Shadow has logged over 123,000 flight hours since June 2001 most of which were flown in support of Operation Iraqi Freedom and Operation Enduring Freedom.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Program Management Support	2100	848	438	396
Block Upgrades, 1101 Engineering Development and Test	1728	2500	1200	1400
Tactical Common Data Link (TCDL)	11714			
Laser Designator	3117	3245		
Blue Force Tracking Integration	486	306		
Heavy Fuel Engine		3250		4150
Tactical Hyperspectral Imaging System	1800			
Communications Relay		2000		
Test Support	493	1588	1892	2032
Common System Integration	2562	1208	750	231
Rolling Take Off		1000	2170	
Inclement WX Capability			1500	
Total	24000	15945	7950	8209

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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**BUDGET ACTIVITY**  
**7 - Operational system development**

PE NUMBER AND TITLE	PROJECT
<b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>114</b>

PE NUMBER AND TITLE	PROJECT
<b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>114</b>

PE NUMBER AND TITLE	PROJECT
<b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>114</b>

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
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<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
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<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing

TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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TUAV Procurement (BA0330)	305174	35985	39527	215736	245656	60039			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Initial Spares - TUAV (BS9738)	3000	2823	3000	3000	3000	2850			Continuing	Continuing
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Comment:

**C. Acquisition Strategy** A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted 21 December 1999, and a TUAV LRIP contract was awarded to AAI Corporation 27 December 1999. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded 30 March 2001 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP was awarded in March 2002. A successful LRIP program led to a MS III decision 25 September 2002. The full rate production contract was awarded on 27 December 2002. Continued development of the selected TUAV system will be accomplished through a series of modifications and retrofits such as Tactical Common Data Link (TCDL), Laser Designator, and reliability upgrades for the engine and fuel system.

Comment:

**C. Acquisition Strategy** A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted 21 December 1999, and a TUAV LRIP contract was awarded to AAI Corporation 27 December 1999. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded 30 March 2001 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP was awarded in March 2002. A successful LRIP program led to a MS III decision 25 September 2002. The full rate production contract was awarded on 27 December 2002. Continued development of the selected TUAV system will be accomplished through a series of modifications and retrofits such as Tactical Common Data Link (TCDL), Laser Designator, and reliability upgrades for the engine and fuel system.

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT 114		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TUAV LRIP Program	Comp / FPIF	AAI Corporation, MD	63965										63965	63965
C4I Maintenance / Improvements / Communications Relay	MIPR / PWD	Various	2875										2875	2875
TAFT System Support	CPFF	AAI Corporation, MD	3375										3375	3375
Ground Control Station and Trailers	CPFF	AAI Corporation, MD & Northrop Grumman, CA	11808										11808	11808
I-GNAT	CPFF	General Atomics	11809										11809	11809
Government Furnished Equipment	MIPR	Various	2036										2036	2036
SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500										1500	1500
Tactical Control System	PWD	AMCOM RDEC Redstone, AL	700										700	700
Advanced Payload Development/Modification/Integration	MIPR	PM UAV Payloads, Huntsville, AL	4118										4118	4118
Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2910										2910	2910
Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	3044										3044	3044
Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200										200	200
TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275										7275	7275
Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600										10600	10600
TUAV Source Selection/System Capabilities Demo	MIPR/PWD	Various	7200										7200	7200
Target Location Error (TLE) /	MIPR/PWD	Various	19293	14831	3-4Q	3245	2Q						37369	36593

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT 114		
TCDL/JTRS / Laser Designator														
Army Apache/UAS Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350										350	350
Corrective Actions/Engineering Support	CPFF / PWD	AAI Corporation, MD	10375										10375	10375
Hunter UAS non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140										4140	4140
Hardware cost for GCS's (2) to be integrated into the selected AV's for the ER req.	CPFF	Northrop Grumman, CA	2000										2000	2000
OIF Reliability Upgrade	CPFF / PWD	AAI Corporation, MD	6200										6200	4100
OIF Improvements (Blue Force Tracker, 1101 Engine Upgrade, System Upgrades/Block Upgrades)	CPFF / PWD	AAI Corporation, MD	5284	2214	3-4Q	2806	2Q	1200	2Q	1400	2Q		12904	12358
Airframe Optimization	CPFF / PWD	AAI Corporation, MD	5300										5300	5300
Tactical Hyperspectral Imaging System	CPFF / PWD	AAI Corporation, MD		1800	2-3Q								1800	1800
Communications Relay	CPFF / PWD	AAI Corporation, MD / Other Government Agency				2000	2Q						2000	1500
Common System Integration	MIPR/PWD	Various Other Government Agencies		2562	1-4Q	1208	2Q	750	2Q	231	2Q		4751	
Heavy Fuel Engine	CPFF / PWD / MIPR	AAI Corporation, MD / Other Government Agency				3250	2Q			4150	2Q		7400	
Subtotal:			186357	21407		12509		1950		5781			228004	211931
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	CPFF	Various	8656	845	1-2Q	365	1Q	170	1-2Q			Cont.	Cont.	Cont.
Government Engineering Support	PWD	AMCOM Redstone, AL	5677	872	1Q	283	1Q	118	1-2Q			Cont.	Cont.	Cont.
Government Engineering Support -	PWD	AMCOM Redstone, AL	1476										1476	1476

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles										PROJECT 114	
Extended Range															
Subtotal:				15809	1717		648		288				Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Risk Reduction Testing/ST&E / Rolling Take Off	MIPR	Various	15345			1000	2Q	2170	2Q			Cont.	Cont.	Cont.	
Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E / Inclement WX Capability	MIPR	Various	4354	493	1-3Q	1588	2Q	3392	2Q	2032	2Q		11859	4354	
C4I Testing	MIPR	Various	1980										1980	1980	
OPTEMPO Demo	MIPR	Various	1000										1000	1000	
Data Acquisition System (DAS) Instrumentation Van	MIPR	Redstone Technical Test Center, AL	810										810	810	
IOT&E Preparation and Support/Travel	MIPR	ATEC/PM/OGA Ft. Hood, TX	750										750	750	
Subtotal:				24239	493		2588		5562		2032		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Program Mgt Personnel	MIPR	PM UAS Redstone, AL	8056	383	1-4Q	200	1-4Q	150	1-4Q	396	1-4Q	Cont.	Cont.	Cont.	
Subtotal:				8056	383		200		150		396		Cont.	Cont.	Cont.
Project Total Cost:				234461	24000		15945		7950		8209		Cont.	Cont.	Cont.

Schedule Profile (R4 Exhibit)																				February 2007															
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT							
7 - Operational system development										0305204A - Tactical Unmanned Aerial Vehicles																		114							
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13						
	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							
OIF																																			
C4I Maintenance/Improvements																																			
Development Testing																																			
Total Ownership Cost Reduction Initiatives																																			



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				PROJECT <b>114</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
OIF	1Q - 4Q	1Q - 4Q						
C4I Maintenance/Improvements	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Development Testing	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Total Ownership Cost Reduction Initiatives				1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
C4I Maintenance/ Improvements (ABCS 4.3, 6.2, .....	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q			
TLE / TCDL / JTRS / Laser Designator	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q				
Total Ownership Cost Reduction Initiative		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
P3I		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
OIF Improvements	1Q - 3Q							
Heavy Fuel Engine		2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							11A	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
11A Advanced Payload Develop & Spt (JMIP)	9336	6804	40531	17440	18955	7654	7945	8005	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** This project supports the Army's transformation by developing payloads for brigade combat team, division, and corps Unmanned Air Vehicles (UAV) and unmanned systems in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAV priorities. The Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI payload is a complementary system of the Army's Future Combat System (FCS) Class IV UAV and is a principal payload for the Extended Range/Multi-Purpose (ER/MP) UAV. The Electro Optical Infra Red w/Laser Designator (EO/IR/LD) is currently in development for the ER/MP system and has potential application to other platforms. The EO/IR/LD will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force.

The Common Sensor Payload effort was initiated by decision in FY 2007, at the direction of the Vice Chief of Staff of the Army. This effort will combine existing separate payload efforts into a single common payload with a single logistics tail to support the Extended Range/Multi-Purpose (ER/MP) UAV as well as the Armed Reconnaissance Helicopter (ARH) ARH-70A Helicopter.

FY2008/2009 funding continues the system integration and refurbishment of UAV payloads for follow on testing.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
SAR/GMTI Development and Integration - includes Development Test.	3482	3042	631	640
EO/IR/LD development includes engineering/program management support	5854	1238	600	600
Tactical Sigint Payload		2524		
Common Sensor Payload Effort, includes NRE, prototypes, integration and testing efforts.			39300	16200
Total	9336	6804	40531	17440

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Advanced TUAV Payloads (B00302)		33328	38415	142924	164096	150709	124184	117688	Continuing	Continuing

Comment: Comment: Common Sensor Payload RDTE funds were added to this PE, Common Sensor Payload PA funds were added to SSN B00302.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	PROJECT <b>11A</b>
<p><b>C. Acquisition Strategy</b> The System Development and Demonstration (SDD) contract for the SAR/GMTI Payload was competitively awarded 1QFY04 for the design/modification and fabrication of SDD articles. The SAR/GMTI SDD articles will be refurbished and provided to ER/MP for integration and testing and participation in the ER/MP Limited User Test (LUT). Additional capabilities will be added via spiral development depending on need and technology maturity. An additional two (2) units have been procured under the existing contract to support ER/MP system integration and test.</p> <p>The SDD contract for the ER/MP EO/IR/LD was competitively awarded in 3rd quarter FY05 for 10 test articles. After combined development and operational testing, the SDD articles will be provided to the ER/MP program for system integration and test. After the ER/MP Limited User Test, the SDD units will be refurbished and used to support the platform during Initial Operational Test &amp; Evaluation (IOT&amp;E).</p> <p>A draft acquisition strategy based on a competitive award is in process for the Army Common Sensor Payload program.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT 11A		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SAR/GMTI System Development & Demonstration/Refurbishment and Integration	COMP/CPIF	General Atomics, San Diego, CA	23336	500	2-3Q	1750	2-3Q	631	2Q	640	2Q		26857	26869
EO/IR/LD System Development & Demonstration/Refurbishment and Integration	COMP/FFP/C PFF	Raytheon, McKinney, TX	8589	2485	1-2Q			600	2Q	600	2Q		12274	12274
Tactical Sigint Payload						1564							1564	
Common Sensor Payload NRE and Hardware	C/FFP/CPFF	TBD						36928	2Q	12963	2Q	Cont.	Cont.	
Subtotal:			31925	2985		3314		38159		14203		Cont.	Cont.	39143
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Various	8558	2386	1-4Q	1797	1-4Q						12741	
Subtotal:			8558	2386		1797							12741	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SAR/GMTI Developmental Test Support	MIPR	DTC, Aberdeen Proving Grounds, MD	297	500	1-2Q								797	
SAR/GMTI Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	390	940	1-2Q								1330	
EO/IR/LD Developmental Testing	MIPR	DTC, Aberdeen Proving Grounds, MD		835	2-3Q								835	

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>							PROJECT <b>11A</b>			
EO/IR/LD Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ		993	2-3Q							993		
Common Sensor Payload Testing	MIPR	TBD						488	3Q	1395	1-3Q	Cont.	Cont.	
Subtotal:			687	3268				488		1395		Cont.	Cont.	
Remarks: Government, contractor, and test support for UAV testing contained in the ER/MP Platform.														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Mgt Personnel	In House	PM RUS, Ft. Monmouth, NJ	1350	697	1-4Q	1693	1-4Q						3740	
Common Sensor Mgmt	MIPR	TBD						1884	1-4Q	1842	1-4Q	Cont.	Cont.	
Subtotal:			1350	697		1693		1884		1842		Cont.	Cont.	
<b>Project Total Cost:</b>			<b>42520</b>	<b>9336</b>		<b>6804</b>		<b>40531</b>		<b>17440</b>		<b>Cont.</b>	<b>Cont.</b>	<b>39143</b>

Schedule Profile (R4 Exhibit)																				February 2007																												
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT																				
7 - Operational system development										0305204A - Tactical Unmanned Aerial Vehicles																		11A																				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13																			
	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																
SAR/GMTI SDD																																																
SAR/GMTI DT																																																
SAR/GMTI OTE																																																
UAV Systems Integration & Test Support for SAR/GMTI (and Refurbishment)																																																
(1) SAR/GMTI MS C																																																
(2) Award SAR/GMTI LRIP																																																
EO/IR/LD SDD																																																
UAV Systems Integration & Test for ER/MP (and Refurbishment)																																																
ER/MP System LUT (PM MAE program event)																																																
Emerging Technology transition initiatives																																																
(3) Common Sensor Payload Award																																																
Common Sensor Payload Incr 1 Engr/Hdwe Efforts																																																
Common Sensor Payload Incr 2 Decision & Engr/Hdwe Efforts																																																



Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				PROJECT <b>11A</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
SAR/GMTI SDD	1Q - 4Q	1Q - 4Q						
SAR/GMTI DT	1Q - 4Q							
SAR/GMTI OTE	4Q							
UAV Systems Integration & Test Support for SAR/GMTI (and Refurbishment)	2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
SAR/GMTI MS C		3Q						
Award SAR/GMTI LRIP		4Q						
EO/IR/LD SDD	1Q - 4Q	1Q - 4Q						
UAV Systems Integration & Test for ER/MP (and Refurbishment)	2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
ER/MP System LUT (PM MAE program event)			3Q					
Emerging Technology transition initiatives					1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Common Sensor Payload Award			1Q					
Common Sensor Payload Incr 1 Engr/Hdwe Efforts			1Q - 4Q	1Q - 4Q	1Q - 4Q			
Common Sensor Payload Incr 2 Decision & Engr/Hdwe Efforts			4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							123	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
123	JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2318	2411	2245	2359	2483	2538	2506	2559	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Joint Technology Center/System Integration Laboratory (JTC/SIL) is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e. TUAV Tactical Unmanned Control System (TUCS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Implement Tactical Common Datalink Model	100		50	50
Develop and upgrade Terrain and Target databases	80	80	80	80
Implement Advanced Sensor / Payload Simulations	50	75	75	75
Implement / Integration Weapons Simulation for Weaponized UAV	75	50	50	50
Incorporate STANAG 4586 Datalike Interface Standard	82	61	50	60
Evaluate and integrate New Visualization Technologies into MUSE	75	75	75	75
Technical support of MUSE integration with IEWTPT	40	40	40	40
Enhance VTUAV Models	50	50	50	50
Provide MUSE Configuration Management and Help Desk Services	250	250	250	250
MUSE Equipment	328	348	300	338
JTC/SIL Management	308	394	400	400
Initial development of Multi-Spectral and Hyper-Spectral simulations			25	50
Enhance IR abd SAR model sets	100	100	50	50
Update interfaces to DoD models	80	80	50	50
Integrate UAV Survivability Models and Attributes		80		
Enhance Fixed Wing UAV Models	50	75	75	75
Update MUSE HLA and DITSCAP	100	100	100	100

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2007			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 123		
Enhance of Fixed Target Models				75		75		72		75	
Common UAV Trainer Enhancements				80		80		80		80	
Implement Tailored Auto Track and Auto Search Models						75		75		75	
Incorporate Effects of Digital Payload Imagery				80		35		50		50	
Continue C4I Enhancements				90		72		73		86	
Continue OneSAF Vignette development				75		75		50		50	
Continue Usability Enhancements				100		91		75		100	
Enhance Small UAV Models				50		50		50		50	
Total				2318		2411		2245		2359	
<u>B. Other Program Funding Summary</u>		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PE 0305204N Navy		1700	1700								3400
PE 0305205F Air Force		2000	2000								4000
Comment:											
<u>C. Acquisition Strategy</u> Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support and contractor support using a variety of existing contract vehicles.											

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles									PROJECT 123		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Initiate MTI/FTI Sensor Sim Develop/Upgrade SAR	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	143										143	143
MUSE Remote Support Capability	SS/CPFF	GDIS/Arlington, VA	415										415	415
Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	GDIS/Arlington, VA	235					72	1Q	75	1Q		382	235
Upgrade HLA Certification and DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	692	100	1Q	100	1Q	100	1Q	100	1Q		1092	892
MUSE Equipment	C/FFP	Various	1921	328	1Q	348	1Q	300	1Q	338	1Q		3235	2597
MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	GDIS/Arlington, VA	237										237	237
Develop / Integrate and Implement TCDL into MUSE in Support of TUAV ORD	SS/CPFF	GDIS/Arlington, VA	150	100	1Q			50	1Q	50	1Q		350	250
Develop & Upgrade Terrain & Target Databases	SS/CPFF	Quality Research Institute/HSV, AL	1039	80	1Q	80	2Q	80	1Q	80	1Q		1359	1199
Incorporate New Technology Sensors & Platforms into the MUSE	SS/CPFF	GDIS/Arlington, VA	275										275	275
Integrate Weapon Employment Capabilities into MUSE	C/FFP	TBD	124										124	124
Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	TBD	105	75	1Q	75	2Q	75	1Q	75	1Q		405	105
Link Fixed Target Database with DIA MIDB	SS/CPFF	TBD	245	50	1Q	75	1Q						370	370
Initial VTUAV/UCARS Vehicle models	SS/CPFF	TBD	165	50	1Q	50	2Q	50	1Q	50	1Q		365	265
Initial ATARS & TARPS Simulation model	SS/CPFF	SAIC/HSV, AL.	235										235	235

ARMY RDT&E COST ANALYSIS (R3)											February 2007		
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles										PROJECT 123
Initial effects-based fixed target behavior model	SS/CPFF	SAIC/HSV, AL.	190									190	190
Initial development of Multi-spectral & Hyper-spectral simulation	SS/CPFF	GDIS/Arlington, VA	206									206	206
Prototype FIA interfaces & capabilities			120									120	120
Imagery generation upgrade conversion	SS/CPFF	GDIS/Arlington, VA	160									160	160
Enhance IR & SAR model sets	SS/CPFF	GDIS/Arlington, VA	90	100	1Q	100	1Q	50	1Q	50	1Q	390	90
Implement Advanced Sensor / Payload	SS/CPFF	GDIS/Arlington, VA		50	1Q	75	2Q	75	1Q	75	1Q	275	125
Implement / Integration Weapons Simulation for Weaponized UAV	SS/CPFF	GDIS/Arlington, VA		75	1Q	50	2Q	50	1Q	50	1Q	225	125
Incorporate STANAG 4586 Datalink Interface Standard	SS/CPFF	GDIS/Arlington, VA		82	1Q	61	2Q	50	1Q	60	1Q	253	143
Enhance Small UAV / IR / SAR & Fixed Target Models	SS/CPFF	GDIS/Arlington, VA		50	1Q	50	2Q	50	1Q	50	1Q	200	450
Integrate UAV Survivability Models and Attributes	SS/CPFF	GDIS/Arlington, VA				80	2Q					80	80
Evaluate and Integrate new Visualization Technology / System	SS/CPFF	GDIS/Arlington, VA		75	1Q	75	2Q	75	1Q	75	1Q	300	150
Common UAV Trainer Enhancements	SS/CPFF	GDIS/Arlington, VA		80	1Q	80	2Q	80	1Q	80	1Q	320	160
Incorporate Effects of Digital Payload Imagery	SS/CPFF	GDIS/Arlington, VA		80	1Q	35	2Q	50	1Q	50	1Q	215	115
OneSAF Vignette development	SS/CPFF	GDIS/Arlington, VA		75	1Q	75	2Q	50	1Q	50	1Q	250	150
Usability Enhancements	SS/CPFF	GDIS/Arlington, VA		100	1Q	91	2Q	75	1Q	100	1-2Q	366	200
Initial Development of Multi-Spectral and Hyperspectral Simulations	SS/CPFF	GDIS/Arlington, VA						25	1Q	50	1Q	75	
Implement Tailored Auto Track and Auto Search	SS/CPFF	GDIS/Arlington, VA				75	2Q	75	1Q	75	1Q	225	
Subtotal:			6747	1550		1575		1432		1533		12837	9806

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT 123			
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	75										75	75	
Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	175	40	1Q	40	2Q	40	1Q	40	1Q		335	255	
Initiate MUSE TUAV Flight Performance Model Verification & Validation Process	C/CPFF	Dynetics/Huntsville, AL	465										465	465	
Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	1162	250	1Q	250	1Q	250	1Q	250	1Q		2162	1662	
JTC/SIL Management	C/CPFF	TBD	280										280	280	
MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	761										761	761	
Incorporate New Technology Sensors & Platforms into the MUSE	C/CPFF	SAIC/Huntsville, AL	275										275	275	
Update interfaces to DoD models	C/CPFF	GDIS/Arlington, VA	215	80	1Q	80	2Q	50	1Q	50	1Q		475	375	
Subtotal:			3408	370		370		340		340			4828	4148	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
C4I Enhancements	SS/CPFF	GDIS/Arlington, VA		90	1Q	72	2Q	73	1Q	86	1Q		321	180	
Subtotal:				90		72		73		86			321	180	

ARMY RDT&E COST ANALYSIS (R3)											February 2007			
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles									PROJECT 123		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	1104	308	1-4Q	394	1-4Q	400	1-4Q	400	1-4Q		2606	1806
Subtotal:			1104	308		394		400		400			2606	1806
Project Total Cost:			11259	2318		2411		2245		2359			20592	15940

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0305204A - Tactical Unmanned Aerial Vehicles

## PROJECT

### D09

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D09 EXTENDED RANGE UAV (JMIP)	92239	120933	45236	32832	3932	4124	6425	6625	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) provides a much improved real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (4 HELLFIRE). ERMP addresses an ever-increasing demand for greater range, altitude, endurance and payload flexibility and allows for mission change while in flight. ERMP will be fielded as a system to a company level organization with one company being assigned to each of the 10 Army Divisions providing a capability that is responsive to the lowest level of command facilitating dynamic re-tasking. The ERMP system consists of 12 aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar, and communications relay payloads, Ground equipment includes 5 Ground Control Stations, 5 Ground Data Terminals, 2 Portable Ground Control Stations, 2 Portable Ground Data Terminals, and other associated ground support equipment. The acquisition strategy capitalized upon competitive forces, bringing cutting-edge improvements at the best cost and value that support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. The ERMP system includes a heavy fuel engine, endurance of 30 mission hours, Tactical Common Data Link (TCDL) technology, network connectivity that reduces information cycle time and enhances overall battlespace awareness through liberal dissemination, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. ERMP has a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing (ATLS) and the flexibility to operate with or without SATCOM data links. The ERMP One System Ground Control Station has the ability to operate multiple ERMP aircraft simultaneously and is interoperable with the Shadow UAS. With more weapons, payloads, and endurance than any other current system in its class, ERMP gives the Army the required capability defined by years of wartime experience and codified by the Joint Requirement Oversight Council (JROC).

RDT&E funds continue to resource the System Development and Demonstration (SDD) phase for ERMP, as well as continuing improvements after SDD. Engineering developmental tests and pre-production testing frame the major FY 07 activities. The Critical Design Review (CDR) (Nov 06), and Design Readiness Review (DRR, Dec 06) provided an assessment of the design maturity including key system characteristics and manufacturing processes. These activities prepared the system and lower risk for the Limited User Test in FY08, the Logistics Demonstration event and the OPTEMPO and IOT&E events in FY09. Testing of prototype articles includes components of E3, environmental, and NBC as well as software certification, many of which run concurrently to conserve schedule.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Program Management	6022	7726	3846	2027
Government Furnished Equipment	4215	1057		
Development Engineering & Prototype Manufacturing	75570	98894	18717	14181
System Test & Evaluation	3819	2673	15792	14690
Common System Integration	2613	4498	3293	
Launcher Software Development		3300	1688	1414

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>								<b>February 2007</b>		
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				<b>PROJECT</b> <b>D09</b>		
Aviation Mission Planning Systems							2785	1900	520	
Total							92239	120933	45236	32832
<b><u>B. Other Program Funding Summary</u></b>										
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV - Extended Range / Multi-Purpose (B00305)		9367	118477	175758	326861	303467	124895	129995	Continuing	Continuing
Extended Range / Multi-Purpose - Weapons Capability Modifications (B10307)		1654	15207	15224	15244	15272			Continuing	Continuing
I-GNAT (B00305)	42500								Continuing	42500
<p>Comment:</p>  <p><b><u>C. Acquisition Strategy</u></b> The ERMP ORD was approved by the JROC 6 April 2005, Milestone B occurred 20 April, and the System Development and Demonstration contract was awarded 8 August 2005 as a result of a competitive solicitation which included a vendor system capabilities demonstration. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the ORD. The ERMP UAS will be matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL), Link-16, and integration of Government Furnished Equipment, payloads, appropriate Common Aviation Ground Support Equipment and the One System GCS. PM JAMS will develop the P+ model of the HELLFIRE missile and participate in the integration and test activities for the entire ERMP system. PM JAMS will budget for the procurement of missiles for the fielded systems. Field Tests at the Electronic Proving Grounds in Ft. Huachuca, AZ, and integration tests at the Central Technical Support Facility in Ft. Hood, TX, are examples of the tests planned to reduce risk in the SDD phase. A favorable Milestone C decision will permit award of the LRIP contract and Production and Deployment phase. The LRIP will:</p> <ol style="list-style-type: none"> <li>a. Establish an effective and efficient production base for the system required to provide a solid foundation on which to build FRP systems.</li> <li>b. Permit an orderly increase in production rate to mitigate risk.</li> <li>c. Procure production representative equipment to support test &amp; evaluation.</li> <li>d. Support Doctrine, Training, Leadership Development, Organization, Materiel, Personnel and Facilities (DTLOMPF) and Tactics, Techniques and Procedures (TTP) development.</li> <li>e. Provide an opportunity to incorporate lessons learned from the comprehensive test and evaluation program into the production baseline.</li> </ol>										

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT D09		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Target Location Error / OIF TUAV Enhancements	Procurement Work Directive	AAI, MD	2350										2350	2350
Acquisition Simulation & Demonstration	MIPR	Camber, Huntsville, AL	1000										1000	1000
Long Lead Items for One System Integration & Test	Procurement Work Directive	Various Contractors	7633										7633	7633
Tactical Common Data Link Initial Integration	TBD	Various Contractors	4113										4113	4113
One System Initial Integration with Prime AV Vendor	TBD	Various Contractors	3651										3651	3651
Source Selection	TBD	Other Government Agencies	2146										2146	2146
Development Engineering & Prototype Manufacturing	CPIF/AF	General Atomics / ASI - San Diego, CA		75570	2-3Q	98894	1-3Q	18717	1-2Q	14181	1-2Q		207362	60826
Government Furnished Equipment	MIPR			4215	2-3Q	1057	1-3Q						5272	8494
Common System Integration	Procurement Work Directive	Various Contractors and Other Government Agencies		2613	3Q	4498	2Q	3293	1-3Q				10404	
Launcher Software Development	MIPR	Other Government Agency				3300	2Q	1688	1-2Q	1414	1-2Q		6402	
Aviation Mission Planning Systems	MIPR	Other Government Agency				2785	2Q	1900	1-2Q	520	1-2Q		5205	
Subtotal:			20893	82398		110534		25598		16115			255538	90213
II. Support Costs	Contract Method &	Performing Activity & Location	Total PYs	FY 2006 Cost	FY 2006 Award	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complet	Total Cost	Target Value of

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles								PROJECT D09		
	Type		Cost		Date		Date		Date		Date	e		Contract
Contractor Engineering Support	MIPR / PWD	Various Contractors	1000	3294	1-2Q	4536	1-2Q	1957	1-2Q	1088	2Q		11875	3459
Government Engineerng Support	MIPR / PWD	Other Government Organizations	330	2240	1-2Q	2530	1-2Q	1553	1-2Q	772	2Q		7425	2730
Subtotal:			1330	5534		7066		3510		1860			19300	6189
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation		TBD		3819	2-3Q	2673	2-3Q	15792	2-3Q	14690	2Q		36974	11115
Subtotal:				3819		2673		15792		14690			36974	11115
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program management	MIPR / PWD	PM UAS, Redstone Arsenal, AL	400	488	1-4Q	660	1-4Q	336	1-4Q	167	1-2Q		2051	1716
Subtotal:			400	488		660		336		167			2051	1716
Project Total Cost:			22623	92239		120933		45236		32832			313863	109233

<b>Schedule Detail (R4a Exhibit)</b>		<b>February 2007</b>
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	PROJECT <b>D09</b>
<p><u><b>Schedule Detail:</b></u> Not applicable for this item.</p>		

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>									<b>February 2007</b>	
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					<b>PROJECT</b> <b>D10</b>	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D10      SUAV (JMIP)			1985	1996	2000	2000	2000	2000		11981
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with unprecedented situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of Intelligence, Surveillance &amp; Reconnaissance (ISR) tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval on 6 Oct 05 and successfully completed IOT&amp;E June 06. The program obtained Full Rate Production authority on 5 Oct 06.</p> <p>Funding will provide product improvements studies/plans that include: digital data link, noise reduction, integral radio location beacon, endurance and target location error. Effort will result in identification and implementation of technical solutions and product improvements to enhance the warfighting capability of the SUAV system. Additional efforts will focus on the identification, integration, and test of block II/III payloads.</p>										
<b><u>Accomplishments/Planned Program:</u></b>						<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
SUAV Product Improvement Studies and Plans								1985	1996	
Total								1985	1996	
<p><b><u>B. Other Program Funding Summary</u></b> Not applicable for this item.</p>										
<p><b><u>C. Acquisition Strategy</u></b> Not applicable for this item.</p>										

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
<b>7 - Operational system development</b>				<b>0305204A - Tactical Unmanned Aerial Vehicles</b>								<b>D10</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Improvement Studies and Plans	CPFF	AeroVironment, Simi Valley, California						1985	2Q	1996	2Q		3981	
Subtotal:								1985		1996			3981	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
<b>Project Total Cost:</b>								<b>1985</b>		<b>1996</b>			<b>3981</b>	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0305208A - Distributed Common Ground/Surface Systems (JMIP)

	COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	92841	134313	81580	73974	17639	10270	15690	15690	Continuing	Continuing
956	Distributed Common Ground System (DCGS) (JMIP)	19516	24037	10941	11302	2020	2187	190	190	Continuing	Continuing
D06	DCGS-A FUSION INTEGRATION (JMIP)	17640	24290	24515	22896	4483	1107	7500	7500	Continuing	Continuing
D07	DCGS-A COMMON MODULES (JMIP)	45355	75231	34632	28201	6397	4319	7000	7000	Continuing	Continuing
D08	DCGS-A SENSOR INTEGRATION (JMIP)	9694	10093	10826	10907	4074	2003	1000	1000	Continuing	Continuing
D15	MUSE & TES TADSS (TIARA)	636	662	666	668	665	654				4590

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information and intelligence to synchronize the elements of Joint and Combined Arms combat power to See First, Understand First, Act First and Finish Decisively. The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. DCGS-A draws information from a wide variety of automated and manual sources; on-board sensors, space platforms and unattended air and ground vehicles to enable the land component commander to achieve situational understanding, execute battle command, synchronize fires and effects and rapidly shift battle focus to protect the force and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

Project 956 provides the DCGS-A enterprise system level design, net-centric architecture and infrastructure, to include integration of the U.S. Air Force developed DCGS Integrated Backbone (DIB). Project D06 provides single and Multi-INT automated fusion capabilities. Project D07 funds Technology Insertion of DCGS-A capabilities into Current Force systems, and System Development and Demonstration (SDD), to include a common set of ISR analysis tools. D08 provides sensor integration to include sensor control, tasking and interoperability. Project D15 funds Training Aids, Devices, Simulators and Simulations (TADSS) for the Tactical Exploitation System (TES).

DCGS-A includes hardware for Fixed and Mobile configurations and common software that is scaleable and tailored by echelon and is interoperable with sensors, other Battlefield Operating Systems (BOS), and the DoD Distributed Common Ground/Surface System (DCG/SS) Family of Systems (FoS). Within the Brigade Combat Teams (BCTs), DCGS-A provides the Mobile ISR capability as well as an embedded software application on the Future Combat System (FCS) FoS and other select platforms. At the Corps, Division and Echelons Above Corps (EAC), DCGS-A is composed of hardware and software in Mobile and Fixed site configurations. As a system of systems, DCGS-A will consolidate and replace the capabilities found in the following Current Force systems: Joint Intelligence Operations Capability-Iraq (JIOC-I), All Source Analysis System (ASAS), CI/HUMINT Single Source Workstation, Tactical Exploitation System (TES), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), Prophet Control, Common Ground Station (CGS), Digital Topographic Support System (DTSS) and Integrated Meteorological System (IMETS), sensor control and processing of select UAVs and Enhanced Trackwolf processing capabilities. DCGS-A is a key component of Transformation and a top Army priority.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational system development	0305208A - Distributed Common Ground/Surface Systems (JMIP)	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

0305208A - Distributed Common Ground/Surface Systems (JMIP)

### B. Program Change Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	91859	120562	83369	75365
Current BES/President's Budget (FY 2008/2009)	92841	134313	81580	73974
Total Adjustments	982	13751	-1789	-1391
Congressional Program Reductions		-1499		
Congressional Rescissions				
Congressional Increases		15250		
Reprogrammings	982			
SBIR/STTR Transfer				
Adjustments to Budget Years			-1789	-1391

### Conference Language:

Project 956: + \$2.5 million for Asymmetric Threat Response and Analysis Project (ATRAP)

Project 956: + \$2.150 million for Joint Visualization System (JVS)

Project D08: + \$2.750 million for IMaG-ATC and Net-Centric Imagery Applications for Fixed and Mobile Sites of Multi-Services Distributed Common Ground System - Army (DCGS-A)

Project 956: + \$4 million for Intelligence Data Exchange for Execution and Planning, Distributed Common Ground Systems

Project 956: + \$1.050 million for Blast Risk Analysis and Mitigation Application

Project 956: + \$1 million for Effects Based Approach to Operations

Project 956: + \$1.8 million for National Defense Imagery Processing Program (NDIP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							956	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
956	Distributed Common Ground System (DCGS) (JMIP)	19516	24037	10941	11302	2020	2187	190	190	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for Army airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ forces more effectively. DCGS-A allows commanders at all levels to visualize, analyze and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project establishes the DCGS-A Federated Network Centric Enterprise, facilitating system integration and network-enabled capability of existing and future intelligence, surveillance and reconnaissance (ISR) ground stations, eventually consolidating these capabilities into a single system of systems. An enterprise level approach based on a Service Oriented Architecture (SOA) will provide Commanders' and Staffs' access to various ISR ground station information from any ground station, and data exchange between Army ISR ground stations for improved intelligence sharing and understanding. DCGS-A will achieve joint, allied and coalition interoperability through implementation of the 10.2 DCGS Integration Backbone (DIB) to access other Services data and information that is critical to the Land Component Commander.

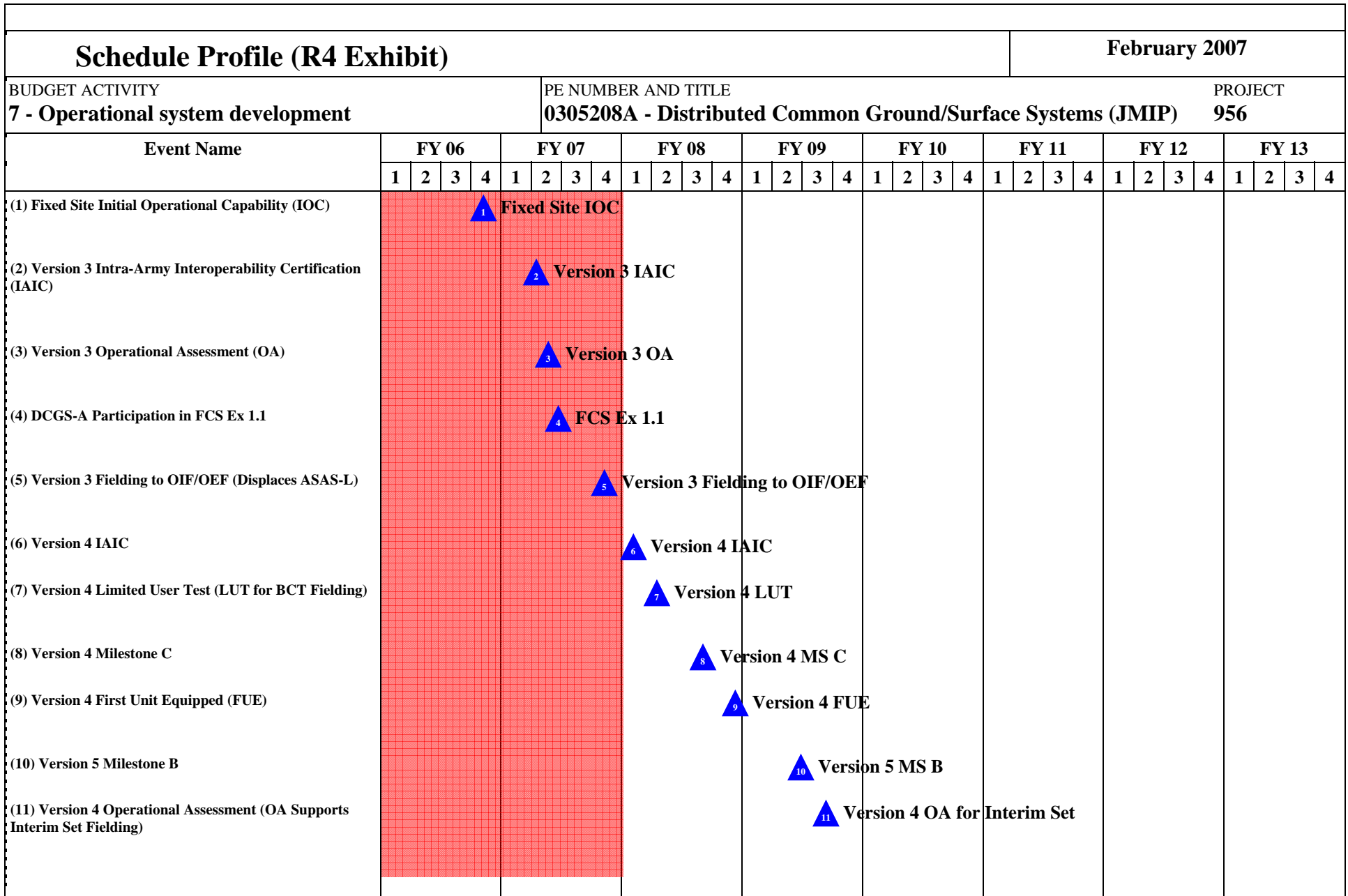
FY08 funds design, development and test of the DCGS-A enterprise level architecture supporting Fixed, Mobile and Interim Set configurations.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Joint interoperability test and evaluation to include CTSF testing and FCS 1.1.	520	3497	3050	3410
Design and development of DCGS-A enterprise level net-centric architecture in support of Current and Future Force systems.	5965	7036	6706	6572
Evaluate, integrate and test new software applications and components for incorporation into the DCGS-A baseline.	5531	1004	1185	1320
Intelligence Data Exchange for Execution and Planning (IDEEP)	3400	4000		
National Defense Imagery Processing Program	4100	1800		
Asymmetric Threat Response and Analysis Project (ATRAP)		2500		
Joint Visualization System		2150		
Blast Risk Analysis and Mitigation Application		1050		



ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0305208A - Distributed Common Ground/Surface Systems (JMIP)								956		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SETA Support to Visualization/Data Sharing, Modeling & Simulation	T&M	Booz-Allen, Eatontown, NJ	8611	2417	1Q	1780	2Q	1850	2Q	1970	2Q	Cont.	Cont.	Cont.
DCGS-A Product Selection and Integration	MIPR	CERDEC/Battle Labs	11150	1580	2Q	2784	1-2Q	2265	1-2Q	2110	1-2Q	Cont.	Cont.	Cont.
SIL Software Integration	MIPR	CERDEC/RDCOM Ft. Monmouth, NJ	1125	3820	1-4Q	1520	1-4Q	1366	1-4Q	1652	1-4Q	Cont.	Cont.	Cont.
Metadata Catalog	T&M	MITRE, Eatontown, NJ		2363	1-3Q	2288	2Q	2460	2Q	2570	2Q	Cont.	Cont.	Cont.
Intelligence Data Exchange for Execution and Planning (IDEEP)	MIPR	Battle Labs		3400	2Q	4000	2Q						7400	
National Defense Imagery Processing Program	MIPR	Battle Labs		4100	2Q	1800	2Q						5900	
Asymmetric Threat Response and Analysis Project	MIPR	Battle Labs				2500	2Q						2500	
Joint Visualization System	MIPR	Battle Labs				2150	2Q						2150	
Blast Risk Analysis and Mitigation Application	MIPR	Battle Labs				1050	2Q						1050	
Subtotal:			20886	17680		19872		7941		8302		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Objective Doctrine/TTP Development	MIPR	Ft. Huachuca, AZ	6623	100	2Q	100	2Q	100	2Q	100	2Q	Cont.	Cont.	Cont.
Matrix Support	MIPR	CECOM, Fort Monmouth NJ	4374	500	1Q	600	1Q	600	1Q	600	1Q	Cont.	Cont.	Cont.
Subtotal:			10997	600		700		700		700		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)								PROJECT 956		
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Interoperability Test and Evaluation	MIPR	CTSF, Ft. Hood	2138	400	1-2Q	325	2Q	250	2Q	250	2Q		3363	
Operational Test support for DCGS-A	MIPR	ATEC		336	1Q	1997	2Q	1450	2Q	1350			5133	
Subtotal:			2138	736		2322		1700		1600			8496	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Project Management	In-House	PM, DCGS-A	4932	500	1Q	1143	1Q	600	1Q	700	1Q	Cont.	Cont.	Cont.
Subtotal:			4932	500		1143		600		700		Cont.	Cont.	Cont.
Project Total Cost:			38953	19516		24037		10941		11302		Cont.	Cont.	Cont.



Schedule Profile (R4 Exhibit)																								February 2007																			
BUDGET ACTIVITY 7 - Operational system development												PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)																PROJECT 956															
Event Name												FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
												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
(12) Version 4 Initial Operational Test & Eval (IOT&E)																								<div>12</div> Version 4 IOT&E																			

Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>				PROJECT <b>956</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Fixed Site Initial Operational Capability (IOC)	4Q							
Version 3 Intra-Army Interoperability Certification (IAIC)		2Q						
Version 3 Operational Assessment (OA)		2Q						
DCGS-A Participation in FCS Ex 1.1		2Q						
Version 3 Fielding to OIF/OEF (Displaces ASAS-L)		4Q						
Version 4 IAIC			1Q					
Version 4 Limited User Test (LUT for BCT Fielding)			2Q					
Version 4 Milestone C			3Q					
Version 4 First Unit Equipped (FUE)			4Q					
Version 5 Milestone B				2Q				
Version 4 Operational Assessment (OA Supports Interim Set Fielding)				3Q				
Version 4 Initial Operational Test & Eval (IOT&E)					2Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							D06	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
D06 DCGS-A FUSION INTEGRATION (JMIP)	17640	24290	24515	22896	4483	1107	7500	7500	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project establishes DCGS-A sensor fusion and all source production capabilities, leveraging previously completed algorithm, on-going Future Combat System (FCS) and Science and Technology (S&T) developmental efforts to meet the requirements for battle management and situational awareness, intelligence preparation of the battlespace (battle damage assessments, course of action/predictive analysis, wargaming), target development (deliberate, time critical, high value/high payoff), collection/ISR management (requirement and mission), electronic warfare/countermeasures, force protection, indications and warnings, operational security, and battlefield visualization and presentation. The Sensor Fusion capability will address both traditional intelligence disciplines (signals intelligence, imagery intelligence, human intelligence, measurements and signatures intelligence) from organic, Theater, and National assets (systems and databases), and non-traditional sources (open source intelligence, fire support) to achieve a complete and universal understanding of the situation in support of the commander/warfighter, battle command databases, and the Common Operational Picture (COP). The sensor fusion capability will support all types of units across a broad spectrum of both traditional and non-traditional (e.g., SASO, SSC, NEO) operations, and improve interoperability with Joint, Allied, and Coalition forces.

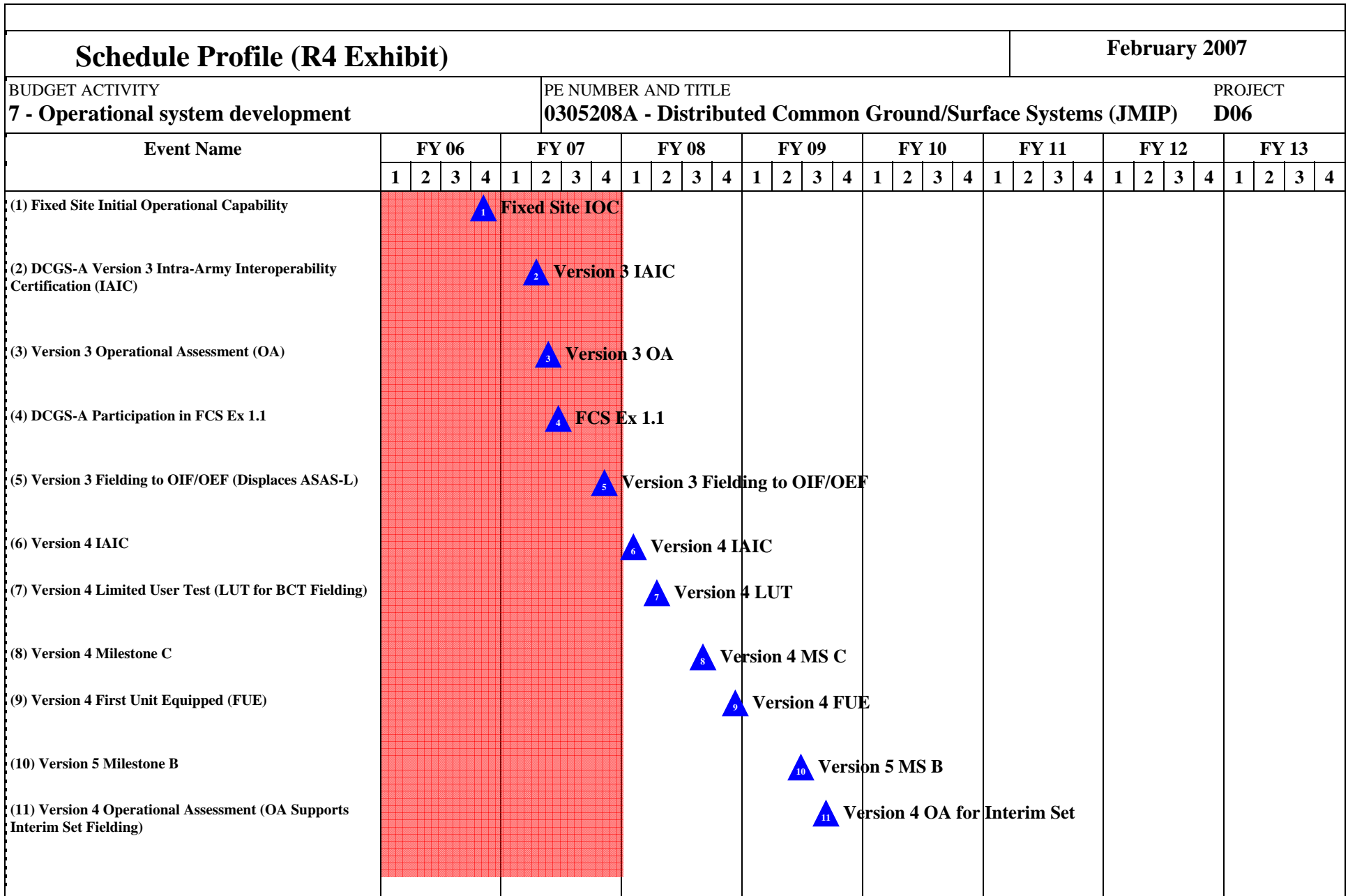
FY08 funds the development and integration of traditional and non-traditional multi-intelligence sensor fusion products and technologies into the DCGS-A Fixed and Mobile configurations to produce a fully automated fusion capability.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Normalization and integration of sensor fusion process and Multi-INT sources, geospatial and weather data.	6575	5855	5235	4875
Enhance controlled interface technology for improved product distribution at multiple security levels.	2439	2482	2059	2119
Studies, analysis, and prototyping for porting sensor fusion mission applications into the FCS environment.	1510	1899	1285	1065
Migration of sensor fusion processes and Current Force systems capabilities into DCGS-A architecture/SOA environment.	7116	14054	15936	14837
Total	17640	24290	24515	22896

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>		<b>February 2007</b>
BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>	PROJECT <b>D06</b>
<b><u>B. Other Program Funding Summary</u></b> Not applicable for this item.		
<p><b><u>C. Acquisition Strategy</u></b> DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0305208A - Distributed Common Ground/Surface Systems (JMIP)								D06		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Enhancement of interfaces between sensor fusion processes and various INT domains	MIPR	PM IE, Ft. Belvoir	4237	7175	1Q	917	1Q	950	2Q	975	2Q	Cont.	Cont.	Cont.
Integrate FCS fusion capabilities into V3 baseline	MIPR	PM FCS BCT, Warren, MI	3156	500	2-3Q	500	2-3Q	1050	2Q	1275	2Q	Cont.	Cont.	Cont.
Transition of sensor fusion processes and Current Force systems capabilities to DCGS-A	MIPR	CERDEC/RDCOM		5749	1-4Q	3250	1-4Q	2575	1-2Q	2180	1-2Q	Cont.	Cont.	Cont.
Integration of sensor fusion processes into DCGS-A Mobile configuration	MIPR	ASPO, Ft. Belvoir		1216	3Q	15697	2Q	16390	2Q	15349	2Q	Cont.	Cont.	Cont.
Integration of Overwatch capability	MIPR	PM IE		1100	1-2Q	1026	1-2Q	1050	1-2Q	920	1-2Q	Cont.	Cont.	Cont.
Subtotal:			7393	15740		21390		22015		20699		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	CECOM/RDCOM, Ft. Monmouth, NJ	500	620	1Q	620	1Q	650	1Q	680	1Q	Cont.	Cont.	Cont.
SETA Support	Competitive T&M	Sytex, Vienna, VA	2050	880	1Q	980	1Q	1020	1Q	1040	1Q	Cont.	Cont.	Cont.
Subtotal:			2550	1500		1600		1670		1720		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>								PROJECT <b>D06</b>		
Test & Evaluation	MIPR	ATEC/EPG		150	1Q	950	1Q	348	1Q			Cont.	Cont.	Cont.
Subtotal:				150		950		348				Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Project Management	In House	PM I&E/DCGS-A	350	250	1-2Q	350	1-2Q	482		477		Cont.	Cont.	Cont.
Subtotal:			350	250		350		482		477		Cont.	Cont.	Cont.
<b>Project Total Cost:</b>			<b>10293</b>	<b>17640</b>		<b>24290</b>		<b>24515</b>		<b>22896</b>		<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>



Schedule Profile (R4 Exhibit)																							February 2007																		
BUDGET ACTIVITY 7 - Operational system development										PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)																		PROJECT D06													
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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
(12) Version 4 Initial Operational Test & Eval (IOT&E)																										12 Version 4 IOT&E															

Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>				PROJECT <b>D06</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Fixed Site Initial Operational Capability	4Q							
DCGS-A Version 3 Intra-Army Interoperability Certification (IAIC)		2Q						
Version 3 Operational Assessment (OA)		2Q						
DCGS-A Participation in FCS Ex 1.1		2Q						
Version 3 Fielding to OIF/OEF (Displaces ASAS-L)		4Q						
Version 4 IAIC			1Q					
Version 4 Limited User Test (LUT for BCT Fielding)			2Q					
Version 4 Milestone C			3Q					
Version 4 First Unit Equipped (FUE)			4Q					
Version 5 Milestone B				2Q				
Version 4 Operational Assessment (OA Supports Interim Set Fielding)				3Q				
Version 4 Initial Operational Test & Eval (IOT&E)					2Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

0305208A - Distributed Common Ground/Surface Systems (JMIP)

## PROJECT

D07

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D07 DCGS-A COMMON MODULES (JMIP)	45355	75231	34632	28201	6397	4319	7000	7000	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Objective Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project provides for the design, development, integration and test of the DCGS-A system of systems at all echelons, from embedded DCGS-A up to Fixed Site operations. The effort includes system engineering, software integration and development, test & evaluation, and use of M&S to develop DCGS-A Mobile systems with common multi-function hardware and software combinations (i.e. user workstations) capable of performing all DCGS-A functions. Development will focus on common module hardware and software that is scalable to allow commanders increased flexibility in the intelligence force package deployed such that it can be tailored to the echelon, location, and mission that DCGS-A will be required to support. Included in the development will be the stand-up of a Federated Systems Integration Lab (SIL) to assess and implement existing and new candidate software applications and components into the DCGS-A baseline design. A common set of ISR Analysis Tools to support collaboration, exploitation, fusion and collection management will be developed that operate within the construct of distributed, reach operations within the DCGS-A enterprise in order to maximize data access and minimize forward footprint. This will ultimately result in a DCGS-A design that reduces physical and logistics footprint, eases training burden, and decreases sustainability requirements.

FY08 funds Technology Insertion of DCGS-A capabilities into Current Force systems (Interim Sets), common module multi-function hardware, and integration and test of the V4 Mobile configuration. The System Integration Lab (SIL) will evaluate candidate software applications for integration of Joint common components and interoperability amongst the Services.

### Accomplishments/Planned Program:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
SIL design, planning and implementation to include integration of 10.2 DIB and the JIOC-I Brain.	6550	3683		
Embedded DCGS-A design/analysis and FCS support.	2550	2950	3060	3140
Evaluate, integrate and test existing and new software applications. Integrate Best Value components from DoD wide systems into DCGS-A baseline.	19872	37743	6670	3350

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2007</b>
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BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
<b>7 - Operational system development</b>	<b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>			<b>D07</b>
Two-way Battle Command to include Joint Command and Control (JC2) interoperability.	6033	8125	3175	2475
Technology Insertion of integrated DCGS-A baseline into Current Force systems.	10350	22730	21727	19236
Total	45355	75231	34632	28201

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
BZ7316 DCGS-A Unit of Employment	38003	65424	96042	100227	155275	167162			Continuing	619466

Comment:

**C. Acquisition Strategy** DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)								PROJECT D07		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Embedded DCGS-A scalability design/analysis and FCS support	Competitive CPIF/CPAF	Boeing Corp, CA	5000	2550	2Q	2805	2Q	2850	2Q	2775	2Q	Cont.	Cont.	Cont.
System integration and test support for Spirals 1, 2 & 3	Sole Source CPIF/CPAF	Northrup Grumman, Linthicum, MD	5573											
Evaluate, integrate and test existing and new software applications and components into DCGS-A SOA	Sole Source CPIF/CPAF	Northrup Grumman, Linthicum, MD	3767	21460	2Q	30720	2Q	5640	2Q	3150	2Q	Cont.	Cont.	Cont.
Technology Insertion of integrated DCGS-A baseline into Current Force systems	Multiple FFP/CPFF	Program of Record Contractors		10050	2-3Q	23778	1-3Q	14895	1-3Q	12875	1-3Q	Cont.	Cont.	Cont.
SIL design, planning and implementation of 10.2 DIB, JIOC-I Brain, and V3/V4	Sole Source	CERDEC, Ft. Monmouth	5000	5950	1Q	5580	1Q	2162	1Q	576	1Q	Cont.	Cont.	Cont.
FIA/TES-M Migration to Fixed Site	Sole Source	ASPO/Northrop Grumman	16800										16800	
Subtotal:			36140	40010		62883		25547		19376		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	RDCOM/CECOM, Ft. Monmouth, NJ	1124	950	1Q	1125	1Q	1240	1Q	1285	1Q	Cont.	Cont.	Cont.
SETA Support	Competitive T&M	Booz-Allen Hamilton	500	1138	1-2Q	1150	1-2Q						2788	
SETA Support	Competitive T&M	TBD				3870	1-2Q	4965		5150			13985	
Subtotal:			1624	2088		6145		6205		6435		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)								PROJECT D07			
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Test support	MIPR	ATEC	97	1480	2Q		2Q						1577		
Subtotal:			97	1480									1577		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Project Management	In House	PM DCGS-A	1875	1777	1Q	6203	1Q	2880		2390		Cont.	Cont.	Cont.	
Subtotal:			1875	1777		6203		2880		2390		Cont.	Cont.	Cont.	
Project Total Cost:			39736	45355		75231		34632		28201		Cont.	Cont.	Cont.	

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY										PE NUMBER AND TITLE																		PROJECT				
7 - Operational system development										0305208A - Distributed Common Ground/Surface Systems (JMIP)																		D07				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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) Fixed Site Initial Operational Capability (IOC)					▲1 Fixed Site IOC																											
(2) Version 3 Intra-Army Interoperability Certification (IAIC)					▲2 Version 3 IAIC																											
(3) Version 3 Operational Assessment (OA)					▲3 Version 3 OA																											
(4) DCGS-A Participation in FCS Ex 1.1					▲4 FCS Ex 1.1																											
(5) Version 3 Fielding to OIF/OEF (Displaces ASAS-L)					▲5 Version 3 Fielding to OIF/OEF																											
(6) Version 4 IAIC					▲6 Version 4 IAIC																											
(7) Version 4 Limited User Test (LUT for BCT Fielding)					▲7 Version 4 LUT																											
(8) Version 4 Milestone C					▲8 Version 4 MS C																											
(9) Version 4 First Unit Equipped (FUE)					▲9 Version 4 FUE																											
(10) Version 4 Operational Assessment (OA Supports Interim Set Fielding)													▲10 Version 4 OA for Interim Set																			
(11) Version 4 Initial Operational Test & Eval (IOT&E)																					▲11 Version 4 IOT&E											

Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>				PROJECT <b>D07</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Fixed Site Initial Operational Capability (IOC)	4Q							
Version 3 Intra-Army Interoperability Certification (IAIC)		2Q						
Version 3 Operational Assessment (OA)		2Q						
DCGS-A Participation in FCS Ex 1.1		2Q						
Version 3 Fielding to OIF/OEF (Displaces ASAS-L)		4Q						
Version 4 IAIC			1Q					
Version 4 Limited User Test (LUT for BCT Fielding)			2Q					
Version 4 Milestone C			3Q					
Version 4 First Unit Equipped (FUE)			4Q					
Version 4 Operational Assessment (OA Supports Interim Set Fielding)				3Q				
Version 4 Initial Operational Test & Eval (IOT&E)					2Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							D08	
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D08	DCGS-A SENSOR INTEGRATION (JMIP)	9694	10093	10826	10907	4074	2003	1000	1000	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project addresses ISR sensor integration and interoperability with existing and new platforms and sensors to include a common data link solution.

FY08 funds transition, test, integration and training of new and Current Force sensors into the DCGS-A system design and architecture.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Isolate and integrate Current Force Multi-INT sensor (HUMINT, IMINT, SIGINT, MASINT) modules into the DCGS-A network.	3640	3261	2859	2344
Planning and analysis of Future Force Multi-INT sensor modules for incorporation into the DCGS-A network.	950	1152	4276	4319
Refactor Current Force ISR capabilities in the DCGS-A infrastructure.	4579	2104	1606	1020
Develop training materials for V3, V4 Mobile and Interim Set systems.	525	826	2085	3224
IMaG-ATC and Net-Centric Imagery Applications for Fixed and Mobile Sites of Multi-Services DCGS-A		2750		
Total	9694	10093	10826	10907

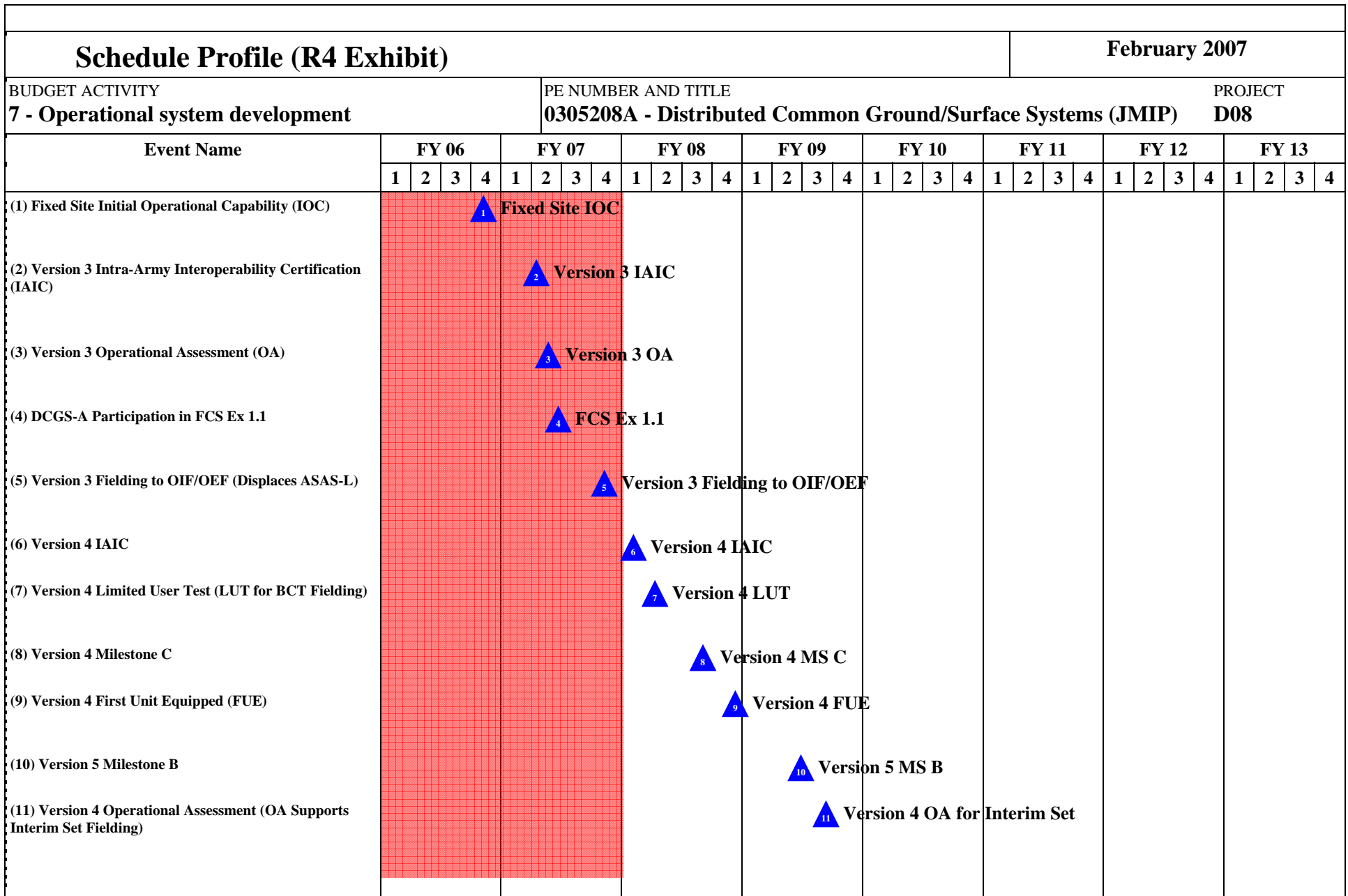
<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
BZ7316 DCGS-A Unit of Employment	38003	65424	96042	100227	155275	167162			Continuing	619466

Comment:

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>7 - Operational system development</b>	<b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>	<b>D08</b>
<p><b>C. Acquisition Strategy</b> DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT		
7 - Operational system development				0305208A - Distributed Common Ground/Surface Systems (JMIP)								D08		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Develop and Integrate DCGS-A Multi-INT Sensor Modules	MIPR	CERDEC, Ft. Monmouth	5827	3620	2Q	3493	1Q	3060	2Q	2666	2Q	Cont.	Cont.	Cont.
Analysis of Future Force Multi-INT sensor modules for DCGS-A network	MIPR	CERDEC, Ft. Monmouth		925	2Q	1900	2Q	3941	2Q	4100	2Q	Cont.	Cont.	Cont.
Develop and Integrate components for sensor data distribution in DCGS-A	Sole Source CPIF	SRE, Susquehanna, PA	2498	3000	2Q	2700	1Q					Cont.	Cont.	Cont.
Develop training materials	T&M	JHT, Orlando, FL		519		780	2Q	2575	2Q	2881	2Q	Cont.	Cont.	Cont.
Subtotal:			8325	8064		8873		9576		9647		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	CECOM	225	150	1Q	200	1Q	200	1Q	200		Cont.	Cont.	Cont.
Subtotal:			225	150		200		200		200		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Integration and test of Current Force sensor modules into DCGS-A Spirals.	Competitive CPIF/CPAF	Northrop Grumman, Linthicum, MD	833										833	
Subtotal:			833										833	

ARMY RDT&E COST ANALYSIS (R3)											February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)										PROJECT D08	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Program Management	In House	PM DCGS-A	1029	1480	1Q	1020	1Q	1050		1060		Cont.	Cont.	Cont.	
Subtotal:			1029	1480		1020		1050		1060		Cont.	Cont.	Cont.	
Project Total Cost:			10412	9694		10093		10826		10907		Cont.	Cont.	Cont.	



Schedule Profile (R4 Exhibit)																							February 2007																		
BUDGET ACTIVITY 7 - Operational system development										PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)																		PROJECT D08													
Event Name										FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
										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
(12) Version 4 Initial Operational Test & Eval (IOT&E)																						<div>12</div> Version 4 IOT&E																			

Schedule Detail (R4a Exhibit)							February 2007	
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground/Surface Systems (JMIP)</b>				PROJECT <b>D08</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Fixed Site Initial Operational Capability (IOC)	4Q							
Version 3 Intra-Army Interoperability Certification (IAIC)		2Q						
Version 3 Operational Assessment (OA)		2Q						
DCGS-A Participation in FCS Ex 1.1		2Q						
Version 3 Fielding to OIF/OEF (Displaces ASAS-L)		4Q						
Version 4 IAIC			1Q					
Version 4 Limited User Test (LUT for BCT Fielding)			2Q					
Version 4 Milestone C			3Q					
Version 4 First Unit Equipped (FUE)			4Q					
Version 5 Milestone B				2Q				
Version 4 Operational Assessment (OA Supports Interim Set Fielding)				3Q				
Version 4 Initial Operational Test & Eval (IOT&E)					2Q			

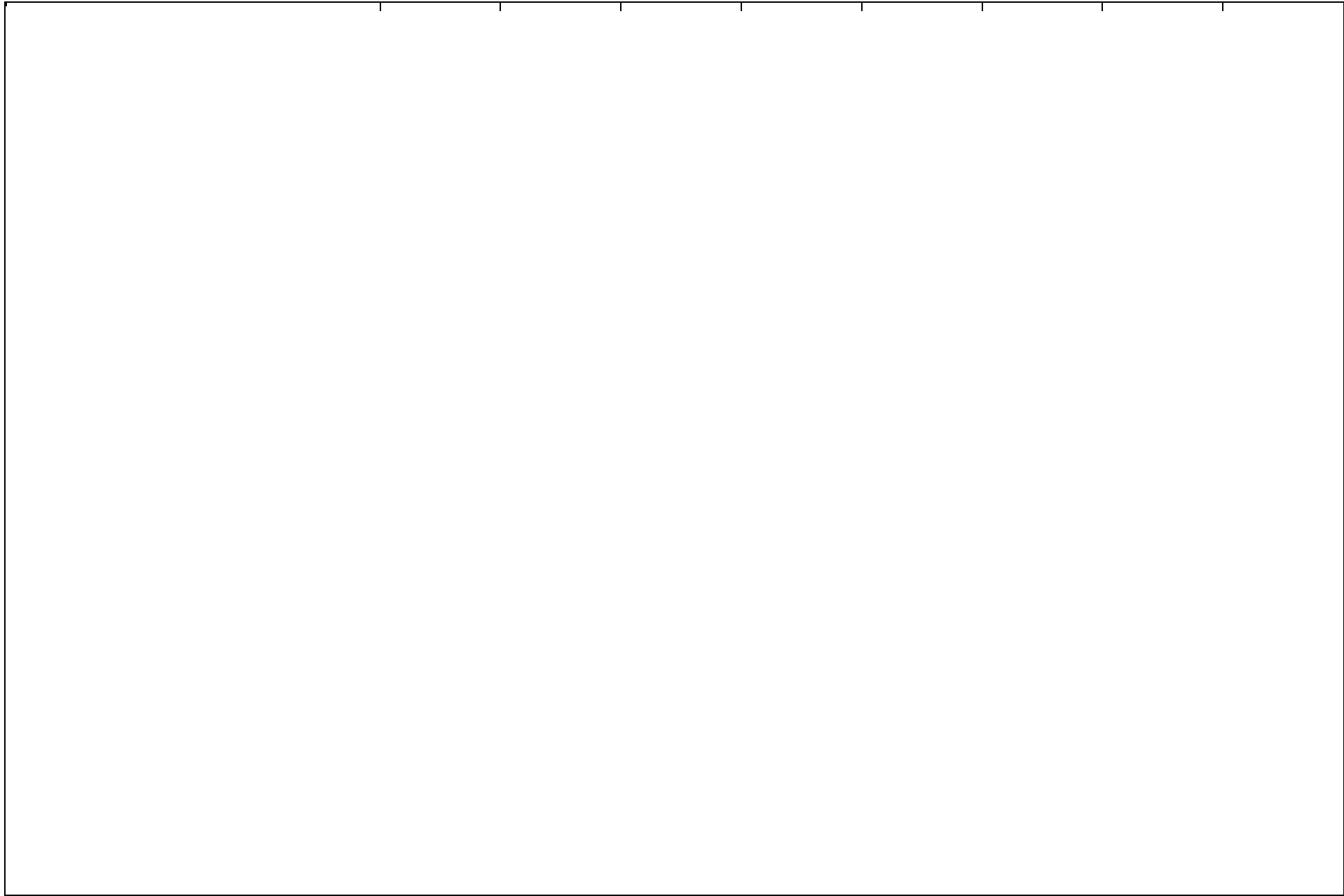
<div> <div>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</div> <div>February 2007</div> </div>											
BUDGET ACTIVITY			PE NUMBER AND TITLE						PROJECT		
7 - Operational system development			0702239A - Avionics Component Improvement Program						C92		
COST (In Thousands)		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
C92	AVIONICS COMPONENT ANALYSIS	953	1020	1024	1030						4027
<p><b>A. Mission Description and Budget Item Justification:</b> The Avionics Component Improvement Program (AvCIP) is a Joint Services initiative to combat parts obsolescence and accelerate technology infusion into avionics programs.</p>											
<b>Accomplishments/Planned Program:</b>							<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
Determine critical avionics (communications, navigation, surveillance, sensors, combat identification, mission planning, and interoperability) deficiencies, prioritize and conduct initial technology improvements effort.							663	770	602	608	
Identify software techniques and opportunities associated with open system architectures targeted to reduce initial and recurring avionics integration costs.							155	100	370	370	
Continue Program Management Support							135	121	52	52	
Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Reduction								29			
Total							953	1020	1024	1030	

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)</b>					<b>February 2007</b>
<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0702239A - Avionics Component Improvement Program</b>			<b>PROJECT</b> <b>C92</b>
<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2007)	980	1031	1032	1032	
Current BES/President's Budget (FY 2008/2009)	92841	134313	81580	73974	
Total Adjustments	91861	133282	80548	72942	
Congressional Program Reductions		-4			
Congressional Rescissions					
Congressional Increases					
Reprogrammings		-7			
SBIR/STTR Transfer	-27	-29			
Adjustments to Budget Years		29	-8	-2	
<b><u>C. Other Program Funding Summary</u></b> Not applicable for this item.					
<p><b><u>D. Acquisition Strategy</u></b> The Acquisition Strategy is to identify emerging avionics performance and obsolescence problems. AvCIP is an initiative that enables streamlined management of present-day common avionics/electronics critical readiness degraders, technology insertion opportunities and cost reduction solutions. The program will annually compete candidate solutions according to criticality of operational contribution, technical risk, return on investment, commonality and breadth of application across multiple platforms.</p>					

ARMY RDT&E COST ANALYSIS (R3)										February 2007				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program								PROJECT C92		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Determine critical avionics deficiencies and initiate technology improvement efforts.	Various	AMCOM, Redstone Arsenal, AL; CECOM/Fort Monmouth, NJ	600	663	1-3Q	770	1-3Q	602	1-3Q	608	1-3Q		3243	
Identify SW techniques and opportunities associated w/open system architectures in reduction of cost	Various	AMCOM, Redstone Arsenal, AL	306	155	1-3Q	100	1-3Q	370	1-3Q	370	1-3Q		1301	
Subtotal:			906	818		870		972		978			4544	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PM Spt (AVCIP)	Various	AMCOM, Redstone Arsenal, AL/PM AME	48	135	1-4Q	121	1Q	52	1Q	52	1Q		408	

ARMY RDT&E COST ANALYSIS (R3)										February 2007			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program								PROJECT C92	
SBIR/STTR							29						29
Subtotal:				48	135		150		52		52		437
Project Total Cost:				954	953		1020		1024		1030		4981

Schedule Profile (R4 Exhibit)																				February 2007												
BUDGET ACTIVITY 7 - Operational system development										PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program																		PROJECT C92				
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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				
Critical Avionics Improvement Effort	Avionics Improvements																															
	Software Techniques																															
Software Techniques Associated with Open System Architectures																																
Provide PM Admin Support	PM Admin Support																															



Schedule Detail (R4a Exhibit)						February 2007		
BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0702239A - Avionics Component Improvement Program</b>				PROJECT <b>C92</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Critical Avionics Improvement Effort	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
Software Techniques Associated with Open System Architectures	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
Provide PM Admin Support	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0708045A - End Item Industrial Preparedness Activities

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	101170	112223	66869	69495	70081	70635	72189	73777		660059
E25 MFG SCIENCE & TECH	59094	67324	66869	69495	70081	70635	72189	73777		549464
EA2 MANTECH INITIATIVES (CA)	42076	44899								110595

**A. Mission Description and Budget Item Justification:** This program element (PE) funds the Army Manufacturing Technology (ManTech) program. The goal of the ManTech program is to enable producibility and affordability of advanced and enabling technologies by developing reliable manufacturing processes and increasing production yields, which will result in cost savings and reduced risk of transitioning military-unique manufacturing processes to production. The ManTech program assists the Army in meeting the goals and timelines of Future Combat Systems (FCS), the Future Force and, where feasible, the Current Force. The program also fosters the transfer of new/improved manufacturing technologies to the industrial base. This program element comprises two projects. The Manufacturing Science and Technology (E25) project includes manufacturing efforts select that have potential for high payoff across the spectrum of Army systems and/or significant impact on national manufacturing issues. Major investment areas include Aviation, Armor/Survivability, Sensors, Electronics/Power Systems, Precision Munitions/Armaments, and Flexible Displays. Work in this program is related to and fully coordinated with on-going Army Science and Technology efforts such as the third Generation Infrared Technology effort in PE/projects 0603710A/K70/K86, Low Cost High G Mechanical Systems (MEMS) Inertial Measurement Units (IMU) in PE/project 0602303A/214 and the Flexible Display Initiative in PE/project 0602705A/H94. Project EA2 funds congressional special interest items. This PE contains no duplication of effort within the Military Departments. The cited work is consistent with Strategic Planning Guidance, and the Army Science and Technology Master Plan (ASTMP), and the Army Modernization Plan. The US Army Research, Development, and Engineering Command manages this PE and efforts are executed by the appropriate Army Research Laboratory and Research, Development, and Engineering Centers.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0708045A - End Item Industrial Preparedness Activities

<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	111788	68075	68639	69603
Current BES/President's Budget (FY 2008/2009)	101170	112223	66869	69495
Total Adjustments	-10618	44148	-1770	-108
Congressional Program Reductions		-429		
Congressional Rescissions				
Congressional Increases		45400		
Reprogrammings	-10618	-823		
SBIR/STTR Transfer				
Adjustments to Budget Years			-1770	-108

Twenty-three FY07 congressional adds totaling \$43515 were added to this PE.

(\$2780) National Center for Def Mfg & Machining  
 (\$2061) Reactive Atom Plasma (RAP) Processing  
 (\$958) Virtual Parts Program  
 (\$1534) Free Form Low Cost Fabrication Using Titanium  
 (\$2109) Laser Peening for Army Helicopters  
 (\$2875) Manufacturing Systems Demonstration  
 (\$1294) Packaging & Interconnection Technology  
 (\$2780) Adv Modeling-Large Struct Titanium Machining Init  
 (\$1917) Vehicle Common Armor-Affordable Mod MFG Process  
 (\$958) Durable Gun Barrel Steel  
 (\$1054) Electrodeposited Coatings Systems for Munitions  
 (\$958) Legacy Aerospace Gear Drive Re-eng Initiative  
 (\$4265) Low Cost Domestic Titanium Reduction to Powder  
 (\$1294) Smart Machine Platform  
 (\$4601) Spring Suspended Airless Tires for Convoy Protect  
 (\$1917) Super-Pulse Laser Processing Technology  
 (\$1390) Adv Ceramic Mfg & Machining Process Dev  
 (\$1246) High Perf Alloy Materials/Adv Mfg of Steel Casting  
 (\$958) Industrial Preparedness  
 (\$1246) Next Generation Combat Helmet  
 (\$1390) Replicable Def Mfg Management and Solutions System

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2007
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational system development	0708045A - End Item Industrial Preparedness Activities	
(\$2396) Rigid Rod Polyphenylene Com-Lgtwt Cartridge Cases		
(\$1534) Small Heavy Fuel Engines for Tactical UAVs		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

## BUDGET ACTIVITY

### 7 - Operational system development

## PE NUMBER AND TITLE

### 0708045A - End Item Industrial Preparedness Activities

## PROJECT

### E25

COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
E25 MFG SCIENCE & TECH	59094	67324	66869	69495	70081	70635	72189	73777		549464

**A. Mission Description and Budget Item Justification:** The goal of this Army Manufacturing Technology (ManTech) project is to reduce costs and risks of manufacturing technologies that enable the affordable production and sustainment of future weapon systems for Future Combat Systems (FCS) and other Future Force systems, as well as the affordable transition of new technologies that can enhance capabilities of Current Force systems. Objectives address advanced manufacturing processes, equipment, and systems that enhance quality of products while achieving reductions in cost and/or that transfer improved manufacturing technologies to the industrial base. ManTech assists the Army in meeting FCS and Future Force performance, sustainability, and reliability goals and timelines and has potential to reduce risks and costs of new technologies for weapons systems. Efforts have potential for high payoff across the spectrum of Army weapon systems and significant positive impact on national manufacturing issues and the US industrial base. Current investment areas are: Aviation, Armor/Survivability, Sensors, Electronics/Power Systems, Precision Munitions/Armaments, and Flexible Displays. In Aviation, Low Cost Lightweight Structures (LCLWS) and Affordable Drive Train Housing (ADTH) efforts complete in FY07. In Armor/Survivability, the efforts in Structural Armor and Applique Armor address manufacturing/production of vehicle protective systems. The objective of Low Cost Manufacturing of Materials for Improved Warfighter Protection is to improve the current manufacturing processes headgear and body armor to enable a new generation of improved ballistic materials and multifunction fiber architectures to be introduced. In Sensors, the Dual Band Focal Plane Array Manufacturing (DBFM), and Uncooled Focal Plane Array (FPA) Producibility efforts completed in FY06. The third Generation (Gen) Infrared Dewar/Cooler Aperture (IDCA) effort, which complements the third Gen Infrared (IR) Technology effort conducted in PE 0603710A/K70/K86, is focused on improving manufacturing and assembly processes of the variable aperture mechanism (VAM), VAM components, and compact Dewar components, which are needed to optimize third Gen sensor performance for either wide area search scanning or long range identification. In Electronics/Power Systems, Software Defined Radio (SDR) Components matures manufacturing processes to provide the Joint Tactical Radio System (JTRS) with SDR standardized modules that can be used across all variants to reduce production costs; Phase Shifters for Phased Arrays (PSPA) provides manufacturing processes for on-the-move line of sight and beyond line of sight communications and missile seeker applications. Silicon Carbide (SiC) Switches matures fabrication processes for compact, power-dense SiC devices for Army systems; the High Energy Density (HED) Capacitor effort matures pulse power manufacturing processes for advanced protection systems and weapons; and Very High Power (VHP) Batteries matures manufacturing processes for compact energy/storage systems. In Precision Munitions/Armaments, the Durable Gun Barrel (DGB) effort, which competed in FY06, constructed and evaluated the performance of full-scale demonstration barrels utilizing advanced steel. The Low Cost High G Micro-Electro-Mechanical Systems (MEMS) Inertial Measurement Unit (IMU) effort, which complements an effort in PE/project 0602303A/214, focuses on achieving manufacturing processes that will produce an affordable inertial measurement system and deeply integrated guidance and navigation unit for missiles and armaments. MEMS Safe and Arm (S&A) matures MEMS wafer-based manufacturing processes and provides miniature, high-G "inertial mechanical logic" to control position of explosive charge for weapon systems applications. The Throttling Propulsion Component Manufacturing and Assembly for Missiles enables cost effective manufacturing of throttling components (pintle and throat) that provide enhanced energy management for Non Line of Sight-Launch Site (NLOS-LS) solid rocket propulsion; and Optimization of PAX-41 Formulation and Loading effort develops and matures the loading qualification process of PAX-41 explosives to meet new DoD regulations. The Flexible Display Initiative (FDI) effort in this project, which is fully coordinated with and complements the FDI effort in PE/project 0602705A/H94, provides manufacturing technologies required to enable the production of lightweight and rugged flexible displays that will reduce size and weight of computer displays for individual Soldiers and for vehicle applications.

## Accomplishments/Planned Program:

FY 2006

FY 2007

FY 2008

FY 2009

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)				February 2007	
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT	
<b>7 - Operational system development</b>	<b>0708045A - End Item Industrial Preparedness Activities</b>			<b>E25</b>	
Aviation Systems - LCLWS: In FY06, evaluated second tail cone, integrated tail cone onto test aircraft and conducted ground testing. In FY07, complete testing and evaluation of tail cone and complete flight qualification. ADTH: In FY06, finalized tooling design and initiated manufacturing of the outer gearbox housing. In FY07, complete gearbox-housing manufacturing, perform system integration, conduct testing and evaluation of gearbox housing, and complete flight qualification.	838	688			
Base Structural Armor: In FY06, demonstrated ability to meet stated manufacturing, cost, and weight goals of \$11.65 per pound and a 40 percent weight reduction; demonstrated a prototype production line, scaled up the low cost titanium plate process and demonstrated processes to grind both sides of ceramic tiles without loss of material strength. In FY07, automate and streamline subassembly processes and produce solid-state titanium plates; demonstrate ability to integrate dissimilar material structures and optimize assembly to maximize the strength of the combined materials and develop a ceramic tile encapsulation process. In FY08, will test and qualify integrated subassembly processes for FCS armor structure and hybrid mine floor. In FY09, will demonstrate manufacturing readiness level in the fabrication of full-up A and B upper and lower hull test asset in a production environment.	8345	14961	14712	20365	
Overlay Armor: In FY07, design and develop manufacturing technology for hybrid 3-D weave composites; benchmark and develop low cost manufacturing of high performance metal encapsulated armor; develop low cost manufacturing of ultra-high performance Aluminum metal matrix composite armor; develop manufacturing technique for U2 mine kit. In FY08, will continue addressing advanced armor solution affordability and initiate the development of manufacturing technologies for novel armor materials critical to B3 and U3 armor, deliver a multi-materials kit and supporting processes to include prepreg, particulate metal-matrix composites, nano-bonds, and backing that enable production of armor solutions. In FY09, will integrate stiffening materials and demonstrate producible, affordable armor manufacturing processes that include hybridized fibrous metal matrix composites and 3-D composites backing.		6404	19377	18361	
Low Cost Manufacturing of Materials for Improved Warfighter Protection: In FY06, identified candidate fabrication and processing technologies for fiber-based tows, thermoplastic matrices, and multifunctional materials to enable the next generation of Warfighter protection. In FY07, enable net shape pre-forms to reduce touch labor by 40 percent, reduce scrap waste of ballistic fibers and enable simultaneous processing of ballistic, structural, and multifunction materials for improved helmet performance. In FY08, will begin prototype fabrication and start next generation helmet shell process development, integrate light-weight head-borne communications systems and sensors. In FY09, will combine hydrostatic, multiple tow deposition, and multifunctional material technologies and start full-scale fabrication and production.	300	1773	1320	2280	
Sensors - DBFM: In FY06, increased yield molecular beam epitaxy process to 60 percent, small pixel to 60 percent, with an acceptance of 25 percent; and reduced cost to \$60,000 per dual band FPA. Uncooled FPA Producibility: In FY06, increased FPA yield to greater than 50 percent with a package yield of 98 percent for a unit cost less than \$2,000.	12066				
Third Gen IDCA: In FY06, addressed third Gen B-Kit cyro-cooler manufacturing cost and design modifications to enhance performance, and began fabrication of one unit for process verification and evaluation. In FY07, initiate manufacturing process improvement of Variable Aperture components to optimize sensor performance for either wide area search scanning or long range identification, begin precision assembly, motor pre-tension and production process of motor supply base for high reliability motors. In FY08, will develop Variable Aperture coating deposition processes, fabricate precision tooling, and test smaller motors to verify improved manufacturability of the Variable Aperture Mechanism while maintaining performance and improving reliability and survivability in the dewar vacuum environment. In FY09, will integrate variable aperture and compact cold stage components to validate tooling documentation and perform system demonstration.	505	2365	2935	6919	
SDR Components: In FY06, completed analysis of manufacturing process and defined methodology for qualification test. In FY07, prototype and mature manufacturing sub-process for common SDR core transceiver. In FY08 will demonstrate the manufacturability of	4900	8866	7500	5000	

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the Silicon Germanium RF Integrated Circuit through the fabrication and packaging of the final iteration, allowing for insertion into the JTRS Handheld, Manpack, Small Form Fit system providing a 60% size, 75 percent weight and 40 percent power reduction; test and integrate wideband power amplifier IC with the final version of the RF front end filters demonstrating a system improvement of 40 percent size, 40 percent weight, and 50 percent power consumption and the manufacturability of both will be enhanced with the insertion of automated testing and assembly. In FY09, will begin system integration of RF chipset, power amplifiers and wideband tunable filter for low rate production.					
PSPA: In FY06, improved automated processes to increase operational switch life, process yields, throughput, and reliability. In FY07, improve processes to reduce packaging and assembly costs, eliminate electrical malfunctions, and transition improved phase shifter design to Warfighter Information Network-Tactical (WIN-T). In FY08, will transition to the non line of sight and Aviation Common Modular Missile programs.		4040	3874	2315	
SiC Switches: In FY06, matured manufacturing processes for diodes and switches. In FY07, improve processes to reduce switch and diode costs from \$1.20/Ampere to 45 cents/Ampere for switches and from \$5/Ampere to 60 cents/Amp for diodes. In FY08, will reduce thickness of SiC material and improve doping uniformity. In FY09, will put 4" substrates and epi-layers into pilot production; reduce cost of low voltage diodes and switches.		4800	6076	6480	6170
HED Capacitor: In FY06, manufactured new packaging design for 5-fold increase in capacitor life. In FY07, increase operating voltage on film with scale-up units leading to demonstration for high energy FCS applications. In FY08, will increase operating voltage on film and increase shot life from <200 to 1000. In FY09, will improve design life of advanced films, put into production and demonstrate manufacturing technology.		3400	3645	2800	1600
VHP Batteries: In FY06, improved processes to increase battery safety with improved electrode and electrolyte materials. In FY07, design and implement improved cell processing, conduct cell trials, assemble, and test battery modules. In FY08, will improve battery pack manufacturing time from 950 hours to 350 hours and reduce cost from \$115 to \$58 a pack. In FY09, will increase cell performance from 1 kilowatt to 3 kilowatts while reducing cell capacity loss from 40 percent to 20 percent.		4700	4532	4200	3800
The Low Cost High G MEMS IMU: In FY06, completed design for the Phase III IMU configuration reducing from 4 cubic inches to 2 cubic inches; finalized design verification test plans and production acceptance test plans and completed the transition of the Accelerometer 4" line to the 6" line. In FY07, complete transition of the Gyro 4" line to the 6" line and initiate design verification tests and production acceptance tests for delivery of 36 IMU units and demonstrate integrated design and automation enhancements of final prototype IMUs.		2900	2954		
MEMS S&A: In FY06, implemented micro-fabrication processes, combined with explosive direct loading and test under XM29 and SX307 load conditions. In FY07, evaluate fabrication, loading, and automated assembly technologies safety and reliability, start qualification of the MEMS-based munitions and transition common MEMS S&A integrated with fuze electronics to Low Rate Initial Production.		3100	2759		
Precision Munitions/Armaments - DGB: In FY06, constructed and evaluated the performance of full-scale demonstration barrels utilizing advanced steel. Throttling Propulsion Component Manufacturing and Assembly for Missiles: In FY06, started Design-of-Experiments to reduce the advanced manufacturing process risk for solid rocket motor pintle and throat components that will enable affordable throttling propulsion components. In FY07, develop manufacturing processes to reduce production lead time by six weeks, and reduce component weight; validate thin coating process. In FY08, will begin missile qualification testing. Optimization of PAX 41: In FY06, developed initial manufacturing Design-of-Experiments for demonstrating affordable, repeatable PAX 41 insensitive munitions processes for large-		6000	1729	230	

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scale production. In FY07, establish a Six Sigma loading process for grenade bodies and optimize processing parameters for both energetic and munitions components. In FY08, will improve processes to reduce manufacturing production costs; establish a reliable loading process and transition technology.				
Flexible Displays: In FY06, matured technology to enable 4" displays on flexible substrates, and continued GEN II qualification of manufacturing processes for 15" diagonal backplane display drivers. In FY07, qualify the GEN II line for fabricating reflective and emissive displays; and integrate and fabricate flexible displays up to 7.5" diagonals from the 15" diagonal line. In FY08, will integrate reflective laminates and manufacture pilot line processes into GEN II production line. In FY09, will demonstrate pilot lines and manufacture GEN II reflective and emissive 7.5" displays.	3200	4926	5000	5000
Small Business Innovative Research/Small Business Technology Transfer Programs		1772		
Total	59094	67324	66869	69495
<b><u>B. Other Program Funding Summary</u></b> Not applicable for this item.				
<b><u>C. Acquisition Strategy</u></b> Not applicable for this item.				