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Supporting Data FY 2006/2007 President's Budget
Submitted to OSD – February 2005

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

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**DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS
OF THE
RESEARCH, DEVELOPMENT, TEST AND
EVALUATION, ARMY
FY 2006/2007
PRESIDENT'S BUDGET SUBMISSION
FEBRUARY 2005**

**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 2006/2007 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 2004 through FY 2007.

2. Relationship of the FY 2006/2007 Budget Submission to the FY 2005 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.

<u>OLD</u> <u>PE/PROJECT</u>	<u>NEW PROJECT TITLE</u>	<u>NEW</u> <u>PE/PROJECT</u>
0603639A/656	Advanced Munitions Demonstration	0603004A/232
0603474A/C09	Soldier Support Equipment – AD	0603827A/S52
0603474A/669	Clothing and Equipment Adv Development	0603827A/S53
060639A/656	Advanced Munitions Dem	0603004A/232
0603774A/131	Unique Identification	0603773A/U02
0603801A/B45	ACIS Advanced Development	0603827A/S51
0603802A/AS2	Small Arms Improvement	0603827A/S54
0603802A/AS3	Objective Individual Combat Weapon	0603827A/S55
0604645A/F59/F60/F62	FCS – Reconnaissance Platforms & Sensors	0604645A/F52
0604645A/F63/F64/F65	FCS – Unmanned Ground Vehicles	0604645A/F53
0604645A/F66/F67	Unattended Sensors	0604645A/F54
0604645A/F68/F69	Sustainment	0604645A/F55
0604645A/F70/F71	Manned Ground Vehicle	0604645A/F57
0604647A/F58	Non-Line of Sight Launch System	0604646A/F72

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<u>OLD</u>	<u>NEW PROJECT TITLE</u>	<u>NEW</u>
<u>PE/PROJECT</u>		<u>PE/PROJECT</u>
0604713A/680	Mounted Warrior	0604827A/S56
0604713A/667	Land Warrior	0604827A/S57
0604713A/668	Soldier Enhancement Program	0604601A/S58
0604713A/C40	Soldier Support Equipment – ED	0604601A/S59
0604713A/L40	Clothing & Equipment	0604601A/S60
0604801A/C45	ACIS Engineering Development	0604601A/S61
0604802A/134	Objective Individual Combat Weapon	0604601A/S62
0604802A/AS1	Small Arms Improvement	0604601A/S63
0604802A/AS6	Common Remotely Operated Weapon Systems (CROWS)	0604601A/S64
0604802A/613	XM395 Precision Guided Mortar Munitions	0604802A/AS8
0604804A/461	Joint High Speed Vessel	0208058A/JH1
0303150A/C86	Joint Command and Control - Army	0303158A/714

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

<u>FROM</u>	<u>PROJECT TITLE</u>	<u>TO</u>
<u>PE/PROJECT</u>		<u>PE/PROJECT</u>
0603869A/01B	Patriot/MEADS Combined Aggregate Program (CAP)	0604869A/M06
0604865A/01C	Patriot Advanced Capability (PAC)-3	0603869A/01B

C. Establishment of New FY 2006/2007 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 2006/2007 are shown below with asterisks. The remaining programs listed are outyear initiatives, restructures beyond FY 2006/2007, or were previously funded from other Defense appropriations.

<u>TITLE</u>	<u>PE/PROJECT</u>
Agile Integration & Demonstration	0603125A/DF5
Armed Reconnaissance Helicopter	0604220A/53H*
General Fund Enterprise Business System (GFEBs)	0604822A/GF5*
HQDA Decision Support Tools & Services	0605718A/S02*
Training & Doctrine command (TRAC) Modeling & Simulation & Training	0605718A/S03*
Simulation Technology (SIMTECH) Program	0605718A/S05
Apache Block III	0203744A/D17

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D. FY 2006 programs for which funding existed in the FY 2005 Amended President's Budget Submit (March 2004), but which are no longer funded beginning in FY 2006.

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0603305A/TR3	MTHEL	Program Complete
0603639A/694	Medium Caliber Ammunition	Program Terminated
0603639A/64B	105mm Conventional Tank Ammunition	Program in Production
0603639A/694	120mm conventional Ammunition	Program in Production
0604329A/013	Joint Common Missile	Program Terminated
0604611A	Javelin	Program in Production
0604710A/L75	Profiler	Program Completed
0604819A	LOSAT	Program Terminated
0604823A/L85	Firefinder AN/TPQ-47*	Program Terminated

* Also known as Phoenix Battlefield Sensor System AN/TPQ-47

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

0203806A/Z02	0603005A/C66	0603710A/C65
0203808A/E11	0603009A/B18/B31	0604328A/C71
0301359A	0603020A/B77/B84/B96	
0602122A/B72/622	0603322A/B92	

4. Performance Metrics. Performance metrics used in the preparation of this justification book may be found in the FY 2006 Army Performance Budget Justification Book, dated 18 February 2005.

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 Summary

Exhibit R-1

08-Feb-2005

Summary Recap of Budget Activities	FY 2004	Thousands of Dollars	
		FY 2005	FY 2006
Basic Research	369,208	392,864	307,594
Applied Research	1,046,041	1,117,659	671,302
Advanced Technology Development	1,187,066	1,385,067	756,359
Advanced Component Development and Prototypes	874,216	874,325	364,973
System Development and Demonstration	4,499,746	4,580,173	5,225,675
Management Support	1,140,384	1,173,909	1,092,650
Operational System Development	<u>1,085,560</u>	<u>1,033,622</u>	<u>1,315,271</u>
Total RDT&E, Army	10,202,221	10,557,619	9,733,824

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Exhibit R-1

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Line No.	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2004	FY 2005	FY 2006
Basic research						
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	23,138	23,077	20,542
2	0601102A	01	DEFENSE RESEARCH SCIENCES	151,079	163,443	137,898
3	0601103A	01	UNIVERSITY RESEARCH SCIENCES (H)	82,473	83,959	67,201
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	96,549	100,066	81,953
5	0601105A	01	FORCE HEALTH PROTECTION	15,969	22,319	0
Total: Basic research				369,208	392,864	307,594
Applied Research						
6	0602105A	02	MATERIALS TECHNOLOGY	40,211	50,788	17,559
7	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	25,381	38,433	32,147
8	0602122A	02	TRACTOR HIP	5,683	6,406	7,804
9	0602211A	02	AVIATION TECHNOLOGY	39,406	47,780	34,295
10	0602270A	02	EW TECHNOLOGY	16,570	19,703	19,129
11	0602303A	02	MISSILE TECHNOLOGY	92,106	82,781	62,524
12	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	14,794	24,495	21,139
13	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	30,611	22,721	16,013
14	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	125,893	114,108	64,883
15	0602618A	02	BALLISTICS TECHNOLOGY	57,537	54,889	49,163
16	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	21,851	7,585	2,519
17	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	5,683	11,273	5,703
18	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	75,714	102,442	37,824
19	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	77,267	102,768	39,554
20	0602709A	02	NIGHT VISION TECHNOLOGY	21,634	26,406	23,823
21	0602712A	02	COUNTERMINE SYSTEMS	26,170	26,279	19,293
22	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	24,056	20,656	17,482
23	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	31,007	22,369	16,417
24	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	18,223	27,416	21,787
25	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	4,031	3,862	3,590
26	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	51,885	52,500	47,046
27	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	15,143	14,846	15,207
28	0602786A	02	LOGISTICS TECHNOLOGY	49,642	54,051	21,707
29	0602787A	02	MEDICAL TECHNOLOGY	175,543	183,102	74,694
Total: Applied Research				1,046,041	1,117,659	671,302

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Line No.	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2004	FY 2005	FY 2006
Advanced technology development						
30	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	65,848	77,022	63,754
31	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	214,453	299,561	45,160
32	0603003A	03	AVIATION ADVANCED TECHNOLOGY	83,686	96,465	48,318
33	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	52,927	83,337	74,927
34	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	266,576	279,260	142,866
35	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLOGY	11,168	9,544	12,066
36	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY	8,787	8,070	6,783
37	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	58,281	57,662	45,322
38	0603009A	03	TRACTOR HIKE	7,570	7,723	8,777
39	0603015A	03	NEXT GENERATION TRAINING & SIMULATION SYSTEMS	15,421	26,900	19,982
40	0603020A	03	TRACTOR ROSE	4,096	4,537	4,956
41	0603103A	03	EXPLOSIVE DEMILITARIZATION TECHNOLOGY	24,468	18,405	9,865
42	0603105A	03	MILITARY HIV RESEARCH	13,847	13,552	6,842
43	0603125A	03	COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT FOR	8,480	8,034	6,306
44	0603238A	03	GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	12,317	10,284	12,111
45	0603270A	03	EW TECHNOLOGY	24,979	21,357	16,801
46	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	119,301	115,332	70,066
47	0603322A	03	TRACTOR CAGE	7,386	12,776	15,406
48	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	29,215	33,621	25,327
49	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	9,431	9,675	6,581
50	0603654A	03	LINE-OF-SIGHT TECHNOLOGY DEMONSTRATION	8,607	0	0
51	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	82,800	102,047	51,761
52	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	20,155	17,933	12,606
53	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	12,909	25,657	7,301
54	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	24,358	46,313	42,475
Total: Advanced technology development				1,187,066	1,385,067	756,359
Advanced Component Development and Prototypes						
55	0603024A	04	UNIQUE ITEM IDENTIFICATION (UID)	0	0	1,500
56	0603305A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	101,208	112,069	14,573
57	0603308A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	33,735	32,131	9,284
58	0603327A	04	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	115,342	109,217	83,063
59	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV	34,713	15,843	0
60	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	9,634	9,342	5,733

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Line No.	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2004	FY 2005	FY 2006
61	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	24,737	26,674	0
62	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	57,621	49,712	26,712
63	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	13,133	13,234	3,393
64	0603766A	04	TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	16,024	15,218	18,907
65	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	6,651	17,052	6,885
66	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	38,461	41,651	5,166
67	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	77,275	95,321	131,081
68	0603790A	04	NATO RESEARCH AND DEVELOPMENT	2,608	4,600	4,902
69	0603801A	04	AVIATION - ADV DEV	13,583	16,017	6,249
70	0603802A	04	WEAPONS AND MUNITIONS - ADV DEV	29,906	8,321	0
71	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	12,212	15,993	13,375
72	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	8,151	6,138	10,659
73	0603807A	04	MEDICAL SYSTEMS - ADV DEV	12,715	20,286	10,134
74	0603827A	04	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	0	0	10,595
75	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	1,968	4,294	2,762
76	0603856A	04	SCAMP BLOCK II	27,716	9,798	0
77	0603869A	04	MEADS CONCEPTS - DEM/VAL	236,823	251,414	0
Total: Advanced Component Development and Prototypes				874,216	874,325	364,973
System Development and Demonstration						
78	0604201A	05	AIRCRAFT AVIONICS	45,499	79,356	23,451
79	0604220A	05	ARMED, DEPLOYABLE OH-58D	0	43,366	13,964
80	0604223A	05	COMANCHE	1,030,510	0	0
81	0604270A	05	EW DEVELOPMENT	31,715	16,515	32,179
82	0604280A	05	JOINT TACTICAL RADIO SYSTEM	128,611	117,259	156,665
83	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	19,258	6,605	7,973
84	0604328A	05	TRACTOR CAGE	15,482	13,576	16,099
85	0604329A	05	COMMON MISSILE	90,413	112,185	0
86	0604601A	05	INFANTRY SUPPORT WEAPONS	27,344	33,712	34,627
87	0604604A	05	MEDIUM TACTICAL VEHICLES	4,169	14,046	1,886
88	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV	11,548	3,639	0
89	0604611A	05	JAVELIN	913	905	0
90	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	16,282	19,631	3,415
91	0604633A	05	AIR TRAFFIC CONTROL	2,402	2,012	4,508
92	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	17,377	9,587	0
93	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	1,373,156	2,268,236	3,065,629

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				FY 2004	FY 2005	FY 2006
94	0604646A	05	NON LINE OF SIGHT LAUNCH SYSTEM	0	55,794	231,554
95	0604647A	05	NON LINE OF SIGHT CANNON	251,344	476,736	107,587
96	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	37,452	26,119	26,449
97	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	95,484	98,445	3,383
98	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	68,381	49,615	61,090
99	0604716A	05	TERRAIN INFORMATION - ENG DEV	6,662	3,152	0
100	0604726A	05	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	3,160	2,450	0
101	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTEL - ENG	27,974	26,343	29,012
102	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	16,227	41,153	40,572
103	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	10,918	8,748	54
104	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN	24,883	25,477	22,057
105	0604766A	05	TACTICAL EXPLOITATION SYSTEM/DCGS (TIARA)	25,108	21,505	0
106	0604768A	05	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	9,550	1,748	0
107	0604770A	05	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	4,492	0	0
108	0604778A	05	POSITIONING SYSTEMS DEVELOPMENT (SPACE)	1,503	1,962	0
109	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT)	3,817	18,316	37,471
110	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM	9,011	10,279	5,092
111	0604801A	05	AVIATION - ENG DEV	3,227	3,239	0
112	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV	151,558	154,356	87,034
113	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	84,398	90,517	13,353
114	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	209,197	218,402	393,062
115	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM	21,820	19,325	5,627
116	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV	92,808	57,116	80,560
117	0604814A	05	ARTILLERY MUNITIONS - EMD	118,323	133,167	113,368
118	0604817A	05	COMBAT IDENTIFICATION	11,402	12,069	2,973
119	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	97,612	64,811	66,980
120	0604819A	05	LOSAT	29,417	21,744	0
121	0604820A	05	RADAR DEVELOPMENT	0	5,851	5,080
122	0604822A	05	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEB)	0	0	71,119
123	0604823A	05	FIREFINDER	25,883	21,764	46,061
124	0604827A	05	SOLDIER SYSTEMS - WARRIOR DEM/VAL	0	0	57,818
125	0604854A	05	ARTILLERY SYSTEMS - EMD	31,155	12,022	5,476
126	0604865A	05	PATRIOT PAC-3 THEATER MISSILE DEFENSE ACQ - EMD	151,318	61,482	0
127	0604869A	05	PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)	0	0	288,785
128	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT	60,983	95,836	63,662
Total: System Development and Demonstration				4,499,746	4,580,173	5,225,675

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				FY 2004	FY 2005	FY 2006
Management support						
129	0604256A	06	THREAT SIMULATOR DEVELOPMENT	25,008	29,694	23,796
130	0604258A	06	TARGET SYSTEMS DEVELOPMENT	17,153	13,370	10,855
131	0604759A	06	MAJOR T&E INVESTMENT	76,732	58,988	64,498
132	0605103A	06	RAND ARROYO CENTER	28,161	21,854	23,800
133	0605301A	06	ARMY KWAJALEIN ATOLL	177,197	139,939	154,535
134	0605326A	06	CONCEPTS EXPERIMENTATION	39,175	24,190	31,653
135	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	0	261,896	0
136	0605601A	06	ARMY TEST RANGES AND FACILITIES	233,336	191,688	369,943
137	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	72,595	60,142	62,687
138	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	53,408	47,543	38,306
139	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	23,347	15,098	17,688
140	0605606A	06	AIRCRAFT CERTIFICATION	3,826	3,419	2,748
141	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	11,941	8,415	8,829
142	0605706A	06	MATERIEL SYSTEMS ANALYSIS	19,957	17,675	15,517
143	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	4,421	4,672	4,710
144	0605712A	06	SUPPORT OF OPERATIONAL TESTING	85,477	72,284	75,993
145	0605716A	06	ARMY EVALUATION CENTER	59,362	61,212	57,305
146	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	3,276	1,853	9,437
147	0605801A	06	PROGRAMWIDE ACTIVITIES	80,336	58,106	54,269
148	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	53,742	27,534	32,237
149	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS & SAFETY	50,758	38,159	16,922
150	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	6,098	4,336	4,014
151	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	15,078	11,842	12,908
	Total: Management support			1,140,384	1,173,909	1,092,650
Operational system development						
152	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	83,050	105,444	114,297
153	0603820A	07	WEAPONS CAPABILITY MODIFICATIONS UAV	0	0	0
154	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	57,803	79,316	106,420
155	0203610A	07	DOMESTIC PREPAREDNESS AGAINST WEAPONS OF MASS DEST	3,916	0	0
156	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	28,308	17,269	16,064
157	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	31,018	17,174	12,030

UNCLASSIFIED

UNCLASSIFIED
 Department of the Army
 FY 2006 RDT&E Program
 President's Budget FY 2006/2007

Exhibit R-1

08-Feb-2005

Line No.	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2004	FY 2005	FY 2006
158	0203740A	07	MANEUVER CONTROL SYSTEM	38,747	23,350	44,903
159	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	273,381	242,628	409,103
160	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	5,285	7,121	2,066
161	0203758A	07	DIGITIZATION	17,865	29,045	12,343
162	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2)	47,414	22,546	20,201
163	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	45,587	32,082	16,188
164	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	1,050	4,659	23,560
165	0203806A	07	TRACTOR RUT	8,665	3,181	0
166	0203808A	07	TRACTOR CARD	9,060	8,644	6,797
167	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	16,196	17,414	24,906
168	0208053A	07	JOINT TACTICAL GROUND SYSTEM	9,561	9,822	12,854
169	0208058A	07	JOINT HIGH SPEED VESSEL (JHSV)	0	0	3,261
170	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	15,712	14,398	2,992
171	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	20,291	28,618	22,903
172	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	54,656	90,351	79,752
173	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	85,511	51,829	58,659
174	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	16,762	18,459	13,647
175	0303158A	07	JOINT COMMAND AND CONTROL - ARMY	0	0	1,696
176	0305114A	07	TRAFFIC CONTROL, APPROACH AND LANDING SYSTEM-FY 19	935	0	0
177	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	67,931	53,592	139,610
178	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	4,651	8,111	5,398
179	0305208A	07	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS (JMIP)	36,995	53,911	91,587
180	0702239A	07	AVIONICS COMPONENT IMPROVEMENT PROGRAM	0	955	994
181	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	84,980	88,120	68,505
182	0P0GMTOT	07	OTHER ARMY PROGRAMS	19,737	4,996	3,966
183	1001018A	07	NATO JOINT STARS	493	587	569
Total: Operational system development				1,085,560	1,033,622	1,315,271
				10,202,221	10,557,619	9,733,824

Total: RDT&E, Army

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#6 - Management support			
129	0604256A	THREAT SIMULATOR DEVELOPMENT	1
130	0604258A	TARGET SYSTEMS DEVELOPMENT	3
131	0604759A	Major T&E Investment	10
132	0605103A	Rand Arroyo Center	19
133	0605301A	ARMY KWAJALEIN ATOLL	23
134	0605326A	Concepts Experimentation	25
136	0605601A	ARMY TEST RANGES AND FACILITIES	32
137	0605602A	Army Technical Test Instrumentation and Targets	37
138	0605604A	Survivability/Lethality Analysis	47
139	0605605A	DOD High Energy Laser Test Facility	52
140	0605606A	AIRCRAFT CERTIFICATION	55
141	0605702A	Meteorological Support to RDT&E Activities	57
142	0605706A	MATERIEL SYSTEMS ANALYSIS	61
143	0605709A	EXPLOITATION OF FOREIGN ITEMS	65
144	0605712A	Support of Operational Testing	67
145	0605716A	Army Evaluation Center	71
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152	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	133
153	0603820A	Weapons Capability Modifications UAV	155
154	0102419A	Joint Land Attack Cruise Missiles Defense (JLENS)	161
156	0203726A	Adv Field Artillery Tactical Data System	169
157	0203735A	Combat Vehicle Improvement Programs	177
158	0203740A	Maneuver Control System	185
159	0203744A	Aircraft Modifications/Product Improvement Program	193
160	0203752A	Aircraft Engine Component Improvement Program	230
161	0203758A	Digitization	238
162	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	245
163	0203801A	Missile/Air Defense Product Improvement Program	253
164	0203802A	Other Missile Product Improvement Programs	260
167	0208010A	Joint Tactical Communications Program (TRI-TAC)	274
168	0208053A	Joint Tactical Ground System	284
169	0208058A	Joint High Speed Vessel (JHSV)	292
171	0303140A	Information Systems Security Program	298
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179	0305208A	Distributed Common Ground/Surface Systems (JMIP)	425
180	0702239A	Avionics Component Improvement Program	455
181	0708045A	End Item Industrial Preparedness Activities	462
183	1001018A	NATO Joint STARS	472

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Airborne Reconnaissance Adv Development	0305206A	178	417
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Aircraft Engine Component Improvement Program	0203752A	160	230
Aircraft Modifications/Product Improvement Program	0203744A	159	193
Army Evaluation Center	0605716A	145	71
ARMY KWAJALEIN ATOLL	0605301A	133	23
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ARMY TEST RANGES AND FACILITIES	0605601A	136	32
Avionics Component Improvement Program	0702239A	180	455
Combat Vehicle Improvement Programs	0203735A	157	177
Concepts Experimentation	0605326A	134	25
Digitization	0203758A	161	238
Distributed Common Ground/Surface Systems (JMIP)	0305208A	179	425
DOD High Energy Laser Test Facility	0605605A	139	52
End Item Industrial Preparedness Activities	0708045A	181	462
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EXPLOITATION OF FOREIGN ITEMS	0605709A	143	65
Force XXI Battle Command, Brigade and Below (FBCB2)	0203759A	162	245
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Joint Tactical Communications Program (TRI-TAC)	0208010A	167	274
Joint Tactical Ground System	0208053A	168	284
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Meteorological Support to RDT&E Activities	0605702A	141	57
Missile/Air Defense Product Improvement Program	0203801A	163	253
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604256A - THREAT SIMULATOR DEVELOPMENT	PROJECT 976						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
976 ARMY THREAT SIM (ATS)	20603	29694	23796	21151	21862	21960	22582	17761

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. These affiliations minimize any development duplication within the U.S. Army or Department of Defense (DoD).

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution.	7629	7227	6806	6048
Develop product enhancements for XM11S simulator threat system.	4069	3512	3470	451
Develop Information Assurance Test Tool (IATT) Threat system.	2739	1068	2596	2526
Validate threat simulators/simulations to ensure they are available for operational test.	584	329	561	586
Develop Advanced Electronic Order of Battle (AEOb) upgrade and develop mobile threat emitter system interoperable with threat scenario outputs.	2082	931	1393	2118
Conduct Threat Systems Management Office Operations efforts.	1000	5677	6063	6107
Develop Threat Intelligence and Electronic Warfare Environment to simulate Electronic Warfare capabilities.	0	1463	1799	2133

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0604256A - THREAT SIMULATOR
DEVELOPMENT**

PROJECT
976

Accomplishments/Planned Program B(continued)	FY 2004	FY 2005	FY 2006	FY 2007
Develop radio frequency (RF) Surface-to-Air Missile (SAM) radar prototype.	2500	6800	0	0
Develop simulations of threat deception techniques.	0	887	1108	1182
Develop Army Threat Signals Intel Program	0	1800	0	0
Totals	20603	29694	23796	21151

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	22101	21151	19367
Current Budget (FY 2006/2007 PB)	29694	23796	21151
Total Adjustments	7593	2645	1784
Net of Program/Database Changes			
Congressional Program Reductions	-339		
Congressional Rescissions			
Congressional Increases	8600		
Reprogrammings			
SBIR/STTR Transfer	-668		
Adjustments to Budget Years		2645	1784

Change Summary Explanation:

FY 2005: Congressional increase for Army Threat Signals Intelligence Program (+1800); RF/SAM Threat Simulator Program (+6800).

FY 2006 and FY 2007: Funds realigned for more efficient operation of the management of threat systems (FY 2006 +2645/FY 2007 +1784).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	13407	13370	10855	10542	10990	11011	11323	9058
238 AERIAL TARGETS	7966	9633	7258	6814	6329	6335	6515	5189
459 GROUND TARGETS	5441	3737	3597	3728	4661	4676	4808	3869

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, 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 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	11017	9446	9423
Current Budget (FY 2006/2007 PB)	13370	10855	10542
Total Adjustments	2353	1409	1119
Net of Program/Database Changes			
Congressional Program Reductions	-98		
Congressional Rescissions			
Congressional Increases	2800		
Reprogrammings			
SBIR/STTR Transfer	-349		
Adjustments to Budget Years		1409	1119

Change Summary Explanation:

FY2005: Congressional increase for the Unmanned Air Vehicle Improved Altitude Control (+2800).

FY 2006 & 2007: Funds were increased to support rotary wing and mobile ground targets; and to support the conversion of military positions to civilian positions (FY 06 +1409/FY 07 +1119).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT						PROJECT 238	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
238 AERIAL TARGETS	7966	9633	7258	6814	6329	6335	6515	5189

A. Mission Description and Budget Item Justification: Aerial Targets support Army Transformation 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 the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target and towed targets beginning in FY 2005.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue 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), and others.	403	393	465	489
Provides 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 begins the process to acquire replacements for expended targets, which will include development of updated component/subsystem replacements of no-longer-available, obsolete equipment and for an enhanced performance envelope, including endurance.	1189	1255	2045	2163

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
238

Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
Complete 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. FY04-07 completes upgrade of remaining TTCS to new configuration at a rate of 2-3 per year 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.	3272	1725	692	670
Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. FY04-06 continues development and testing of Low Cost Towed target systems(Cruise Missile Tow Target and the Theater Optimized Multi-signature Aerial Target) emulating current threats at a very low cost to Patriot and a classified customer. FY 2005 also integrates tandem tow technology into large-scale towed targets to support air defense weapons T&E (e.g. Patriot). It is anticipated that signature modifications and/or performance enhancements to these targets will be required into the FY 2007 timeframe.	713	653	751	758
Integrated Avionics Program incorporated 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. FY 2004 developed initial prototypes and test set, and performed tests using an MQM-107. FY05-07 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.	731	1216	859	130

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
238

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
FY04-07 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) Virtual Proving Ground simulation, 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.	384	710	872	771
Develops, tests and provides generic, tactical class Unmanned Aerial Vehicle (UAV) targets to provide threat representative support for MEADS/SLAMRAAM testing in FY06-08 and MEADS testing in future years. Provides 12 COTS-based 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.	1274	881	1574	741
FY07 initiates Airborne Control System for Rotary Wing targets, incorporating 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.	0	0	0	1092
Develops software to achieve Improved Low Altitude Threat Simulation Control of aerial targets through use of a digital terrain database and Global Positioning System (GPS) altitude data using the Target Tracking Control System UHF (TTCSU) and the Drone Formation Control System (DFCS). This will allow single or multiple target formations to be flown in more threat representative presentations than are now possible with existing hardware and software systems.	0	2800	0	0
Totals	7966	9633	7258	6814

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT **PROJECT**
459

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Actual	Estimate						
459 GROUND TARGETS	5441	3737	3597	3728	4661	4676	4808	3869

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

FY 2004-2007 funds management and oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of 165 active and 187 inactive Mobile Ground Target vehicles, and acquisition of new material and spare parts. Supports users such as Future Combat Systems(FCS), Precision Fire, Apache, Armed Reconnaissance Helicopter (ARH), Guided Multiple Launch Rocket System (GMLRS), Excalibur, Mid-Range Munition (MRM), Non-Line-of-Sight Launch System (NLOS-S), Precision Guided Mortar Munition (PGMM), and others.

	FY 2004	FY 2005	FY 2006	FY 2007
	2230	1896	2093	2075

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
459

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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, 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 Virtual Proving Ground simulation, OTC's Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System (FCS), Army Tactical Missile System(ATACMS), SBCT(Stryker Brigade Combat Team), Land/Air Warrior, etc.) These models are available on-line to all T&E simulation developers.	1912	1129	1333	1476
Tests and validates(FY04), and fields (FY05) a very low cost (less than 10% of cost of the actual) Main Battle Tank (MBT), Russian MBT Surrogate, which will emulate the visual, infrared, and radio frequency signatures to support T&E (i.e., Apache, ARH, FCS, NLOS-LS, Compact Kinetic Energy Missile(CKEM) and others).	1299	402	0	0
Manages Mobile Ground Target Surrogates development effort beginning in FY05. 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 (i.e. ARH, Apache, FCS, NLOS-LS, CKEM, and others).	0	310	171	177
Totals	5441	3737	3597	3728

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	59940	58988	64498	64480	67151	67263	69271	48237
983 REAGAN TEST SITE (RTS) T&E INVESTMENTS	13697	8135	7321	8189	8398	8463	8800	0
984 MAJOR DEVELOPMENTAL TESTING INSTRUMENTATION	35557	36334	39480	36257	37826	37852	38928	31044
986 MAJOR OPERATIONAL TEST INSTRUMENTATION	10686	14519	17697	20034	20927	20948	21543	17193

A. Mission Description and Budget Item Justification: This program funds 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; Dugway Proving Ground (DPG), UT; 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. Program also funds development and acquisition of Operational Test Command (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 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	57987	56309	57814
Current Budget (FY 2006/2007 PB)	58988	64498	64480
Total Adjustments	1001	8189	6666
Net of Program/Database Changes			
Congressional Program Reductions	-890		
Congressional Rescissions			
Congressional Increases	3500		
Reprogrammings			
SBIR/STTR Transfer	-1609		
Adjustments to Budget Years		8189	6666

Change Summary Explanation:

FY 2006/FY 2007: Funds realigned for more efficient operation of major development test instrumentation activities (FY 2006 +8189/FY 2007 +6666).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

PROJECT
983

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
983 REAGAN TEST SITE (RTS) T&E INVESTMENTS	13697	8135	7321	8189	8398	8463	8800	0

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 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), 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 Theater Missile Defense (TMD) and Ground-based Mid-course Missile Defense (GMD) test missions and STRATCOM's Space Surveillance Network (SSN) and Space Object Identification (SOI) operations.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Upgrade RTS Safety Control Center (RSCC).	1500	0	0	0
Modernize RTS Operations Control Center (ROCC) for compatibility with upgraded KMAR sensors and to provide interoperability with Pacific Ranges.	6457	4700	3498	0
Provide Transportable Optics via Transportable Infrared Optical Sensors (TIROS) capabilities which will enable RTS to project optical support data throughout the Marshall Islands and to Wake, Johnston, Midway or Alaska in support of missions.	0	360	2200	3200
Apply new Solid State Technology to simplify radar transmitter hardware. Enhances reliability, sensitivity and commonality of KREMS radar transmitters. Includes Transmitter Reliability Improvement Program (TRIP)	440	0	0	0
Modernize MPS-36 Radars to replace unsupported hardware and computer systems.	3300	1333	0	0
Complete ALTAIR wheels and rails upgrade.	800	0	0	0
Initiate Film to Digital Video (FDV) replacement of 70/35mm cameras with high resolution, high speed digital video cameras and recorders.	1200	100	1623	642
Worthy Sensor Upgrades. Modernize ship's telemetry, safety, and communication capabilities to enable support of missile testing throughout the Pacific. Provides mobile instrumentation capability.	0	0	0	2000
Millimeter Wave (MMW) Performance Enhancement. Replace current Ka band transmitter with new gyro TWT based design. Enables tracking and imaging of smaller satellites and collection of intercept data at greater ranges.	0	1642	0	2347

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

PROJECT
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Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
Totals	13697	8135	7321	8189

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 984			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
984 MAJOR DEVELOPMENTAL TESTING INSTRUMENTATION	35557	36334	39480	36257	37826	37852	38928	31044	

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; Dugway Proving Ground (DPG), UT; 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. The Versatile Information Systems Integrated Online (VISION) develops a modular, scaleable instrumentation suite with sufficient integral mass storage for extended operation; extends ATC and DoD networking to mobile platforms nationwide; and provides database accessibility throughout DoD, 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 ATTC and 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 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 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). Reconfigurable Cockpit Simulator 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 for Test and Evaluation (QV) is the development of a QV integration models to enable rapid conversion of test data into visual representations. Hypervelocity Advanced Time Space Position Information (TSPI) System is the development of a tracking system with low/flat trajectories and low radar cross sections.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

PROJECT
984

Hardened Subminiature Telemetry and Sensor System (HSTSS): Developed HSTSS Embeded Instrumentation for single round munitions which provides hardened internal data collection for diagnostics and description of flight dynamics for speed, location, yaw, pitch, and roll while surviving 100,000 (+) "G" forces. Dynamic Infrared Scene Projector (DIRSP) Complete corrective actions and integrated system for final acceptance testing.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Hardened Subminiature Telemetry and Sensor System (HSTSS): Developed HSTSS Embeded Instrumentation for single round munitions which provides hardened internal data collection for diagnostics and description of flight dynamics for speed, location, yaw, pitch, and roll while surviving 100,000 (+) "G" forces.	600	0	0	0
Dynamic Infrared Scene Projector (DIRSP) Complete corrective actions and integrated system for final acceptance testing.	250	0	0	0
Vehicle Durability Simulator (VDS): Development of a Laboratory-based durability simulation which simulates driving on and off-road condition for both wheeled and track vehicles. This system allows for year round, 24/7 testing capabilities, provides the ability to perform accelerated life cycle testing of real world driving conditions, safely impose extreme conditions for both durability and drivetrain performance to reduce overall testing time requirements.	0	2500	0	0
Range Data Transmission System (RDTS): Install 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.	7925	8353	4672	0
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.	13287	9899	10890	6252
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.	7609	10297	9572	9176
Mobile Infrared Scene Projector (MIRSP): Develop multi-spectral projection capability and participate in design of large format resistive array. Begin development of 2048x1024 pixel large format, resistive array infrared scene projector.	2005	909	170	3241
21st Century Target Control System: Develop and integrate DoD-standard multi-service target control system at WSMR.	2316	1028	730	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

PROJECT
984

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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.	1565	1665	2706	1672
Joint Warfighter Test and Training Suite (JWTT): Develop instrumented test area capable of creating mobile operations and maneuver training area for platoon size operations.	0	968	1339	2100
Digital Network Migration: 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)	0	715	3438	5459
Reconfigurable Cockpit Simulator: 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	0	0	875	1245
Fiber Optic Network 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	0	0	2216	2800
Systems Test and Integration Laboratory (STIL): Develops 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.	0	0	1350	2077
Quantitative Visualization for Test and Evaluation (QV): Develop QV integration models to enable rapid conversion of test data into visual representations.	0	0	900	858
Hypervelocity Advanced TSPI System: Begin development of a tracking system with low/flat trajectories and low radar cross sections.	0	0	622	1377
Totals	35557	36334	39480	36257

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 986			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
986 MAJOR OPERATIONAL TEST INSTRUMENTATION	10686	14519	17697	20034	20927	20948	21543	17193	

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 RDTE develops performance enhancements and technology upgrades to the Command, Control and Communications (C3) Center, Communications Network, weapons system interfaces, miniaturization of the vest 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 present 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) is the operational test environment for FCS and the Future Force. OASIS provides the integrated environment required for testing of network centric systems in a realistic operational environment.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604759A - Major T&E Investment

PROJECT
986

Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
OT-TES: Develop improved communications architecture, rotary-wing instrumentation, new encryption capabilities, geometric pairing technologies, and test instrumentation for OneTess. Complete development of weapons performance modules, player unit upgrades, and Air Defense Artillery fly-out models	9435	12293	16332	18671
Develop Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS).	1251	1226	1365	1363
Network Centric Warfare Digital Battlefield: Development of the next generation test and training integrated technologies required to support the future mission of the evolving battle space.	0	1000	0	0
Totals	10686	14519	17697	20034

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center						PROJECT 732		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
732 ARROYO CENTER SPT	21963	21854	23800	24781	25419	26037	26685	27347	

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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Research addressing the implications of current operations: key issues for the Army in Operation Iraqi Freedom, including RC deployment, diversity of land force operations, effectiveness of air-ground interaction, quality of situational awareness, AMEDD operations, and logistical operations	3564	0	0	0
Research addressing the Army's transformation to meet near-term and future force challenges, including new challenges and opportunities for SOF; improving SOF support; future manning/rotation requirements; balancing the force mix; new strategies for the Independent Ready Reserve; unit manning; CSS transformation; requirements for stability operations; training strategies for the UA; network sharing and fusion; C4ISR and combat vulnerabilities; organizing S&T for transformation; military utility of UGVs; modeling future force effectiveness; rail gun feasibility assessment; support to TRADOC for wargame design/analysis; integrating future air/ground visions; and predicting enemy's use of land mines.	11183	0	0	0

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605103A - Rand Arroyo Center

PROJECT
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Accomplishments/Planned Program A(continued)	FY 2004	FY 2005	FY 2006	FY 2007
Research addressing the Army's enduring challenges, including Combat Training Center effectiveness and home station training; college market development; the National Call to Service program; evaluating Army international activities; MFC globalization; Army investment decision making; improving the review of Generating Force activities in the Total Army Analysis; military billets in competitive sourcing; a living architecture approach to information technology investment decisions; synchronizing Army business processes; equipment readiness measurement and drivers; linking AMC processes to increased readiness; analysis of recapitalization program; metrics for supply chain management; and identifying drivers of customer wait time.	7216	0	0	0
Research addressing the implications of current operations: key issues for the Army in continuing operations in Afghanistan and Iraq, improving the conduct of stability operations, balancing the force mix, RC recruiting and retention, improving spare parts support in dynamic environments, and improving special operations forces logistics support processes.	0	3502	0	0
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.	0	4545	0	0
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.	0	9905	0	0

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605103A - Rand Arroyo Center

PROJECT
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<u>Accomplishments/Planned Program A(continued)</u>	FY 2004	FY 2005	FY 2006	FY 2007
Research addressing the Army's enduring challenges: key issues for the Army in shaping and staffing the force, including college market development, National Call to Service program, total recruiter workload, and billet and competitive sourcing; the challenge of improving business processes, including improving the readiness focus of log processes, OPTEMPO cost-factor methodology, and Total Army Analysis (TAA): representing the generating force.	0	3902	0	0
Research addressing both support to and lessons from current operations, with an emphasis on improving jointness and developing doctrine and leaders to handle full-spectrum operations.	0	0	3808	4069
Research to meet near-term transformation goals under growing fiscal constraints.	0	0	4998	5203
Research addressing longer-term transformation, to include investment strategies for harvesting the best of FCS technologies, robotics concepts and technologies, how best to cooperate with friends and allies as the Army transforms, realignment of support functions as new forces are fielded, and trade-offs in developing and fielding new C4ISR systems and networks.	0	0	10710	10985
Research addressing underlying enduring challenges, such as recruiting and retention, trade-offs in making military-to-civilian conversions and outsourcing decisions, and the search for efficiencies in Army support and staff functions.	0	0	4284	4524
Totals	21963	21854	23800	24781

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605103A - Rand Arroyo Center

PROJECT
732

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	20012	19912	21907
Current Budget (FY 2006/2007 PB)	21854	23800	24781
Total Adjustments	1842	3888	2874
Net of Program/Database Changes			
Congressional Program Reductions	-330		
Congressional Rescissions			
Congressional Increases	2800		
Reprogrammings			
SBIR/STTR Transfer	-628		
Adjustments to Budget Years		3888	2874

Change Summary Explanation: Funding - FY 2006/2007 funds were realigned in support of the Rand Arroyo Center (FY 06 +3888/FY 07 +2874).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL						PROJECT 614		
COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
614 ARMY KWAJALEIN ATOLL	134420	139939	154535	140010	128346	112988	97533	96960	

A. Mission Description and Budget Item Justification: Increased funding, beginning in Fiscal Year 2006 (FY 2006) 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 – (1) 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 ... ‘institutional and overhead costs’ ... 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 Space 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; and underwater acoustic impact location system 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). 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 GMD and 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 Space Command 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 Ground Based Mid-Course Missile Defense (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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL	PROJECT 614
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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide management support (salaries, training, travel, SMDC matrix, etc).	11224	11522	11775	12035
Accomplish maintenance and repair projects, including design, executed by Corps of Engineers (COE).	700	700	700	700
Procure petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP) items.	15392	15719	16065	16418
Procure other mission operating supplies, equipment and services.	5700	5794	5921	6052
Provide air and sea transportation (cargo to and from continental United States).	7211	7474	7300	7000
Continue to support Army, MDA, NASA and Air Force development and operational missile testing. Beginning in FY 2006, the increase funds range institutional and overhead costs to comply with the Bob Stump National Defense Authorization Act (NDAA) for FY2003 (Public Law 107-314, December 2002).	35480	41290	51872	50134
Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.	58713	57440	60902	47671
Totals	134420	139939	154535	140010

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	143921	147262	148381
Current Budget (FY 2006/2007 PB)	139939	154535	140010
Total Adjustments	-3982	7273	-8371
Net of Program/Database Changes			
Congressional Program Reductions	-1956		
Congressional Rescissions			
Congressional Increases	1800		
Reprogrammings			
SBIR/STTR Transfer	-3826		
Adjustments to Budget Years		7273	-8371

Change Summary Explanation:

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Actual	Estimate						
Total Program Element (PE) Cost	19850	24190	31653	32472	38206	38962	39209	36948
308 CONCEPTS EXPERIMENTATION	8287	9966	8951	9490	10263	10624	9582	7332
312 ARMY/JOINT EXPERIMENTATION	8514	11552	20101	20255	26907	27297	28567	28811
33B SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	3049	2672	2601	2727	1036	1041	1060	805

A. Mission Description and Budget Item Justification: This program resources the Army Concept Development and Experimentation Campaign Plan (ACDEP), an adaptive approach along two simultaneous, parallel and supporting experimental paths, the concept development path and the prototype path. The first path develops a concepts-based, coherently joint Future Force over time using live, virtual and constructive experimentation to explore, test, and demonstrate concepts and capabilities. These focus on reducing risk to soldiers in the future through actionable recommendations informing Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) decisions. Prototype path experiments involve operational units, experimental units, and Combat Training Center Operational Forces to inform the future, spiral forward feasible operational needs, and test compelling technology. This program will be executed by TRADOC Futures Center.

This program resources the concept development through experimentation and exercises that are critical to the success of the Unit of Action (UA) Initial Operational Capability (IOC). The UA is the basis of the Future Force modular design and will improve strategic responsiveness of the joint Future Force for full spectrum operations. This is an analytically designed, integrated and synchronized program of small through large scale experimentation using multiple live, virtual and constructive venues to efficiently provide validation and quantifiable data supporting the development of required capabilities across the domains of doctrine, organization, training, materiel, leader development, personnel and facilities (DOTMLPF). The Army will use experimentation as the central focus to refine and mature warfighting concepts, and identify and validate critical decisions related to concept-based required DOTMLPF capabilities (consistent with the Joint Capability Integration and Development System). The Army Chief of Staff designated TRADOC as the executive agent and is the key decision-maker in experiment design and execution.

The resources in this program element supports experimentation functions to include: developmental experiments addressing specific study areas and issues directly supporting concept refinement and development of required capabilities based on Future Force concepts; integrating experiments to ensure the complex family of systems and concepts that comprise the Future Force are fully integrated across proponents, across DOTMLPF domains, and within service/joint contexts; capstone experiments at the end of major Army Transformation Concept Development and Experimentation Plan (AT-CDEP) phases to demonstrate future force capabilities for the joint warfighter; collaborative environments for simulation and experimentation; analysis; program management; Army participation in joint/sister service experimentation and incremental funding for sustaining battle lab experimentation.

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The Spiraling program provides a method for Army to keep the Current Force “current” or 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 PM/PEOs and pulling, or spiraling, them forward for immediate use in the theater. Spiraling 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.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	22727	16739	15997
Current Budget (FY 2006/2007 PB)	24190	31653	32472
Total Adjustments	1463	14914	16475
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases	1463		
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		14914	16475

Change Summary Explanation: Funding - Increases in FY 2006 & 2007 are in support of spiral development of solutions to fill immediate capability gaps in Operation Iraqi Freedom and Operation Enduring Freedom.

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation	PROJECT 308						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
308 CONCEPTS EXPERIMENTATION	8287	9966	8951	9490	10263	10624	9582	7332

A. Mission Description and Budget Item Justification: This program supports the Future Force. Resources will provide for the development of the Live-Virtual-Constructive linkages and integration to the joint simulation infrastructure which supports the Secretary of Defense mandated use of human-in-the-loop war gaming with both constructive and live force elements in support of FY06-08 Army experimentation efforts (Phase I of the ACDEP) focused on enabling fielding of initial Future Force capability by 2010, establishing the Unit of Action and essential Unit of Employment capabilities. This will be accomplished through a number of focused developmental experiments enabling annual integrating experiments, culminating in an FY08 capstone experiment. Army experimentation will also support Joint Concept Development and Experimentation, including participation in the Standing Joint Force Headquarters (SJFHQ) prototype pathway.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Unit of Action Battle Command Experiment	740	0	0	0
Networked & DCGS - A ISR Experiment	741	0	0	0
Joint Urban Operations Experiment	500	0	0	0
Networked Freedom of Maneuver Experiment	375	0	0	0
Technology Management and Collaboration Initiative (Congressional add)	5063	0	0	0
Networked Operations Tools and Functions Experiment	124	0	0	0
73rd Hour/Unit of Employment Computer Assisted Map Exercise	744	0	0	0
Omni Fusion Build I Experiment	0	4654	0	0
TRADOC Analysis Center analytical support to experimentation	0	2916	0	0
Technology Management for Collaborative Initiatives (Congressional add)	0	1438	0	0
Handwritten Optical Character Recognition Software (Congressional add)	0	958	0	0
Specific FY 06 and FY 07 requirements to be determined at the FY 06 and FY 07 Experimentation Planning Conferences scheduled for the summer preceding each fiscal year.	0	0	8951	9490
Totals	8287	9966	8951	9490

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation						PROJECT 312	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
312 ARMY/JOINT EXPERIMENTATION	8514	11552	20101	20255	26907	27297	28567	28811

A. Mission Description and Budget Item Justification: This project supports experimentation to develop actionable recommendations in support of key decisions based on analytically rigorous underpinnings to yield the right set of integrated capabilities to enable the Future Force. The Army employs four categories of experiments: Developmental, Integrating, Capstone, and Exploratory. These reflect both different levels of anticipated and unanticipated results and differing levels of scope from single functional area/operational theme, to integrating across multiple functional areas and operational themes. All experiments are executed within a joint context and are conducted using approved scenarios and validated environmental, behavioral, and performance data. This project also supports costs to accomplish Army-unique objectives during Army participation in Joint and Service experiments.

In accordance with the Army Concept Development and Experimentation Plan (ACDEP), FY 06-10 experimentation focuses on setting the conditions for achieving Future Force capability this decade. The initial focus is at the tactical level to rapidly develop the Future Combat System (FCS) equipped Unit of Action (UA) as described in the UA Operational and Organization Plan and FCS Family of Systems Operational Requirements Document (CCD). As the experimentation campaign progresses, the focus shifts to the operational and strategic levels to refine the operational Unit of Employment (UE) concept and a broad range of functional concepts affecting the way we execute doctrine, build organizations and conduct training and leader development such as Battle Command, Maneuver Support, Maneuver Sustainment, Fires and Effects, and Aviation. FY 11-15 experimentation will continue UA and FCS development but is focused on establishing the UE and its associated pooled capabilities. This phase also addresses joint integration across the entire force, to include future and current force capabilities.

Spiraling was added to this project in the FY 06-11 POM. Spiraling provides a method for the Army to keep the Current Force “current” or 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. RDT&E funds are required to ensure that a solution’s proposed gain in capability is not offset by a disruption caused by integration problems. Program funding enables the holistic demonstration, assessment and deployment of critically needed capabilities to the current force in an integrated environment in the current year. 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 PM/PEOs and pulling, or spiraling, them forward.

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0605326A - Concepts Experimentation

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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Unit of Action Battle Command Experiment	4954	0	0	0
Networked Fires Experiment	1067	0	0	0
Networked Operations Tools and Functions Experiment	1070	0	0	0
Networked Freedom of Maneuver Experiment	367	0	0	0
Army Airspace Command and Control Experiment	892	0	0	0
Army Concept Development and Experiment Plan Integrating Experiment	164	0	0	0
TRADOC Analysis Center analytical support	0	1034	0	0
World Class blue Force Players	0	3290	0	0
Maneuver Enhancement Unit of Action Experiment	0	307	0	0
Unit of Employment Network Operations Experiment	0	650	0	0
Battle Lab experimentation support	0	401	0	0
Nonlethal Concept and Scalable Effects Experiment	0	283	0	0
Unit of Employment Information Dominance Management Experiment	0	350	0	0
Objective Force Build 2 Events	0	3718	0	0
Unit of Employment Intelligence, Surveillance and Reconnaissance (ISR) Concept Design and Development	0	1217	0	0
Unit of Employment Sustainment/Sustainment Unit of Action Capabilities Experiments	0	151	0	0
Unit of Action Sustainment Experiment	0	151	0	0
Specific FY 06 and FY 07 requirements to be determined by the FY 06 and FY 07 Experimentation Planning Conferences scheduled for the summer preceding each fiscal year.	0	0	5101	5255
Spiraling - Demo/Assess soldier protection indirect fire threat	0	0	3800	0
Spiraling - Demo/Assess radar enhancements in support of Counter Rocket, Artillery and Missile (C-RAM)	0	0	4200	0
Spiraling - Demo/Assess command and control capabilities for Maneuver Control System (MCS) modifications	0	0	3600	0
Spiraling - Demo/Assess Forward Area Air Defense Command and Control (FAADC2) integration with Area Defense System	0	0	3400	0
Spiraling - Demo/Assess Joint Interoperability of emergent Soldier Protection capability	0	0	0	4200
Spiraling - Demo/Assess emergent remote operating weapons station capability	0	0	0	4000
Spiraling - Demo/Assess emergent explosives detection capability	0	0	0	3200
Spiraling - Demo/Assess emergent sensor integration solutions	0	0	0	3600
Totals	8514	11552	20101	20255

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation					PROJECT 33B			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
33B SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	3049	2672	2601	2727	1036	1041	1060	805	

A. Mission Description and Budget Item Justification: 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).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide Human Factors Engineering and Manpower and Personnel Integration (MANPRINT) support to Training and Doctrine Command (TRADOC) Centers, Schools and Battle Laboratories. In FY04, performed and transitioned 27 MANPRINT Assessments (MA), 28 Human Factors Engineering Assessments (HFEA), 9 Manpower, Personnel, and Training (MPT) assessments, and reviewed 19 system training plans (STRAP). Prepared Human Factors Engineering Assessment for Future Combat System (FCS) for Milestone B Update and transitioned input for the Systems Evaluation Plan to the test and evaluation community. In FY05, improve and enhance fidelity of models to predict materiel readiness with direct application to support operation and maintenance manpower estimates for the force modernized equipped Unit of Action (UoA). In FY06, continue to conduct and improve MANPRINT assessment processes. In FY07, continue to influence future force requirements using soldier centered analysis of proposed concepts.	1723	1417	1379	1446

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

PROJECT
33B

Accomplishments/Planned Program (continued)

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 Centers (RDECs), TRADOC Centers, Schools and Battle Laboratories, Army Test and Evaluation Command (ATEC) and other service laboratories. In FY04, defined Unit of Action (UoA) system-of-systems analytical framework requirement for development of a network of integrated Improved Performance Research Integration Tool (IMPRINT) models to simulate a combined arms mission. Ensured soldier performance considerations in Future Combat System (FCS) analyses, modeling, simulation, and evaluating through the participation of various FCS integrated product teams (IPTs) and working groups. Completed crew size analysis on non-line-of-sight-cannon (NLOS-C) FCS platform and recommended an increase in crew size to three in the FCS operational requirements document. In FY05, identify soldier-focused modeling and analysis capabilities and map those capabilities to the Future Force needs of PEO Soldier. Conduct and transition soldier-system integration (form & fit) analysis to support UoA force and systems design decisions using library of individual soldier clothing and equipment. Identify and transition lessons learned from Operation Iraqi Freedom (OIF) Patriot fratricide incidents to influence ongoing Air and Missile Defense requirements and operations. In FY06, continue to improve and transition MANPRINT tools to the user, acquisition and Test & Evaluation communities. Recommend 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.

FY 2004	FY 2005	FY 2006	FY 2007
1326	1255	1222	1281
Totals	3049	2672	2727

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES							
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	181967	191688	369943	390035	385439	370886	364497	351535
F30 ARMY TEST RANGES & FACILITIES	173423	184978	369943	390035	385439	370886	364497	351535
F38 BIG CROW SUPPORT	8544	6710	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This program element (PE) provides the institutional funding required to operate the developmental test activities required by Department of Defense (DoD), Department of the Army (DA) weapons systems developers and Research, Development, and Engineering Centers. This funding does not pay for program specific test costs. All functions and resources associated with this PE are managed by the U.S. Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC). This PE provides resources to operate four Army Major Range and Test Facility Bases (MRTFB):

- White Sands Missile Range (WSMR), NM (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona)
- Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD
- 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 Schofield Barracks, HI).

This PE also provides the resources to operate the Army’s developmental test capability at: Aviation Technical Test Center, Fort Rucker, AL; and Redstone Technical Test Center, Redstone Arsenal, AL.

It also provides the resources for test planning and safety verification/confirmation at HQ, DTC located at APG, MD. Developmental test capabilities at the test range 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.

This PE finances test range operating costs 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. This PE does not finance reimbursable costs directly identified to a user of these ranges. Direct costs are borne by materiel developers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R. This PE sustains the developmental T&E capability required to support all elements of Army Transformation, as well as Joint Service or Other Service systems, hardware, and technologies.

Increased funding, beginning in FY 2006 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 – (1) 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 ... ‘institutional and overhead costs’ ... 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

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0605601A - ARMY TEST RANGES AND FACILITIES

the use of the facility or resource for testing under a particular program.”

The PE also includes funding for the Big Crow Program Office to sustain test and evaluation capabilities to support essential testing in electronic warfare, electronic countermeasures, electronic warfare equipment, missiles and other small object tracking, and telemetry.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	181114	198690	216728
Current Budget (FY 2006/2007 PB)	191688	369943	390035
Total Adjustments	10574	171253	173307
Net of Program/Database Changes			
Congressional Program Reductions	-3053		
Congressional Rescissions			
Congressional Increases	16000		
Reprogrammings			
SBIR/STTR Transfer	-2373		
Adjustments to Budget Years		171253	173307

Change Summary Explanation:

Increased funding in FY 2006 and FY 2007 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) to fund institutional and overhead costs at the Army Major Range and Test Facility Bases (FY2006 +171253/FY2007 +173307).

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES					PROJECT F30			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
F30 ARMY TEST RANGES & FACILITIES	173423	184978	369943	390035	385439	370886	364497	351535	

A. Mission Description and Budget Item Justification: Increased funding, beginning in Fiscal Year 2006 (FY 2006) 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 – (1) 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 ... ‘institutional and overhead costs’ ... 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.” This project provides resources to operate four Army Major Range and Test Facility Bases (MRTFBs): White Sands Missile Range (WSMR), NM; Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD; 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 Schofield Barracks, HI); and Electronic Proving Ground (EPG), Fort Huachuca, AZ.

This project also provides the resources to operate the Army’s developmental test capability at: Aviation Technical Test Center (ATTC), Fort Rucker, AL, and Redstone Technical Test Center (RTTC), Redstone Arsenal, AL, as well as the funds for test planning and safety verification at Headquarters, U.S. Army Developmental Test Command (DTC) at APG, MD. ATTC and RTTC are non-MRTFBs and the Bob Stump NDAA for FY 2003 is not applicable to non-MRTFBs. The developmental test capabilities at the 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.

This project supports critical war-related efforts in fielding superior systems for the soldier that will pass the crucial test during time of war. Initiatives supporting critical war efforts are Urgent Material Releases, Up Armor testing and Improvised Explosive Device electronic counter measures.

This project finances indirect test range operating costs, 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. Direct costs are borne by materiel developers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R at MRTFBs. This project sustains the developmental T&E capability required to support all elements of Army transformation (from the Current Force to the Future Force and interdependent network centric warfare) as well as Joint Service or Other Service systems, hardware, and technologies.

Unclassified systems scheduled for developmental testing encompass the entire spectrum of transformation weapon systems to include the Future

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Combat Systems (FCS) Spin Off systems such as: Unattended Ground Sensors, Non-Line-of-Sight Launch System, Intelligent Munitions System, and Non-Line-of-Sight Cannon.

Capabilities are also required to support FCS System-of-Systems testing, as well as FCS Spin Off complementary systems to include: Joint Tactical Radio System, Warfighter Information Network-Tactical, Combat Identification, Integrated Computer System and Apache Block III. This project also supports Joint Service, Air Force, Navy, Marine Corps, and other DoD Agency testing needs at Army Ranges.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Funding, beginning in Fiscal Year (FY) 2006 reflects increases essential to comply with the Bob Stump NDAA for FY 2003 (Public Law 107-314 - December 2002). In accordance with the NDAA, Sec. 232, this increase funds range institutional and overhead costs to comply with the law for all test customers at the MRTFBs. The four MRTFBs institutionally-funded are White Sands Missile Range (WSMR), NM; Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD; 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 Schofield Barracks, HI); and Electronic Proving Ground (EPG), Fort Huachuca, AZ.	0	0	194977	192683
Mission Support. Funds support test equipment upgrade and maintenance; test facility maintenance; administrative supplies; tools; software; spare parts; test support vehicle maintenance; garrison support; TDY/training of civilian and contractor personnel; utilities; and GSA vehicles. Supporting critical war efforts include requirements for Urgent Material Release, Up Armor and Improvised Explosive Device electronic counter measures. Unclassified systems scheduled for developmental testing that require the Developmental Test Command's test capabilities encompass the entire spectrum of transformation weapon systems to include the Future Combat Systems (FCS) spin off systems such as: Unattended Ground Sensors, Non-Line-of-Sight Launch System, Intelligent Munitions System, and Non-Line-of-Sight Cannon. Capabilities are also required to support FCS System-of-Systems testing, as well as FCS spin off complementary systems to include: Joint Tactical Radio System, Warfighter Information Network-Tactical, Combat Identification, Integrated Computer System and Apache Block III. DTC also supports Joint Service, Army, Navy, Marine Corps, and other DoD Agency testing needs.	30080	31797	38491	41655

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6 - Management support

PE NUMBER AND TITLE
0605601A - ARMY TEST RANGES AND FACILITIES

PROJECT
F30

Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
T&E Civilian Pay. This funding supports a portion of the overhead costs of the civilian labor for Program Budget Guidance (PBG) authorizations. 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, over and above the institutional and overhead costs with respect to the facility or resource. The funding profile reflects the Army restoration of PBG authorizations based on the exemption of the Test and Evaluation functions from private sector performance due to the risk to national security. These authorizations are essential to restore and maintain core T&E skills as part of the Government civilian workforce.	88807	101902	107634	113504
Contractor Pay. This funding supports a portion of the overhead costs of the contractor labor costs. The balance is test customer funded. Contract labor is essential to augment core civilian T&E personnel. Functions performed include range operations, automotive test support, radar maintenance, aerial cable support operations, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and instrumentation, and ADP support.	34316	32124	18841	32193
Revitalization/Upgrade of test infrastructure and facilities. In FY05, funded projects included the Anechoic test chamber replacement, modernization of refrigeration and control systems of fixed and mobile environment conditioning equipment, mobile radio capabilities, and a power upgrade for communications facilities. For FY 2006 through FY 2008 funds will provide the capability to support the Army Transformation test and evaluation program through such projects as: upgrading test facilities to support environmental testing and live fire testing, upgrading a chemistry laboratory and upgrading aircraft icing facilities. This funding will ensure a safe test environment.	10000	10155	10000	10000
Cold Regions Test Activity (CRTC) Congressional increase. Funds are designated for CRTC Hybrid electric infrastructure	10220	9000	0	0
Totals	173423	184978	369943	390035

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets							
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	58268	60142	62687	82385	85436	85673	88469	70310
628 DEVELOPMENTAL TEST TECHNOLOGY & SUSTAINMENT	48639	47880	46398	52771	55119	55166	56739	44362
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	7260	6833	9021	12557	12877	12974	13498	10873
62C MODELING AND SIMULATION INSTRUMENTATION	2369	5429	7268	17057	17440	17533	18232	15075

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 OSD interest in implementing the Defense Science Board (DSB) recommendations to increase developmental test 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.

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, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), 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 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. These capabilities support the development and fielding cycle of the Army Transformation as well as Joint Vision 2020 initiatives. Within this program, a major initiative called Virtual Proving Ground (VPG) is directed towards integrating Modeling, Simulation, and Internetting technologies into the test and evaluation process to support acquisition streamlining and to offset prior manpower and budget reductions. The Virtual Proving Ground will significantly improve the ability of the Army to provide early influence on system design, reduce test costs and time, and extend the envelope of information to reduce risk and acquisition costs. This initiative is critical to achieving long-term efficiencies within the acquisition process by conforming to the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) and Simulation Based Acquisition (SBA) processes. Sustaining instrumentation maintains existing testing capabilities at DTC 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 data supports acquisition milestone decisions for all commodity areas throughout the Army including programs such as Stryker Armored Vehicle (SAV), Future Combat Systems (FCS), Theater High Altitude Area Defense (THAAD), Patriot

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BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605602A - Army Technical Test Instrumentation and Targets

Advanced Capability Phase 3 (PAC 3), High Mobility Artillery Rocket System (HIMARS), M1A2 Main Battle Tank, Joint Service Lightweight Integrated Suit Technology (JSLIST), Javelin Missile System, Family of Medium Tactical Vehicles, Army Battle Command System (ABCS), Force XXI Battle Command Brigade and Below (FBCB2) and Land Warrior. This Program Element develops and sustains developmental test capabilities that provide key support to the Army's Transformation. This Program Element also includes funding for modeling and simulation efforts as well as support for development and sustainment of operational test assets at Airborne Special Operations Test Directorate, Fort Bragg, North Carolina; Air Defense Artillery Test Directorate, Fort Bliss, Texas; Fire Support Test Directorate, Fort Sill, Oklahoma; Intelligence Electronic Warfare Test Directorate, Fort Huachuca, Arizona; and Test and Evaluation Support Agency, Fort Hood, Texas. The development and sustainment of ATEC's Simulation Testing Operations Rehearsal Model (STORM) is also included. Systems that will benefit from this effort are Army Tactical Command and Control System (ATCCS), Battlefield Functional Area (BFA), Advanced Field Artillery Tactical Data System Service Support Control System (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS).

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	52433	55586	73787
Current Budget (FY 2006/2007 PB)	60142	62687	82385
Total Adjustments	7709	7101	8598
Net of Program/Database Changes			
Congressional Program Reductions	-901		
Congressional Rescissions			
Congressional Increases	10250		
Reprogrammings			
SBIR/STTR Transfer	-1640		
Adjustments to Budget Years		7101	8598

Change Summary Explanation:

FY2005: Changes due to Congressional increases - WSMR Test Modernization (+4250); WSMR Film Elimination (+3500); ChemBio Def Material T&E Initiative (+1000); Adv Digital Radar System (+1500).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605602A - Army Technical Test Instrumentation and Targets

Funding - FY 2006/FY 2007: Funding increased to improve Army testing capability (FY2006 +7101/FY2007 +8598).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					PROJECT 628			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
628 DEVELOPMENTAL TEST TECHNOLOGY & SUSTAINMENT	48639	47880	46398	52771	55119	55166	56739	44362	

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, Hawaii); 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 the development and fielding cycle of the Army Transformation from the Current Force to the Future Force as well as Joint Vision 2020 initiatives.

Within this program, the highest priority technology investment initiative called the Virtual Proving Ground (VPG) is building the Army's network-centric test capability to support testing of the Future Force. This capability, comprised of modern modeling, 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), is being 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 for the Future Force. This capability is on the Brigade Combat Team (BCT) development critical path, and will be utilized to support the first BCT Integration Phase test and all future Integration Phase test events. Within the DTCC network, an Inter-Range Control Center (IRCC) is being installed at White Sands Missile Range (WSMR) to serve as the primary interface between ATEC test ranges and the 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.

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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605602A - Army Technical Test
 Instrumentation and Targets**

PROJECT
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Accomplishments/Planned Program

Support of Virtual Proving Ground (VPG): provide the necessary synthetic test environments, hardware-in-the-loop capabilities and models and simulations to successfully develop and test the Army Future Force. This program will continue 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 Testbed Distributed Test Events 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 FCS Lead Systems Integrator and the PM, Unit of Action, have built this distributed test capability into their testing strategy and will utilize it beginning in FY05. This project also funds a collaborative knowledge management system to provide a common access for all data/documents within the Army test community. It continues development of a High Level Architecture (HLA) and DoD 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 begin acquisition of test support tools. Continue development of tools for real-time monitoring of missile flight testing, greatly enhancing range safety operations.

FY 2004	FY 2005	FY 2006	FY 2007
20304	14854	16000	16552

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BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT
6 - Management support	0605602A - Army Technical Test Instrumentation and Targets				628
Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007	
<p>Development, Acquisition and Sustainment of Critical Test Instrumentation: provide and maintain the necessary test instrumentation, computer and communications systems and other test facilities to successfully develop and test the Army Transformation and the Future Force. Acquire instrumentation for reliability, availability and maintainability data collection on vehicles, replace automotive transducers for measuring vibration and engine performance. Replacing ballistic transducers for measuring chamber pressures during ammunition tests. Support development of common instrumentation for developmental and operational testing within all test commodity areas. Acquiring improved instruments to support NBC tests and model development. Acquiring instrumentation for electromagnetic environment effects on ground systems and air vehicles. Continue to replace range control instrumentation and upgrade and replace radar, optics and telemetry equipment. Acquire aircraft data recorders, signal conditioning equipment, data processing equipment and other instrumentation for aircraft and UAV tests. Updating the Weibel ballistic radars for artillery testing. Continue development/acquisition of: an optical data measurement system, radar transponders, mobile video instrumentation and control equipment used for tracking and capturing event data on aircraft and missiles. Improving the air to ground weapon scoring for aircraft weapon system testing. Continuing to update survivability test capabilities in support of live fire and active protection systems. Improving vibration equipment for munitions tests. Improving mobile communications equipment and digital end devices for all test commodity area. Continue to develop Test Operation Procedures (TOPs) to ensure quality and consistent test results throughout the Army.</p>	21362	17540	24539	30185	
<p>Conduct strategic planning, and develop roadmaps to guide current and future programs. Provide command-level oversight and management support for the DTC instrumentation program. Technical support includes requirements development, project prioritization, and execution of investments accounts for Small Business Innovation Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major T&E Investment, and the Central T&E Investment Program. Provide 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 Test Resource Advisory Group (TRAG).</p>	5215	5639	5859	6034	
<p>Chemical Biological Defense Materiel Test and Evaluation Initiative (CBDMTEI) was a congressional addition to DPG for the creation of a Technology Development, Application and Commercialization Center to promote licensing of inventions and submission of research proposals. It will also showcase DPG technology to business and education institutions, and sponsor activities to showcase capabilities of small business and educational institutions of interest to DPG.</p>	793	961	0	0	

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605602A - Army Technical Test Instrumentation and Targets

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Accomplishments/Planned Program (continued)

Technology Development Corporation (TEDCO) Initiative: This congressional add to APG funds the Maryland TEDCO and the APG Business Development Office. These funds are being used to identify companies to have Technology Transfer Initiative with and fund those initiatives.

WSMR Congressional add for WSMR modernization (4083), Film Eliminator (3362), and Advanced Digital Radar (1441). The WSMR Test Modernization and Film Elimination projects will replace film based camera systems with digital devices for both tracking and non-tracking instruments. WSMR Test Modernization will: Acquire high-speed, medium-resolution digital imagers for tracking systems and required support equipment; acquire digital photographic support equipment; facility networking equipment; and digital camera data downloading systems for the Media Transfer Facility; acquire upgrades to digital image processing and optical data analysis computers; high-bandwidth network equipment; a 50TB disk library; and acquire medium-resolution test camera and support equipment for testing, calibration and maintenance. The WSMR Film Elimination will: Acquire high-speed, medium-resolution digital imagers for non-tracking systems; acquire mobile launch support network vans for non-tracking systems; acquire lenses, portable field computers, field storage devices, media duplicators for non-tracking systems; and acquire equipment for digital imaging, reproduction, archiving and photo lab support in the Media Transfer Facility.

The Advanced Digital Range Radar is a network-centric radar suite that will provide for future missile tracking requirements, while simultaneously reducing the costs of operation. The radar suite will consist of single-object trackers, multiple-object trackers, Imaging Systems, Doppler radars, and multistatic radar receivers - all of which are highly reliable and transportable. The radar suite will be configured as a single system, operating from single control points and remotely controlling the individual radar sensors without the need of onsite personnel. The system will provide needed measurement capabilities and will be able to perform at very high and very low altitudes.

	FY 2004	FY 2005	FY 2006	FY 2007
Technology Development Corporation (TEDCO) Initiative: This congressional add to APG funds the Maryland TEDCO and the APG Business Development Office. These funds are being used to identify companies to have Technology Transfer Initiative with and fund those initiatives.	965	0	0	0
WSMR Congressional add for WSMR modernization (4083), Film Eliminator (3362), and Advanced Digital Radar (1441). The WSMR Test Modernization and Film Elimination projects will replace film based camera systems with digital devices for both tracking and non-tracking instruments. WSMR Test Modernization will: Acquire high-speed, medium-resolution digital imagers for tracking systems and required support equipment; acquire digital photographic support equipment; facility networking equipment; and digital camera data downloading systems for the Media Transfer Facility; acquire upgrades to digital image processing and optical data analysis computers; high-bandwidth network equipment; a 50TB disk library; and acquire medium-resolution test camera and support equipment for testing, calibration and maintenance. The WSMR Film Elimination will: Acquire high-speed, medium-resolution digital imagers for non-tracking systems; acquire mobile launch support network vans for non-tracking systems; acquire lenses, portable field computers, field storage devices, media duplicators for non-tracking systems; and acquire equipment for digital imaging, reproduction, archiving and photo lab support in the Media Transfer Facility.	0	8886	0	0
Totals	48639	47880	46398	52771

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					PROJECT 62B			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	7260	6833	9021	12557	12877	12974	13498	10873	

A. Mission Description and Budget Item Justification: Provides for the technical development, enhancement, upgrade and maintenance of essential 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 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 are required to collect 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 Army's digitization and transformation of the battlefield continues, this development effort allows ATEC'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 the operational tests. The goal is to expand data collection, reduction, and analysis of the collected data and test control capability, while reducing the 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 has transmission capability to central receiving, control, and evaluation stations at various test directorates, and new instrumentation capability in support of real-time Casualty Assessment 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 the Current to Future transition path of the Transformation Campaign Plan.

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605602A - Army Technical Test
 Instrumentation and Targets**

PROJECT
62B

Accomplishments/Planned Program

The accomplished and planned projects fall within the test technology areas as outlined in the Army Test Resource Master Plan. These projects fall within Optical Imaging, Network/Test Data Management, Mobile Range Operations Performance Instrumentation and Telemetry/TSPI test technology categories. Projects such as Airdrop High Speed Digital Cameras, Multi-Media Data Transfer System, High Speed Data Recording System, Global Positioning System Modernization, Digital Field Data Collection Systems, Digital Terrain Database, Aviation Bus Recording System, Airborne Position Location System etc.

FY 2004	FY 2005	FY 2006	FY 2007	
7260	6833	9021	12557	
Totals	7260	6833	9021	12557

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets				PROJECT 62C			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
62C MODELING AND SIMULATION INSTRUMENTATION	2369	5429	7268	17057	17440	17533	18232	15075

A. Mission Description and Budget Item Justification: This project provides a critical foundation necessary to develop and sustain the Army Test and Evaluation Command's (ATEC) current and future modeling and simulation (M&S) instrumentation efforts. ATEC's M&S efforts include: Simulation Testing Operations Research Model (STORM), Command, Operational Test Command (OTC) Analytic, Simulation and Instrumentation Suite (OASIS), Command, Control and Communication Driver (C3Driver), Extensible C4I Instrumentation System - Fire Support Application (ExCIS-FSA), Intelligence Modeling and Simulation for Evaluation (IMASE). Systems that will benefit from this effort include, but are not limited to Stryker, Brigade Combat Team, Army Tactical Command and Control System (ATCCS), Advanced Field Artillery Tactical Data System (AFATDS), and Maneuver Control System (MCS), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS). The additional funding in FY 2007 will provide Information Technology infrastructure and M&S instrumentation to test and evaluate the increasingly complex systems of the Army Future Force.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Funds development and sustainment of high priority modeling and simulation instrumentation systems, such as STORM and OASIS.	2369	1229	2628	12337
Funds development of the C3 Driver. The C3 Driver supports the C4ISR ABCS 6.3, 6.4, Brigade Combat Team, JTRS, and WIN-T development and integration at the Central Technical Support Facility and contractor locations as the Army's single simulator/stimulator.	0	4200	4640	4720
Totals	2369	5429	7268	17057

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis					PROJECT 675			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	40288	47543	38306	40005	41180	41693	42936	39559	

A. Mission Description and Budget Item Justification: 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, 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 Project 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.

Additionally this project supports survivability analysis, information warfare, and information operations 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 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 information warfare. 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.

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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis	PROJECT 675
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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Complete non-ballistic survivability/lethality analysis for Stryker variants/configurations. Conduct Stryker Mobile Gun System and NBC 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.	4095	4216	0	0
Conduct integrated survivability, lethality, and vulnerability analyses for Army Future Combat Systems (FCS). Initiate modeling, analysis and simulation efforts supporting the FCS program, to include Active Protection Systems (APS) and FCS Lethality. Contribute to the Development of the Systems of Systems analysis methodology for Unit of Action (UA) 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 DOT&E. Conduct a ballistic vulnerability analysis on the initial Manned Ground Vehicle (MGV) platform design. Further support FCS program by providing documentation and briefings on survivability of concepts in support of the PDR in FY 2005.	9104	11774	12000	12300
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 electronic warfare 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 MLRS w/DCIPM, GMLRS Unitary, CKEM, Javelin P3I, Medium Caliber and XM307. Provide GPS 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. Support LFT&E of GMLRS Unitary and operational testing for GMLRS w/DPICM. Conduct initial lethality estimates on the NLOS-LS and Intelligent Munitions System (IMS).	7043	7347	7329	6900

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

PROJECT
675

Accomplishments/Planned Program B(continued)	FY 2004	FY 2005	FY 2006	FY 2007
<p>Conduct integrated electronic and information warfare effects survivability analysis on command and control systems, and various Army weapon platforms as they integrate Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (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: FBCB2, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, Combat Service Support Control System, and Advanced Missile Defense Warning System. Continue to expand information warfare 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 information warfare (IW) threat environment. Conduct integrated electronic and information operations survivability analysis for U.S. Army communications systems such as Warfighter Integrated Network-Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, SCAMP, SMART-T and SINCGARS VISP. Conduct integrated electronic and information operations survivability analysis for C2 systems integral to air and missile defense systems. Conduct integrated electronic and information operations survivability analysis for GPS components as 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 electronic warfare (EW) and IW attacks on the survivability of FCS. Conduct EW and IW investigations of the JTRS design via supplied simulations and emulations.</p>	9811	12707	13057	15468

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
6 - Management support	0605604A - Survivability/Lethality Analysis	675			
Accomplishments/Planned Program A(continued)					
	FY 2004	FY 2005	FY 2006	FY 2007	
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), SLAMRAAM, JLENS, M3P 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 GMD, 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) BMDS systems through MDA Black Team participation which includes postulation of potential countermeasure threats, assessment of countermeasure impacts on BMDS systems and providing comms jamming and IA inputs to the Adversary Capability Document. Support development of BMDS Test Bed. Design and develop hardware to support the software R&D development for the PAC-3 Seeker ECM/ECCM algorithms.	6035	7299	5920	5337	
Using Decision Related Structures (DRS), developed a partial System of Systems Survivability (S4) engineering model used with the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) and its successor, Combat XXI. The S4 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.	4200	4200	0	0	
Totals	40288	47543	38306	40005	

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

PROJECT
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	44648	42102	45079
Current Budget (FY 2006/2007 PB)	47543	38306	40005
Total Adjustments	2895	-3796	-5074
Net of Program/Database Changes			
Congressional Program Reductions	-548		
Congressional Rescissions			
Congressional Increases	4200		
Reprogrammings			
SBIR/STTR Transfer	-757		
Adjustments to Budget Years		-3796	-5074

Change Summary Explanation:

FY 2006/2007: Funds realigned to higher priority requirements (FY 06 -3796/FY 07 -5074).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility						PROJECT E97	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
E97 DOD HELSTF	18241	15098	17688	18354	19149	19162	19707	2024

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 be part of the Extended Area Air Defense (EAAD) system, a key component of the Future Force supporting Full Dimensional Protection. Candidate HEL programs include Mobile Tactical High Energy Laser (MTHEL) and Solid State Heat Capacity Laser (SSHCL). HELSTF is part of the DoD Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development and 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 an open-air HEL test range, a fully integrated laser support facility, 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. Additionally, WSMR has a wide variety of radar and optics facilities and HEL testing expertise that can support testing at HELSTF. 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 Laser Device Demonstration (LDD), the 10KW SSHCL testbed, the MTHEL static test site, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test System and the MTHEL testbed system. 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 simulated 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. HELSTF will also develop a digitized scene generation capability, distributed training and testing capability, a live/virtual constructive test environment and open-architecture data links as part of the Army 21st Century Range. Another major upgrade will include a HEL System of Systems Testbed. This capability is critical for DTE and OTE since modern HEL weapons will be software driven to accommodate mass indirect fire raids. HELSTF plans further include a tactical-power level transportable work-horse laser testbed, to operate at a variety of HEL weapon lasing wavelengths. This modernization will create a more efficient and versatile HEL T&E facility, which will also benefit the development and testing of other Service materiel solutions using HEL technologies.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility	PROJECT E97
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<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (MTHL, SOCOM Advanced Tactical Laser (ATL), Air Force Airborne Laser, and Navy HEL Low Aspect Target Tracking (HEL-LATT), other laser programs). Continue lethality testing experiments using 10KW flash lamp pumped SSHCL in accordance with the lethality and propagation test program and support SMDC Technical Center lethality and propagation testing. Continue safety and control system upgrades to integrate other HEL technologies, and development of a mobile HEL diagnostic capability, the HEL System of Systems testbed and the transportable work-horse laser testbed. Repair and upgrade SLBD and MIRACL to support Navy HEL-LATT testing. Eliminate the existing backlog of maintenance and repair. Conduct a variety of tracking tests with SLBD to support Space and Missile Defense Command (SMDC), U.S. Air Force (USAF) and Missile Defense Agency (MDA) missions. In FY04 HELSTF has integrated new hardware and software and conducted tracking missions in support of the HEL-LATT program. Additionally HELSTF supported HEL-LATT lethality testing at MIRACL power levels. HELSTF embarked on a significant upgrade of our mission computer and control systems and we built a beam transport system for propagating the 10 KW SSHCL to outdoor test areas.	18241	15098	17688	18354
Totals	18241	15098	17688	18354

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

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 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	15725	15525	16558
Current Budget (FY 2006/2007 PB)	15098	17688	18354
Total Adjustments	-627	2163	1796
Net of Program/Database Changes			
Congressional Program Reductions	-228		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-399		
Adjustments to Budget Years		2163	1796

Change Summary Explanation:
FY 2006/2007 increases support continued HELSTF Improvement and Modernization (FY 06 +2163/FY 07 +1796).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605606A - AIRCRAFT CERTIFICATION					PROJECT 092			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
092 AIRCRAFT CERTIFICATION	3062	3419	2748	12236	18325	19396	21608	22316	

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 an independent Airworthiness Qualification of all assigned Development and In-Production Army Manned and Unmanned Aircraft systems required per AR 70-62. This program 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 (a continuously evolving process incorporating revisions for each change to the standard design of an aircraft system), manages airworthiness approval of new vendor qualification/testing on fielded aircraft 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 of developmental and fielded aircraft systems. This project funds activities required for general research and development support of aircraft qualifications. Current programs requiring Airworthiness Qualification support are TAPO and PEO Aviation Future Force Systems (Apache Longbow, Blackhawk, Chinook) and Aviation Electronics Systems (Aviation Mission Equipment, Aircrew Integrated System, Army Airborne Command and Control System, Advanced Threat Infrared Countermeasures, and Suite of Integrated Radio Frequency Countermeasures).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Manage/execute technical and airworthiness qualification mission for PEO Aviation/force modernization aircraft systems.	1195	1115	1119	6442
Continue to ensure safety of flight investigations/assessments to include PEO Aviation/force modernization of aircraft systems.	749	668	667	4295
Manage/execute the Army Aeronautical Design Standards Program.	188	184	146	307
Provide continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.	718	700	599	852
Continue to provide test management capability for PEO Aviation Program/Project/Product Managers.	212	252	217	340
Explore commercial solutions to the Army's requirement for a new fixed wing cargo aircraft.	0	500	0	0
Totals	3062	3419	2748	12236

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605606A - AIRCRAFT CERTIFICATION

PROJECT
092

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	3485	2904	12529
Current Budget (FY 2006/2007 PB)	3419	2748	12236
Total Adjustments	-66	-156	-293
Net of Program/Database Changes			
Congressional Program Reductions	-50		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-16		
Adjustments to Budget Years		-156	-293

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities	PROJECT 128						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
128 METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	9375	8415	8829	9205	9543	9586	9859	8607

A. Mission Description and Budget Item Justification: 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/DoD 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 and the Tropical Regions Test Center, Schofield Barracks, HI); Fort Belvoir, VA; and Fort A.P. Hill, VA. Develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDT&E requirements. This PE 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 integral to the accomplishment of the Army's developmental test and evaluation mission and its support of the Army Transformation from Current to Future Force. Characterization of the weather is critical to this developmental test mission at outdoor range activities since weapon systems respond very differently under different weather conditions and system performance must be evaluated under different operational environments.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities	PROJECT 128			
Accomplishments/Planned Program 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. In FY04 and FY05, provides full salaries for interns at each site. These new hires are essential to support increasing demands for detailed weather knowledge required to test modern weapon systems, and to ensure continuity of specialized meteorological support as the aging workforce begins to retire. 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.	FY 2004 3092	FY 2005 3359	FY 2006 2994	FY 2007 2766	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities	PROJECT 128
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<u>Accomplishments/Planned Program A(continued)</u>	FY 2004	FY 2005	FY 2006	FY 2007
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 Virtual Proving Ground modeling & simulation (M&S). The Global Meteorology on Demand (GMOD) capability completed during FY04 allows range meteorologists to set-up and launch 4DWX modeling capabilities anywhere in the world, or as a backup to their 4DWX system. Other 4DWX accomplishments in FY04 include addition of 4DWX real-time four-dimensional data assimilation (RT-FDDA) capability to the next generation mesoscale model, the Weather Research and Forecasting (WRF) model. Planned 4DWX enhancements include providing the next generation of Linux PC clusters at the ranges with mesoscale modeling capabilities, increasing the computer resources available for GMOD applications to allow concurrent use at multiple locations and/or ensemble model runs to quantify model uncertainty; transitioning the range 4DWX systems to the WRF model; including other meteorological data sources such as Doppler weather radar in the RT-FDDA; and enhancing or adding more links between 4DWX and range applications such as noise prediction models. FY04-FY07 funding supports a multiyear effort to replace or upgrade obsolete instrumentation including replacing obsolete upper-air sounding systems; upgrading the sensors on the Surface Automated Weather Station (SAMS) fixed and mobile remote automated weather stations; and replacement of Doppler acoustic sounders (sodars) for near-real-time boundary layer wind profile measurements.	6283	5056	5835	6439
Totals	9375	8415	8829	9205

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

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 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	8711	7952	8512
Current Budget (FY 2006/2007 PB)	8415	8829	9205
Total Adjustments	-296	877	693
Net of Program/Database Changes			
Congressional Program Reductions	-126		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-170		
Adjustments to Budget Years		877	693

Change Summary Explanation:

FY 2006(+877) & 2007 (+693): Funds provide for a multi-year effort to replace obsolete meteorological instrumentation including: upper-air sounding systems; sensors on the Surface Automated Weather Station (SAMS) fixed and mobile remote automated weather stations; and Doppler acoustic sounders (sodars) for near-real-time boundary layer wind profile measurements. This instrumentation is critical to the continued operations of the meteorological teams.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS					PROJECT 541			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
541 MATERIEL SYS ANALYSIS	15515	17675	15517	15904	16905	17281	17550	15743	

A. Mission Description and Budget Item Justification: This program element funds Department of the Army 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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605706A - MATERIEL SYSTEMS ANALYSIS

PROJECT
541

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.

This Project funds the salaries of civilian employees assigned to the materiel systems analysis mission.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605706A - MATERIEL SYSTEMS ANALYSIS

PROJECT
541

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
<p>Funding directly pays DA civilians at U.S. Army Materiel Systems Analysis Activity (AMSAA) who are responsible for developing and certifying system performance and effectiveness data (e.g., delivery accuracy, target acquisition, probability of inflicting catastrophic damage, etc.) for U.S. and foreign systems to be used during Army and Joint Analyses of Alternatives (AoA), 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, AMC, RDECOM, PEOs/PMs, TRADOC, and ATEC. Included in these analyses are conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion studies, reliability growth studies, and physics of failure analyses. Examples of programs supported with critical analyses: Future Combat System (FCS), Stryker, Objective Individual Combat Weapon (OICW), Objective Crew Served Weapon (OCSW), WIN-T, UAVs, Joint Non-Lethal Weapons Program (JNLWP), Joint Tactical Radio System (JTRS), Digitization Brigade and Below (DB2), APKWS, and PGMM. AMSAA develops and modifies system level methodologies, models, and simulations to be used in the conduct of analyses. Examples of efforts include modeling of military operations in urban terrain (MOUT), several aviation modeling improvements, search and target acquisition methodology improvements, sensor fusion modeling, expansion of mechanical and electronic physics of failure modeling, individual combat evaluation model, synthetic aperture radar methodology, vehicle performance methodology, active protection system performance, and non-lethal weapons performance and effectiveness estimation methodology. AMSAA also performs verification, validation, and accreditation of item/system level performance models which ensures new models and simulations faithfully represent actual systems.</p>	15515	17675	15517	15904
Totals	15515	17675	15517	15904

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605706A - MATERIEL SYSTEMS ANALYSIS

PROJECT
541

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	18000	18489	18486
Current Budget (FY 2006/2007 PB)	17675	15517	15904
Total Adjustments	-325	-2972	-2582
Net of Program/Database Changes			
Congressional Program Reductions	-260		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-65		
Adjustments to Budget Years		-2972	-2582

Change Summary Explanation:
 FY 2006(-2972)/2007(-2582): Funds realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605709A - EXPLOITATION OF FOREIGN ITEMS						PROJECT C28	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
C28 ACQ/EXPLOIT THREAT ITEMS (TIARA)	4421	4672	4710	5090	5616	5980	6973	7107

A. Mission Description and Budget Item Justification: 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).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Acquire threat systems identified and prioritized in the Army Foreign Materiel Program (FMP) Five Year Plans.	1464	1701	1653	1751
Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the appropriate Army FMP Exploitation Programs.	2957	2971	3057	3339
Totals	4421	4672	4710	5090

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605709A - EXPLOITATION OF FOREIGN ITEMS PROJECT
C28

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	4740	4710	4991
Current Budget (FY 2006/2007 PB)	4672	4710	5090
Total Adjustments	-68	0	99
Net of Program/Database Changes			
Congressional Program Reductions	-68		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			99

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing							
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	64335	72284	75993	79062	79264	77127	78721	70247
001 ATEC JOINT TESTS AND FOLLOW-ON TEST & EVALUATIONS	2269	5960	9065	9380	9514	9662	9987	6866
V02 ATEC ACTIVITIES	62066	66324	66928	69682	69750	67465	68734	63381

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 PEO/PM and follow-on test and evaluations all of which are managed by HQ, ATEC.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	71239	73722	70354
Current Budget (FY 2006/2007 PB)	72284	75993	79062
Total Adjustments	1045	2271	8708
Net of Program/Database Changes			
Congressional Program Reductions	-1046		
Congressional Rescissions			
Congressional Increases	1000		
Reprogrammings	1954		
SBIR/STTR Transfer	-863		
Adjustments to Budget Years		2271	8708

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605712A - Support of Operational Testing

Change Summary Explanation:

FY 2005 increase due to Congressional increase for MATTRACKS-Track conversion systems for lightweight wheeled vehicle.

FY 2005 Reprogramming of +1954 due to Military to Civilian Conversions.

FY 2007 (+8708) increase due to:

Conversion of military to civilian positions (+3166);

Realignment of funding for follow on-test and evaluation from O&MA to RDT&E (+3090);

Pay critical shortfalls in FY07 operational testing (+2452).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing	PROJECT 001						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
001 ATEC JOINT TESTS AND FOLLOW-ON TEST & EVALUATIONS	2269	5960	9065	9380	9514	9662	9987	6866

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), the Army requirements for Joint Test and Evaluation (JT&E) which evaluates concepts and addresses needs and issues that occur in joint military environments, as chartered, 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. Beginning in FY 2006, this project will also fund Follow-on Test and Evaluation (FOTE), as necessary, after the 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.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Joint operational testing and evaluation.	1614	3417	3692	3812
Other-Special projects/OTE without Army PM	655	2543	2300	2478
Follow-on testing and evaluations.	0	0	3073	3090
Totals	2269	5960	9065	9380

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing					PROJECT V02			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
V02 ATEC ACTIVITIES	62066	66324	66928	69682	69750	67465	68734	63381	

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 base 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 base recurring costs include civilian pay, core requirements for test support contracts, temporary duty, supplies and equipment. This project funds base 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 HQ ATEC.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command.	41290	43379	46533	46733
Other 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.	20776	22945	20395	22949
Totals	62066	66324	66928	69682

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605716A - Army Evaluation Center						PROJECT 302		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
302 ARMY EVALUATION CENTER	45274	61212	57305	64745	68206	70845	73440	68926	

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. This initiative leverages science and technology that will lead to cost savings and design efficiencies early in a system's development, thereby avoiding more expensive product improvement programs later in a system's life cycle. 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) systems, Improvised Explosive Device (IED) Task Force systems, and Urgent Materiel Releases.

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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT
6 - Management support	0605716A - Army Evaluation Center				302
Accomplishments/Planned Program					
	FY 2004	FY 2005	FY 2006	FY 2007	
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 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, IED Task Force systems, and Urgent Material Releases.	4724	4847	5298	6560	
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 Stryker, FCS, Warfighter Information Network- Tactical (WIN-T), Improved Cargo Helicopter (ICH CH-47), 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), Trojan Spirit- LITE (TS-LITE), Dry Support Bridge (DSB), Blackhawk Helicopter (UH-60M), Anti-Personnel Landmine Alternative (APLA), Countermine Capability Set (CMCS) Group B-2, Family of Medium Tactical Vehicles (FMTV), Hercules, High Mobility Multipurpose Wheeled Vehicle (HMMWV A4), Surface Launched Advanced Medium Range Air to Air Missile system (SLAMRAAM), 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, and Line of Site Anti Tank (LOSAT). Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapon systems. Includes costs for 344 civilian authorizations in FY 2006 and 384 civilian authorizations in 2007.	40550	56365	52007	58185	
Totals	45274	61212	57305	64745	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605716A - Army Evaluation Center

PROJECT
302

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	62209	62013	72389
Current Budget (FY 2006/2007 PB)	61212	57305	64745
Total Adjustments	-997	-4708	-7644
Net of Program/Database Changes			
Congressional Program Reductions	-109		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-888		
Adjustments to Budget Years		-4708	-7644

Change Summary Explanation:
 FY 2007 D(-7644): Funds realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng
(SMART)

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Actual	Estimate						
Total Program Element (PE) Cost	3276	1853	9437	8592	6923	7108	8335	8233
S01 INTEGRATION AND EVALUATION CENTER (IEC) SUSTAINMEN	3276	1853	1001	1024	0	0	0	0
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	0	0	2520	2403	1394	1812	2010	2229
S03 TRAC M&S TOOLS & SERVICES	0	0	4413	3617	3283	2936	4012	4198
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	0	0	1503	1548	2246	2360	2313	1806

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 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. The Joint Precision Strike Demonstration Integration and Evaluation Center (JPSD IEC) supports SMART through ongoing Advanced Concepts Technology Demonstrations (ACTD) and by maintaining a current suite of M&S programs. The JPSD IEC virtual environment enables the Army to test and evaluate concepts and technologies before making costly technology commitments. The JPSD IEC provides the ability to conduct distributed exercises and experiments in any combination of real tactical and operational systems with constructive and virtual simulations/simulators and state-of-the-art high fidelity models. There are two major projects under the HQDA Decision Support Tools and Services Project that support the Deputy Assistant Secretary for Cost and Economics (DASA-CE) and the Center for Army Analysis (CAA). 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. CAA assesses Army capabilities in a Joint Interagency Multinational (JIM) context and conducts the Total Army Analysis (TAA) – the foundation for Army resources. CAA provides analytical assistance for defining and justifying Army requirements in a JIM context and provides additional assistance in support of SMART. This project supports the Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

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

(FACT), established by CAA to improve the M&S capability of representing Army capabilities at the campaign-level. The TRADOC 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's 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.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	1935	1964	2123
Current Budget (FY 2006/2007 PB)	1853	9437	8592
Total Adjustments	-82	7473	6469
Net of Program/Database Changes			
Congressional program reductions	-28		
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer	-54		
Adjustments to Budget Years		7473	6469

Change Summary Explanation: Funding - FY 2006 & FY 2007 - funds realigned to support the Tools and Services programs and the Simulation Technology Program (FY 06 +7473/FY 07 +6302)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S01			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
S01 INTEGRATION AND EVALUATION CENTER (IEC) SUSTAINMEN	3276	1853	1001	1024	0	0	0	0	

A. Mission Description and Budget Item Justification: The Simulation and Modeling for Acquisition, Requirements and Training (SMART) Program will develop essential operational tools and software applications to support ongoing Advanced Concepts Technology Demonstrations (ACTDs) and maintain the current suite of modeling/simulation programs resident in the Joint Precision Strike Demonstration's (JPSD) Integration and Evaluation Center (IEC). The JPSD's mission is to integrate innovative futuristic operational concepts, and tactics, techniques, and procedures (TTPs) with emerging technologies to significantly improve OSD/Army/Combatant Commanders capabilities. The IEC provides the environment that enables the development of SMART tools. This architecture, operational tools and software applications are essential to support ongoing ACTDs and Joint exercises/experiments. The IEC provides critical support in: (1) developing, testing and evaluating Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) operational concepts, TTPs, enabling technologies and systems; (2) developing and evaluating Joint/Services sensor-to-shooter and precision engagement C4ISR architectures; (3) providing a robust/current modeling and simulation environment to support Joint Forces Command's (JFCOM) joint experimental programs and the Army's critical SMART Program and Simulation Based Acquisition (SBA) activities (4) development of visualization tools and applications to significantly enhance the Combatant Commander's and/or JTF Commander's situational awareness of their battle space. The IEC is a critical enabling capability in building and testing software applications for JPSD's current ACTDs. The IEC's virtual environment allows the Army/OSD to test and evaluate concepts and technologies before making costly technology commitments. The IEC has the capability (modeling, simulation and communications) to conduct distributed exercises and experiments in any combination of real tactical and operational systems with constructive and virtual simulations/simulators and state-of-the-art high fidelity models. The IEC and its capabilities are consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The IEC, located within the Army's Topographic Engineering Center (TEC), has been built and maintained by the Director, Joint Precision Strike Demonstration Project Office (JPSD-PO) at Fort Belvoir, Virginia. JPSD-PO is an OSD/Army chartered program under the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO-IEW&S), Fort Monmouth, NJ.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605718A - Simulation & Modeling for Acq,
 Rqts, & Tng (SMART)**

PROJECT
S01

Accomplishments/Planned Program

IEC Sustainment - Funds provide enhanced Joint user/developer testbed for rapid prototyping of new systems in C4I and weapon(s) evaluations. Support modeling and simulation synthetic operational environment for two advanced concept technology demonstrations: Theatre Effects Battlefield Operations (TEBO) and Joint Intelligence Surveillance and Reconnaissance (JISR), an Army Science and Technology Objective, Modeling Architecture Research and Experimentation (MATREX) and two SMART/SBA acquisition programs: Future Combat System and Aerial Common Sensor. Support planned transition of Automated Deep Operations Coordination System (ADOCS) in training and simulation support for exercises. Provide stimulus in support of training for the JISR ACTD and web-based development. Provide secure communications via secret internet protocol router network (SIPRNET) to enable ACTDs to transmit software upgrades and patches in support of tests, evaluations and joint exercises. Provide a geographically distributed network to support joint warfare exercises and experiments. Provide continuous reach back warfighter support for ADOCS and JISR during Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF).

Small Business Innovative Research/Small Business Technology Transfer Programs

Unknown

Totals

FY 2004	FY 2005	FY 2006	FY 2007
2555	1853	1001	1024
74	0	0	0
647	0	0	0
3276	1853	1001	1024

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S02			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	0	0	2520	2403	1394	1812	2010	2229	

A. Mission Description and Budget Item Justification: The HQDA Decision Support Tools and Services project provides decision support tools for the Deputy Assistant Secretary for Cost and Economics (DASA-CE) and the Center for Army Analysis (CAA). The Integrated Performance Cost Model (IPCM) is a DASA-CE project that will provide rapid Cost As an Independent Variable (CAIV) analyses for systems performance and design trade-offs early in the stages of weapons systems development. IPCM will help to 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 despite having only limited data available early in the program lifecycle. Distributed data processing is the mode of operation and existing cost models will be linked to IPCM. Both system and component levels of IPCM will be integrated to provide seamless operation and will be available Army-wide. CAA has the responsibility to assess Army capabilities in a Joint Interagency Multinational (JIM) context and to conduct the Total Army Analysis (TAA). CAA provides analytical assistance for defining and justifying Army requirements in a JIM context and provides additional assistance in support of the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) initiative. CAA has primary responsibility for representing Army capabilities in campaign-level simulations with respect to strategic direction, concept development, and force planning. Funds provide advanced simulation technology for the next generation of campaign-level simulation systems of the future force. Funds provide for the Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team (FACT) established by the Center for Army Analysis (CAA). The JCCA FACT will improve the M&S capability of representing Army capabilities at the campaign-level to include the representation of arrival schedule; maneuver; rates of advance; theater air and missile defense; casualties of personnel; attrition of equipment (to include combat damage, breakdowns, repairs and returns); ammunition expenditures by munitions type; and supply consumption and shortages (theater-level), for the Army current through future force, other Services, forces of coalition partners, and threat forces, across the Range of Military Operations (ROMO). Improvements to this M&S capability will assist the Army in more accurately determining the quantity of each type US Army unit required for each contingency (contingency types include combat operations, low-intensity conflict, homeland security, and operations other than war); forecasting the likelihood and frequency of conflict/contingency types by region of the world; estimating the timing of arrivals of US forces, equipment, and supplies at overseas locations; and examining options for manning/rotation of Army units overseas. An additional task of focus in this area includes improving Chemical, Biological, Radiological, and Nuclear (CBRN) effects simulation at the theater-level.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605718A - Simulation & Modeling for Acq,
 Rqts, & Tng (SMART)**

PROJECT
S02

Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
In FY06 complete the second phase of Joint Integrated Contingency Model (JICM)/Joint Warfare System (JWARS) Interoperability. In FY07, continue Future Force Modeling in JICM and develop Mission Task Organized Forces Decision Support System (MTOF DSS) to provide an initial estimate for forces necessary in the range of Lesser Contingency (LC) operations.	0	0	923	796
In FY06, complete development of the weapon system cost model, field to various sites, and train personnel on its use. Develop component level cost data and classified data capability. In FY07, complete the component level cost model. Test and validate the component level cost model and populate the database.	0	0	1597	1607
Totals	0	0	2520	2403

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

PROJECT
S02

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team (FACT)	Various		0	0		923	2Q	796	1-4Q	Continue	Continue	0
b . Integrated Performance Cost Model (IPCM)	Various		0	0		1597	2Q	1607	2Q	Continue	Continue	0
Subtotal:			0	0		2520		2403		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

PROJECT
S02

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			0	0		2520		2403		Continue	Continue	0
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

PROJECT
S02

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team (FACT)			2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Integrated Performance Cost Model (IPCM)			2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S03			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
S03 TRAC M&S TOOLS & SERVICES	0	0	4413	3617	3283	2936	4012	4198	

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). 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Develop Advanced Warfighting Simulation (AWARS) and COMBAT XXI hybrid and functional capabilities/federations w/other models and simulations.	0	0	971	780
Advance maneuver sustainment force representation in combat models and simulations	0	0	397	319
Develop knowledge, models, and data for a strongly networked Future Force – (1) Command and Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), Information Fusion, and network-enabled effects delivery	0	0	794	638
Develop knowledge, models, and data for a strongly networked Future Force – Technology opportunities for system survivability, reliability, mobility.	0	0	1103	957
Advanced representation of unmanned systems in the Future Force	0	0	177	142
Advanced simulation of urban operations (complex environments, physical processes and individual and unit behaviors)	0	0	883	709
Develop knowledge, models, and data for future Battle Command	0	0	88	72
Totals	0	0	4413	3617

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S05			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	0	0	1503	1548	2246	2360	2313	1806	

A. Mission Description and Budget Item Justification: The goal of the Army's 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's 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Specific FY06 and FY07 requirements to be determined at the FY06 and FY07 SIMTECH Council of Colonels scheduled for the summer preceding each fiscal year.	0	0	1503	1548
Totals	0	0	1503	1548

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities							
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	71907	58106	54269	79482	83309	86391	71385	61139
F06 THE FUTURES CENTER	11035	7289	350	369	385	397	371	290
M02 MED CMD SPT (NON-AMHA)	10285	11157	12728	34325	36305	37792	19178	10124
M15 ARI MGMT/ADM ACT	2445	2206	2203	2399	2505	2599	2891	2860
M16 STANDARDIZATION GROUPS	4257	3646	3981	4645	5014	5141	5210	5273
M42 ARDEC CMD/CTR SUPPORT	8080	5604	5160	5873	5784	6000	6523	6732
M44 CECOM CMD/CTR SPT	3159	3064	3446	3779	3942	4092	4690	4729
M46 AMCOM CMD/CTR SPT	5391	5388	5061	5481	5727	5966	6749	6880
M47 TACOM CMD/CTR SPT	2593	2642	2474	2672	2766	2867	3110	3169
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	10469	10651	11367	11969	12639	13058	13430	11719
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	3517	3769	4428	4725	4876	5006	5479	5556
M58 SSCOM CMD/CTR SPT	1449	1532	1840	1974	2046	2123	2380	2408
M75 FED WORKFORCE RESTRUCT	7705	0	0	0	0	0	0	0
M76 ARMAMENT GROUP SUPPORT	1522	1158	1231	1271	1320	1350	1374	1399

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 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	59368	59872	88440
Current Budget (FY 2006/2007 PB)	58106	54269	79482
Total Adjustments	-1262	-5603	-8958
Net of Program/Database Changes			
Congressional Program Reductions	-760		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-502		
Adjustments to Budget Years		-5603	-8958

Change Summary Explanation: Funding - FY 2006/2007: Funds realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M02			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M02 MED CMD SPT (NON-AMHA)	10285	11157	12728	34325	36305	37792	19178	10124	

A. Mission Description and Budget Item Justification: This project provides funding for headquarters activities that support the Medical 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 US Food and Drug Administration (FDA) 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 USAMRMC Medical RDTE Program.

Additionally, the FDA recently imposed a new regulatory requirement for prototyping, certification, and integration of the Medical Research Information Technology System (MeRITS) required for approval of new vaccines, drugs, and medical devices. USAMRMC is required to conduct a variety of animal and human studies that support the development of these products. These studies and all activities related to the manufacturing, safety-evaluation or clinical testing of medical products are rigorously regulated by the FDA. Federal law mandates compliance with FDA regulations. Standardization/integration of disparate laboratory accounting systems will be undertaken in conjunction with MeRITS as part of an overall effort to enhance laboratory performance and accountability. Both efforts involve significant non-recurring contractor and equipment costs in FY 2007-2009.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
In FY04, partially funded civilian salaries and operation of USAMRAA and HQ, USAMRMC activities that support the Medical RDTE Program required to sustain military medical technology superiority. In FY05, continues to partially fund operation of USAMRAA and HQ, USAMRMC activities that support medical RDTE. In FY06, funds only authorized civilian salary costs. In FY 07, funds authorized civilian salary costs, the Special Immunizations Program necessary to safely develop countermeasures to endemic infectious diseases, and partially funds critical operations costs (e.g., supplies, equipment, and services) that support medical RDTE.	10285	11157	12728	19590
Funds FDA requirement for prototyping, certification, and integration of the Medical Research Information Technology System (MeRITS) and the standardization/integration of disparate laboratory accounting systems.	0	0	0	14735
Totals	10285	11157	12728	34325

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M15			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M15 ARI MGMT/ADM ACT	2445	2206	2203	2399	2505	2599	2891	2860	

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the Army Research Institute (ARI) to include the Army Research Institute for the Behavioral and Social Sciences, Alexandria, VA.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.	2445	2206	2203	2399
Totals	2445	2206	2203	2399

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M16			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M16 STANDARDIZATION GROUPS	4257	3646	3981	4645	5014	5141	5210	5273	

A. Mission Description and Budget Item Justification: Project M16 supports six Standardization Groups (Australia, United Kingdom, Canada, France, Germany and the Far East) for personnel, travel and overhead costs, leases on buildings, and mandatory permanent change of station. The mission of the Standardization Groups 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 and defense industries. This includes identification of research, development, interoperability, standardization, (Multinational Force Compatibility) opportunities, and foreign non-developmental items (NDI) that support the Army Transformation by saving Army millions of dollars in development costs.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.	4257	3646	3981	4645
Totals	4257	3646	3981	4645

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities	PROJECT M42
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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
M42 ARDEC CMD/CTR SUPPORT	8080	5604	5160	5873	5784	6000	6523	6732

A. Mission Description and Budget Item Justification: 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.	8080	5604	5160	5873
Totals	8080	5604	5160	5873

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities	PROJECT M44
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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
M44 CECOM CMD/CTR SPT	3159	3064	3446	3779	3942	4092	4690	4729

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the U.S. Army Communications-Electronics Research Development and Engineering Center (CERDEC), Ft. Monmouth, NJ.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CERDEC.	3159	3064	3446	3779
Totals	3159	3064	3446	3779

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities	PROJECT M46
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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
M46 AMCOM CMD/CTR SPT	5391	5388	5061	5481	5727	5966	6749	6880

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the U.S. Army Aviation and Missile Research And Development Center (AMRDEC), Redstone Arsenal, AL.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMRDEC.	5391	5388	5061	5481
Totals	5391	5388	5061	5481

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities	PROJECT M47
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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
M47 TACOM CMD/CTR SPT	2593	2642	2474	2672	2766	2867	3110	3169

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the U.S. Army Tank-Automotive Research Development Engineering Center (TARDEC), Warren, MI.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TARDEC.	2593	2642	2474	2672
Totals	2593	2642	2474	2672

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M53			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	10469	10651	11367	11969	12639	13058	13430	11719	

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 and evaluation 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 and test centers: Aberdeen Test Center, Maryland; Dugway Proving Ground, Utah; Yuma Proving Ground, Arizona; White Sands Missile Range, New Mexico, and Electronic Proving Ground, 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 1800 tests, 7188 workyears, and a \$1B institutional plus reimbursable program.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Civilian labor and other support costs for DTC to provide technical direction and administer the assigned Army developmental test mission.	9084	10263	10955	11503
Contract costs, including labor, required to technically direct and administer the assigned Army developmental test mission; i.e., ADPE/information and technology support for command-wide databases.	701	388	412	466
Materials, Supplies, and Equipment.	684	0	0	0
Totals	10469	10651	11367	11969

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M55			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	3517	3769	4428	4725	4876	5006	5479	5556	

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the U.S. Army Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, MD.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.	3517	3769	4428	4725
Totals	3517	3769	4428	4725

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M58			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M58 SSCOM CMD/CTR SPT	1449	1532	1840	1974	2046	2123	2380	2408	

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the Natick Soldier Center(NSC), Natick, MA.

Accomplishments/Planned Program

Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at NSC.	FY 2004 1449	FY 2005 1532	FY 2006 1840	FY 2007 1974
Totals	1449	1532	1840	1974

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M76			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M76 ARMAMENT GROUP SUPPORT	1522	1158	1231	1271	1320	1350	1374	1399	

A. Mission Description and Budget Item Justification: 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.

Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.	442	408	468	474
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.	1080	750	763	797
Totals	1522	1158	1231	1271

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	51870	27534	32237	34720	36921	38182	35907	35775
720 TECH INFO FUNC ACTV	3883	2516	6837	7266	7760	8067	8136	8196
727 TECH INFO ACTIVITIES	11691	6059	6629	7176	7599	7969	8128	8288
729 YOUTH SCIENCE ACTIV	2111	1833	2088	2174	2169	2277	2321	2366
730 PERS & TRNG ANALYS ACT	2269	2039	2105	2282	2421	2524	2547	2565
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	20844	7491	6216	6706	7161	7470	7533	7589
733 ACQUISITION TECH ACT	7382	4699	5233	5701	6212	6137	3457	2946
C16 FAST	2441	2205	2149	2314	2461	2559	2582	2600
C18 BAST	1249	692	980	1101	1138	1179	1203	1225

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 Future Combat Systems and the Future Force. Use of accurate and timely technical information is essential to successfully meeting the milestones required on the path to the Future Force, allowing Army 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. By providing direct working experience for these students in Army laboratories, the programs expose these students to the working world of science and engineering. Funding under this program enables the conducting of analyses, using behavioral science-based analytic tools, to provide policy and decision makers with Soldier-oriented recommendations concerning manpower, personnel and training issues. Funding in this program is provided for conduct of an Independent Review Team analysis of technology maturity as part of the Technology Readiness Assessment as required by DoDI 5000.2 dated May 12, 2003. 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 interservice working groups. 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 PE is performed by the Research, Development and Engineering Command (RDECOM), the Army Research Office, the Army Research Institute, 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 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	27713	28195	30212
Current Budget (FY 2006/2007 PB)	27534	32237	34720
Total Adjustments	-179	4042	4508
Net of Program/Database Changes			
Congressional Program Reductions	-898		
Congressional Rescissions	-23		
Congressional Increases	1500		
Reprogrammings			
SBIR/STTR Transfer	-758		
Adjustments to Budget Years		4042	4508

Change Summary Explanation:

Funding – FY 2006/2007: Increase funding supports critical technical analyses and assessments of S&T programs and independent technology reviews for Technology Readiness Assessments required by DoD 5000 for Acquisition program Milestone decisions. Increase, also, supports National Academy of Sciences studies to provide recommendations on strategic S&T investments for the Army. (FY 06 +4042/FY 07 +4508)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 720			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
720 TECH INFO FUNC ACTV	3883	2516	6837	7266	7760	8067	8136	8196	

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 S&T information is critical to achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Future Force. Activities include Army support for Federal Laboratory Consortium (FLC) as required by Public Law; the Army Science Board; the Army Science Conference; 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 R&D programs and to increase competitiveness in the U.S. business community. 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. S&T database management efforts previously performed in PE 0605803A, Project 727 for RDECOM have been transferred to this project starting in FY 2006. This 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. 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 Army Research Laboratory.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
- Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.	201	116	203	210
- Provide administrative and contractual support for the Army Science Board.	1250	766	1156	1182
- Provide administrative support for the Army's SBIR and STTR programs.	800	526	827	864
- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	1029	722	1058	1173
- Provide funding for S&T Strategic Planning and Support.	203	106	180	188
- Provide funding for the Army Science Conference.	400	280	419	424
- Administer S&T database computer engineering support contract and support RDECOM databases S&T management support.	0	0	2994	3225
Totals	3883	2516	6837	7266

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 727			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
727 TECH INFO ACTIVITIES	11691	6059	6629	7176	7599	7969	8128	8288	

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); Department of the Army (DA), including support of the Army Science and Technology Master Plan; Corps of Engineers' Engineer Research and Development Center (ERDC); and Research, Development and Engineering Command (RDECOM). 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 achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Future Force. Funding in this program is provided for conduct of an Independent Review Team analysis of technology maturity as part of the Technology Readiness Assessment as required by DoDI 5000.2 dated May 12, 2003. S&T and RDECOM database support will transfer to PE 0605803A, Project 720 in FY 2006. 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 Army Research Laboratory.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
- Conduct and support S&T program portfolio assessments and analysis.	1500	1000	1050	1100
- Support Army S&T strategic planning, analysis, and prioritization.	2000	1950	2250	2300
- Provide funding and support for Army Science and Technology Master Plan development and publication.	1255	1210	1303	1334
- Provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone	1452	1249	1526	1932
Decisions - Provide Army support to Director, Defense Research and Engineering Executive Staff for DOD-wide Science and Technology	800	650	500	510
oversight - Administer S&T database computer engineering support contract and support RDECOM database and Defense Technology Area Plan (DTAP) management.	4684	0	0	0
Totals	11691	6059	6629	7176

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 729			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
729 YOUTH SCIENCE ACTIV	2111	1833	2088	2174	2169	2277	2321	2366	

A. Mission Description and Budget Item Justification: This project supports science activities to encourage over 100,000 high school youths to develop an interest and pursue higher education and employment in the scientific, engineering, and mathematics career fields. These activities are consolidated entirely within this program to "present the Army" to a large potential pool of technical talent to fill future Army S&T workforce needs. The joint Army/Navy Washington regional area Science and Engineering Apprenticeship Program (SEAP) is included in the overall effort. The SEAP provides an eight-week hands-on learning experience for high school students to work with bench level scientists in Army laboratories to encourage more students to pursue scientific/engineering careers. This program enhances the national laboratory science and engineering 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 Army Research Laboratory (ARL) and Medical Research and Materiel Command (MRMC).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
- Foster high school student interest nationally in science, mathematics, engineering and computer science by sponsoring the Junior Science & Humanities Symposium (JSHS), International Mathematics Olympiad (IMO), International Science and Engineering Fair (ISEF), and the Research and Engineering Apprenticeship Program (REAP).	1509	1239	1425	1457
- Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDEC sponsorship of students	177	215	229	239
- 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.	200	160	200	235
- Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.	225	219	234	243
Totals	2111	1833	2088	2174

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

PROJECT
730

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Actual	Estimate						
730 PERS & TRNG ANALYS ACT	2269	2039	2105	2282	2421	2524	2547	2565

A. Mission Description and Budget Item Justification: This project provides 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 project 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, the Army Deputy Chief of Staff, G-1, and the Human Resources Command. 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 U.S. Army Research Institute for the Behavioral and Social Sciences (ARI).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

PROJECT
730

Accomplishments/Planned Program

- In FY04, the behavioral and social science research-based studies and analysis projects provided guidance for the design and optimization of helicopter gunnery training programs; examined various methods of distance mentoring compared to classroom interaction for battle command training at the Armor School; identified causes and potential solutions to Initial Entry Training attrition; provided information that the Army can use to reduce absence without leave (AWOL) and desertion; and developed a web-based Selective Reenlistment Bonus (SRB) management system. Studies planned for FY05 will conduct a pilot evaluation of the Basic Officer Leadership Course (BOLC II); evaluate structured Communities of Practice as a leader development tool; define the effects of simulator motion on task performance; provide a longitudinal validation of a Leadership Assessment Tool (LAT) for predicting junior NCO performance above and beyond the current promotion point worksheet system; assess the impacts and effectiveness of using sergeants in pay grade E-5 as drill sergeants; determine if Soldiers graduating from Basic Combat Training are adequately trained to succeed in Advanced Individual Training; assess the Warrior Transition Course; identify strategies for increasing the retention of commissioned officers beyond their obligation; assess the impacts of the deployment for Operation Iraqi Freedom; recommend new screening tools to decrease attrition of non high school diploma graduate recruits; and evaluate the usefulness of the Non-commissioned Officer Leadership Skills Inventory (NLSI) for predicting drill sergeant duty performance and attrition. Projects for FY06 and FY07 will be based on issues identified by the Training and Doctrine Command (TRADOC), the Assistant Secretary of the Army for Manpower and Reserve Affairs, the Army Deputy Chief of Staff, G-1, and the Human Resources Command (HRC).

FY 2004	FY 2005	FY 2006	FY 2007
2269	2039	2105	2282
Totals	2269	2039	2105

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 731			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	20844	7491	6216	6706	7161	7470	7533	7589	

A. Mission Description and Budget Item Justification: 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, 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).

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
- Sustain the high performance computing environment and infrastructure in support of the US Army Tank & Automotive Research Development & Engineering Center (TARDEC)	2194	2042	2024	2137
- Sustain the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPARC) research and education activities.	1151	1095	1121	1215
- Sustain the high performance computing environment and infrastructure in support of the US Army Research Laboratory's Major Shared Research Center (MSRC)	3038	2917	3071	3354
- Army High Performance Computing Research Center (AHPARC): FY04, Congressional funding provides funds to AHPARC high performance computing systems and networks; user support; AHPARC based staff scientist and research support staff; technology exchange (i.e. computational chemistry, fluid structure interactions); and summer institute programs, research activities, and outreach. In FY05, Congressional funding provides for AHPARC high performance computing research. No additional funding is required to complete this project.	14461	1437	0	0
Totals	20844	7491	6216	6706

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 733			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
733 ACQUISITION TECH ACT	7382	4699	5233	5701	6212	6137	3457	2946	

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-alternates. This project provides the environment for the analysis and evaluation of new information technologies, and concepts and applications in integrated management activities, and support to meet the 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
- 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, cost-effectiveness and database management/financial analysis, special access required technology application concept research/analysis.	5452	3937	4367	4775
- Conduct analysis and evaluation of new information technologies, and concepts and applications in integrated management activities, and support to meet the dynamic Army acquisition technology requirements.	1930	762	866	926
Totals	7382	4699	5233	5701

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT C16			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
C16 FAST	2441	2205	2149	2314	2461	2559	2582	2600	

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 cut 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. FAST manages a level of effort type project with most projects recouping many times their 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 U.S. Army Materiel Command.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
- Respond to Combatant Commanders worldwide for technological solutions to urgent materiel problems they identify; deploy science advisors with U.S. Task Forces in support of Combatant Commanders; execute biannual Technology Applications Conference.	2441	2205	2149	2314
Totals	2441	2205	2149	2314

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT C18			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
C18 BAST	1249	692	980	1101	1138	1179	1203	1225	

A. Mission Description and Budget Item Justification: This project funds efforts in support of the Army 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

	FY 2004	FY 2005	FY 2006	FY 2007
- Provide studies and conduct periodic meetings involving research and development in science and technology fields applicable to the U.S. Army. In FY04, completed studies on Portable Power Sources for the Future Force Warrior; and, Technology Under Development for the Army's Contribution to Homeland Defense. Primary study topic for FY05 is Network Sciences. Future topics for FY06 and 07 will be selected according to Army S&T strategy and senior leader initiatives.	1249	692	980	1101
Totals	1249	692	980	1101

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization, Effectiveness & Safety

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	36934	38159	16922	19498	18367	18967	19473	19890
296 PYROTECHNIC RELIABILITY & SAFETY	1104	758	858	894	915	937	979	992
297 MUN SURVIVABILITY & LOG	4881	4460	4772	4989	5092	5312	5495	5616
857 DOD EXPLOSIVES SAFETY STANDARDS	760	667	730	1509	1580	1640	1680	1722
858 ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	605	405	409	439	399	462	473	485
859 LIFE CYCLE PILOT PROCESS	21142	25752	3028	3139	3195	3252	3304	3359
862 FUZE TECHNOLOGY INTEGRATION	1909	1656	1957	2035	2078	2120	2162	2205
F21 NATO SMALL ARMS EVAL	464	396	986	1011	513	526	545	556
F24 CONVENTION AMMO DEMIL	6069	4065	4182	5482	4595	4718	4835	4955

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 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. It 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 testing and demonstrating munitions logistics system solutions that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. 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 ammunitions, address the producibility of ammunition, transition to type classification and production, and address 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 cost for 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.

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BUDGET ACTIVITY
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0605805A - Munitions Standardization, Effectiveness & Safety

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	14611	14558	17019
Current Budget (FY 2006/2007 PB)	38159	16922	19498
Total Adjustments	23548	2364	2479
Net of Program/Database Changes			
Congressional Program Reductions	-559		
Congressional Rescissions			
Congressional Increases	25200		
Reprogrammings			
SBIR/STTR Transfer	-1093		
Adjustments to Budget Years		2364	2479

FY 2005 Adjustment: \$25.2M Congressional increase. (\$24.7M for Life Cycle Pilot Process (LCPP) efforts and \$0.5M for Munitions Survivability & Logistics efforts)

FY 2006/2007 Adjustments: Funds increased to support multiple efforts to include Life Cycle Pilot Process (LCPP), NATO Small Arms Evaluation, Army Explosive Safety Management, DoD Explosive Safety Standards, Conventional Ammo Demil, Fuze Technology Integration, Pyrotechnic Reliability and Safety, and Munitions Survivability & Logistics.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 297			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
297 MUN SURVIVABILITY & LOG	4881	4460	4772	4989	5092	5312	5495	5616	

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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Demonstrate a Guided Multiple Launch Rocket System (GMLRS) Grenade High Explosive Replacement by substituting PAX2A IM explosive (a less sensitive HE replacement for Comp-A in the M85 Grenade) to enable munitions to burn rather than detonate in cook-off environments. FY04-Conducted reloaded grenade study and Comp A5-PAX 2A compatibility study, completed IM tests and transitioned.	200	0	0	0
Evaluate the chemical and mechanical properties of various foreign produced less sensitive RDX explosives. Modify US developed RDX to reduce its sensitivity based on the findings. FY04 - Completed baseline evaluation of alternative foreign produced RDX explosives, developed lab scale crystallization process and developed HMX reduction process.	279	0	0	0
Replace current High Explosive (HE) fill with a less sensitive HE to make the 40mm M430A1 HE Dual Purpose cartridge less sensitive. FY04-Determined best IM explosive solution, fabricated tested cartridges and conducted arena lethality test.	285	0	0	0

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization, Effectiveness & Safety

PROJECT
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Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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. FY04 - Conducted additional IM and rough handling tests of a full-scale prototype scored Modular Artillery Charge System (MACS) container. FY05-Improve venting design and producibility, conduct structural and IM tests on vented MACS containers. FY06 – Conduct full scale square rim container venting design test and evaluation. FY07 - Conduct full scale rectangular container venting design test and evaluation.	195	183	410	300
Demonstrate a less sensitive high-performance, melt-castable explosive to replace Composition B explosive in mortars, 2.75" rockets/APKWS, and other warheads for reduced sensitivity to unplanned stimuli. FY04-Developed pressed and melt pour explosives, conducted small scale IM testing, refined formulation. FY05-Continue formulation development, conduct IM tests, and refine design. FY06-Conduct large scale IM testing and performance and safety testing on specific munitions. FY07- Complete large scale IM testing and performance and safety testing on specific munitions.	956	354	500	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. FY04-Evaluated explosive and additive formulations, tested to determine percentage of additive in selected high explosive warhead, developed new additive formulation. FY05-Complete additive formulation development and conduct evaluation testing. FY06-Conduct bursting warhead demonstration and IM tests on selected warhead with existing explosive.	389	241	350	350
Conduct reviews of munitions in development and production to determine if they meet DoD 5000.2-R requirement to withstand unplanned stimuli, recommend technical approaches to meet the requirement, update and maintain IM compliance status database. Manage the IM waiver process for the Army. Update and maintain the Ammunition IM Strategic Plan and database. FY04-Conducted quarterly IM reviews, updated IM database. FY05- Conduct quarterly IM program technical reviews, provide advisory support to the Army Executive Agent for IM, provide administrative support to the Army IM Board, update and maintain the ammunition IM strategic plan and database. FY06- Conduct quarterly IM program technical reviews, provide advisory support to the Army Executive Agent for IM, provide administrative support to the Army IM Board, update and maintain the ammunition IM strategic plan and database. FY07- Conduct quarterly IM program technical reviews, provide advisory support to the Army Executive Agent for IM, provide administrative support to the Army IM Board, update and maintain the ammunition IM strategic plan and database.	676	574	750	750

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

PROJECT
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Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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. FY04 through FY07 – Conduct modeling of IM technologies	62	155	423	423
Evaluate and demonstrate new explosive that could mitigate munitions violent reactions from Shaped Charge Jet Impact (SCJI). FY05 - Identify explosive candidates, perform subscale testing, and conduct sensitivity and processing evaluations for SCJI resistance. FY06 – Conduct process, performance, and IM verification testing of best SCJI resistant explosive in a selected munition.	0	800	400	0
Evaluate and demonstrate barriers made from emerging lightweight material structures like super-strong fibers and nano-technology for sympathetic detonation mitigation. FY07 - Conduct testing and demonstration of prototype advanced materials containers and barriers for specific munitions.	0	0	0	317
Evaluate and demonstrate less sensitive materials for booster and lead for all fuzed munitions. FY07 - Complete IM testing and demonstration on specific munitions.	0	0	0	300
Demonstrate an M2A1 single container consolidator device that will eliminate the wirebound wood overwrap currently used to package two containers together. This will reduce the weight, size, and cost of the overall configuration. FY04 – Completed design, fabricated prototypes, conducted engineering tests and transitioned.	94	0	0	0
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. FY04-Designed and fabricated rims/rings, fabricated covers and conducted rough handling tests. FY05-Complete component engineering tests and modify designs. FY06-Integrate components and fabricate prototype containers using advanced materials, conduct engineering testing, complete user evaluation and final report, transition.	341	475	500	0
Analyze requirements and demonstrate ammunition packaging sub-modules incorporating advanced materials and features and sized to maximize space utilization in standardized inter-modal shipping containers. FY07 – Evaluate requirements and develop design concepts.	0	0	0	500
Demonstrate robotic capability for truck or, flatrack-mounted modular cranes to enable the rapid in-theater building of mission configured munition loads for improved distribution velocity and mission transition agility. FY04-Completed development of software based controller, conducted automated munitions handling demonstration and transitioned.	173	0	0	0

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605805A - Munitions Standardization,
 Effectiveness & Safety**

PROJECT
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Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
Demonstrate a pallet/individual munition level environmental sensor suite (shock, temperature, humidity, etc.) and reader system, integrated with Ammunition Surveillance Information System (ASIS) software, that will monitor and predict munitions reliability to ensure that only fully ready munitions move forward through the logistics system to the warfighter. Benefits include reduced logistics footprint, improved surveillance methodology and reduce surveillance operations and support costs. FY04-Conducted field prototype demonstrations and transition.	67	0	0	0
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. FY04-Conducted field tests and modified software. FY05-Complete modifications, conduct final tests. FY06-Complete final demonstration and transition.	951	533	87	0
Demonstrate multiple sized standardized shipping modules for ammunition. The modules will interlock with each other and 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. FY04 – Developed Sustainment Module requirements and concepts. FY05 – Develop preliminary design for modules and interlock devices and fabricate pre-prototypes. FY06-Finalize requirements and design interlocking modules. FY07-Fabricate prototypes and conduct qualification testing	213	665	1352	1549
Conduct safety certification testing of the Omega 60 Battlefield Effects Simulator and associated airburst and Stinger pyrotechnic cartridges and complete safety certification documentation. FY05 – Conduct a series of safety certification tests. Complete test, safety assessment, human factors, and final program reports.	0	480	0	0
Totals	4881	4460	4772	4989

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety	PROJECT 857						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
857 DOD EXPLOSIVES SAFETY STANDARDS	760	667	730	1509	1580	1640	1680	1722

A. Mission Description and Budget Item Justification: 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Collect and analyze airblast/fragment/thermal data for revising DoD, NATO hazard classification.	100	96	100	234
Develop improved tri-service design procedures and improved computer codes for explosion-resistant structures. Initiate preparation of revised tri-service manual TM-51300.	100	96	100	255
Develop improved explosives and munitions tests and characterization data. Specifically, develop improved gap tests for rocket motors.	90	91	100	306
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	96	100	204
Conduct other hazards analyses and expand/automate explosives safety databases. Develop improved Explosives Safety Mishap Analysis Module with links to accident reports.	130	96	130	204
Develop and improve risk based analysis tools for explosives safety. Develop sequence of operations prototype.	240	192	200	306
Totals	760	667	730	1509

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization, Effectiveness & Safety

PROJECT
859

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Actual	Estimate						
859 LIFE CYCLE PILOT PROCESS	21142	25752	3028	3139	3195	3252	3304	3359

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	FY 2004	FY 2005	FY 2006	FY 2007
Continue ongoing technology investigations. Develop concept designs and plans to transfer life cycle pilot process technology into the supplier base.	1648	1172	1348	1418
Perform production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology.	444	480	480	421
Develop "pilot" prototype processes for critical ammunition end items and components necessary to establish quality, affordable, and environmentally safe production.	700	800	1200	1300
Establish framework and operations for NJ Nanotechnology Manufacturing RDE Center in support of ammunition production modernization.	1400	0	0	0
Establish framework and operations for NJ Nanotechnology and Micro-Electromechanical Systems (MEMS) consortium in support of ammunition production modernization.	2000	1400	0	0
Establish operations and prove-out for Nanotechnology and Manufacturing in support of ammunition production modernization.	0	4300	0	0
Under the Public Private Partnership program, establish and enhance prototype manufacturing utilizing commercially available off-the-shelf equipment in the area of Energetics, Sensors and Seekers	3150	2500	0	0
Develop a new x-ray inspection system for munitions using a Cadmium Zinc Telluride (CZT) detector for Automated Munitions Inspections and Surveillance.	2400	1050	0	0
Establish 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 castable propellant grains.	2100	2500	0	0

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization, Effectiveness & Safety

PROJECT
859

Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
Develop generic Micro-Electromechanical Systems Inertial Measurement Unit (MEMS IMU) high volume manufacturing process for precision munitions.	1800	2500	0	0
Establish Government, Industry and Academia partnership to support the development of Aluminum Metal Matrix Composite (MMC) prototype Technologies for Munitions application.	5500	2500	0	0
Establish an Advanced Technology Center to transition to the commercial sector prototype processes developed by the US Army.	0	1050	0	0
Develop and prototype new power source options for munitions utilizing advanced fuel cell technology.	0	1000	0	0
Define and develop processes to address munitions lifecycle improvements with application demonstration on the Mid-Range Munition.	0	4500	0	0
Totals	21142	25752	3028	3139

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 862			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
862 FUZE TECHNOLOGY INTEGRATION	1909	1656	1957	2035	2078	2120	2162	2205	

A. Mission Description and Budget Item Justification: This program supports technology investigations and potential insertions in the areas of munition fuzing and safe and arming (S&A). The program addresses two major areas: Risk Mitigation; including a battery separator material source development, a second source Monolithic Microwave Integrated Circuit (MMIC) for artillery and mortar fuzes and a second source signal processor for mortars, battery aging studies, upgrades to reserve battery spin airgun apparatus, improvements to BDM impact sensor and M213 & M228 fuze pull pins, and studies for medium caliber fuzing interface control. Block upgrades; including a second environmental safety for non-spinning projectiles, a gun hardened electronic S&A for mortars, and inductive set capability for mortar fuzes. Risk mitigation efforts to develop and demonstrate second sources for fuzing systems will reduce cost by providing competition, update components with the latest technology advances 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 and weak designs. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities.

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization,
Effectiveness & Safety

PROJECT
862

Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
<p>Risk Mitigation: Predict/evaluate fuze stockpile, conduct fuze dud reduction effort, develop self destruct fuze alternatives. Evaluate storage reliability of current artillery batteries/determine possible solutions to battery electrolyte storage instabilities and develop an upgraded battery spin-airgun. Develop improvements to stockpiled training and war reserve fuzes to enhance capabilities and/or address deficiencies. Develop new sources for battery separator material, tuning fork crystal for artillery time fuzes, new source for Monolithic Microwave Integrated Circuits (MMICs) used in artillery and mortar fuzes, develop new battery and electronics sources for legacy fuzes. Purchased Non-Developmental Item (NDI) batteries for testing and battery aging study. Task order contracts awarded to University of Florida for Mortar second source signal processor and to MACOM for second source MMIC transceiver for mortars and artillery.</p>	1109	1106	850	700
<p>Block Upgrades: Develop drop in proximity upgrades for current airburst fuzing for mortar, artillery and other munitions. Complete breadboard design of new artillery processor. Conduct a study on inductive fuze set capability for mortars and a study on 30mm airburst munitions for fuzing interface control. Develop and provide upgrades for guided munitions fuzing and electronic time fuzes. Task order contract awarded to University of Florida to conduct designs and experiments on UWB and clutter resistant air target sensors. Develop second safety sensors for non-spinning projectiles. Radio frequency sensors fabricated and tested on mortars. Contract awarded for testing of new magnetic sensor, additional magnetic sensor contract to be awarded in FY03. Develop proximity sensor upgrades for M734A1 and gun hardened Electronic Safety and Arming Devices (ESADs) for mortars. ESAD parts being purchased and assembled for FY03 firing tests. Micro-Electromechanical Systems (MEMS) impact sensor development, point detonating/delay fuze upgrades and insertion of inductive setting capability into mortars.</p>	800	550	1107	1335
Totals	1909	1656	1957	2035

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT F21			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
F21 NATO SMALL ARMS EVAL	464	396	986	1011	513	526	545	556	

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).

FY07 funds maintain and support the expansion/relocation of the NARTC as well as establishment and operation of the National Test Center. These facilities will require additional technical facilitization to accommodate test and evaluation of new products such as non-lethal, air bursting munitions, and an expanded mission to perform qualification testing.

FY06 funds maintain the NARTC and will initiate expansion/relocation of the NARTC to a site that can accommodate all current NATO calibers and new designs such as self-destruct and air burst. Additionally, non-lethal standardization will be investigated and NATO qualification of selected 12.7mm ammunition types will be completed.

FY05 funds maintain the NARTC and support NATO qualification of select ammunition types produced by second source manufacturers. Additionally, funds support development of STANAG and Manual of Proof and Inspection for infantry systems.

FY04 funds maintain the NARTC and support development of STANAG and Manual of Proof and Inspection on lead 40mm x 46mm low velocity standardization. Additionally, funds support development of the Multi-caliber test manual.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
40mm x 46mm Low Velocity Standardization	144	61	50	30
Infantry Systems Standardization	120	90	80	40
Maintain standardization of Qualified designs	100	100	140	160
New Ammo Design Qualification	0	40	321	241
NARTC relocation and Equipment Purchase	0	0	190	325
Staff, Equip, Maintain NARTC	100	105	205	215
Totals	464	396	986	1011

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety	PROJECT F24						
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
F24 CONVENTION AMMO DEMIL	6069	4065	4182	5482	4595	4718	4835	4955

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

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Prove-out prototype plasma arc technology for conventional ammunition and resource recovery potential.	2363	1544	1000	0
Install and prove-out Cryofracture demilitarization process for Anti-Personnel Landmines and other munitions.	1260	1320	0	0
Development of integrated cryofracture/plasma arc technology on a mobile platform.	526	0	0	1476
Development of recycle/reuse technology for magnesium/aluminum.	808	571	2697	2000
Development of enhanced flexible energetic material handling automation upgrade capabilities sized to real time requirements.	0	0	0	606
Develop, install and prove out of transportable alternative materials recovery capabilities for various energetic components.	1112	630	0	0
Multi-based propellant recovery technology application.	0	0	300	800
Development of advanced resource recovery/reuse technology for explosives.	0	0	185	600
Totals	6069	4065	4182	5482

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology Mgmt Support

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	4779	4336	4014	4360	4583	4827	4929	5032
031 ENVIRONMENTALLY SUSTAINABLE ACQUISITION/LOGISTICS	3165	2848	2967	3225	3410	3615	3687	3759
06E ENVIRONMENTAL RESTORATION TECH SUPPORT	233	181	0	0	0	0	0	0
06G ENVIRONMENTAL COMPLIANCE TECHNOLOGY SUPPORT	228	302	0	0	0	0	0	0
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	1153	1005	1047	1135	1173	1212	1242	1273

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 Environmental Restoration Technology Support project will: (1) support the technical integration of an enhanced sensing/processing system for optimized multi-sensor unexploded ordnance (UXO) identification and discrimination at an RDT&E validation site and (2) support the technical integration of a comprehensive hazard/risk assessment capability to predict contaminant, ecological, and human risks on active and inactive firing ranges of

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February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology Mgmt Support

military unique materials at an RDT&E demonstration site.

The Environmental Compliance Technology Support project will provide resource management support of transfer technologies to: (1) identify risk assessment parameters for determining environmental compliance for training and live-fire operations and to identify on-post and off-post impacts; (2) develop and validate a compliance risk assessment model for training range siting, design, and maintenance to provide input to the military construction process; and (3) evaluate and validate improved designs for ranges that incorporate erosion and contaminant control technologies for current range problems and to support future sustainable range designs.

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

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	4527	4434	4424
Current Budget (FY 2006/2007 PB)	4336	4014	4360
Total Adjustments	-191	-420	-64
Net of Program/Database Changes			
Congressional Program Reductions	-65		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-126		
Adjustments to Budget Years		-420	-64

Change Summary Explanation:

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BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605857A - Environmental Quality Technology Mgmt Support

Funding - FY 2006: Funds realigned (\$420K) to support higher priority requirements.
FY 2007: Funds realigned (\$64K) to support higher priority requirements.

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Mgmt Support					PROJECT 031			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
031 ENVIRONMENTALLY SUSTAINABLE ACQUISITION/LOGISTICS	3165	2848	2967	3225	3410	3615	3687	3759	

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 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 have defined the functions of the ESAL project in coordination with the office of the Assistant Secretary of the Army for Installations and Environment. This project supports acquisition policy support for the environmental quality concerns of Program Executive Officers and program managers and environmental guidance and direct support for the Army acquisition community. ESAL helps the Army achieve environmental compliance with its weapon systems 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 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 toxicity and health hazard risk and are implemented by program managers and commodity 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, manage the Army Halon 1301 reserve, and Army acquisition efforts to eliminate the use of hazardous and toxic materials on Army systems. ESAL works in coordination with field 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 for Pollution Prevention (JG-PP).

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605857A - Environmental Quality Technology
 Mgmt Support**

PROJECT
031

Accomplishments/Planned Program

- Environmentally Sustainable RDT&E program management and oversight of technology integration efforts by Army major subordinate 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 DoD/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 FY04 and represent the Army acquisition community in development of Environmental Analyses related to Army Transformation. During FY05, increasing emphasis will be placed on support of ACAT II and III systems when the Milestone Decision Authority is not the Army Acquisition Executive.

FY 2004	FY 2005	FY 2006	FY 2007
664	561	585	636

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology
Mgmt Support

PROJECT
031

Accomplishments/Planned Program (continued)

- 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 (FY 2030). Includes participation in Federal government and multi-national forums discussing use of ozone depleting chemicals, justifying mission critical applications, and addressing international importation and use regulations. During FY04, significant effort supported Army warfighters in 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 CO2 cooling systems for support to UpArmor 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.

- Technical management and oversight of 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. Provide technology management of toxicity assessments of alternatives to Halon 1301 used in fire suppression systems and alternatives to cadmium plating and hexavalent chromium used in paint systems.

FY 2004	FY 2005	FY 2006	FY 2007
360	341	355	386
208	97	101	110

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology Mgmt Support

PROJECT
031

Accomplishments/Planned Program (continued)

- 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. Developing 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.

- Technology management, technical support and representation of the Army Materiel Command (AMC) on the Joint Logistics Commander's Joint Group for 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.

FY 2004	FY 2005	FY 2006	FY 2007
585	528	550	598
132	169	176	191

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology
Mgmt Support

PROJECT
031

Accomplishments/Planned Program (continued)

- Technology management, technical support, and representation of the AMC voting member of the Army's Environmental Quality Technology program's Environmental Technology Council (ETTC). Includes coordination of Technology Base (RDT&E BA-1 & 2) requirements among members of the ETTC Pollution Prevention Technology Team, coordination of technology and operational requirements in support of RDT&E 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. Providing oversight RDTE management to recomposition of M115 and M116 training simulators to remove perchlorate constituents in the composition.

- 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 Assistant Chief of Staff for Installation Management and ASA(I&E) representatives in assessing the readiness implications of impending National Emission Standards for Hazardous Air Pollutants (NESHAP) on Army industrial base and garrison activities. Oversee evaluation of impacts of impending NESHAPs on Army Transformation and fielding of Unit of Action. Provide Army acquisition community representation in OSD and DA committees addressing environmental legislation and rulemaking.

Totals

FY 2004	FY 2005	FY 2006	FY 2007
576	503	525	570
640	649	675	734
3165	2848	2967	3225

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Mgmt Support				PROJECT 06H			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	1153	1005	1047	1135	1173	1212	1242	1273

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).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Conduct review and technology workshops to coordinate and improve the technological thrusts of DoD UXO RDT&E.	120	115	115	120
Coordinate/collect/analyze UXO RDT&E information via conferences, seminars, and workshops.	333	303	346	332
Generate an annual UXO Clearance Report focused on UXO RDT&E efforts for countermine, explosive ordnance disposal, UXO remediation, humanitarian demining, and active range clearance.	187	178	178	187
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.	291	273	272	291
Provide oversight of JUXOCO'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.	222	136	136	205
Totals	1153	1005	1047	1135

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February 2005

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605898A - Management Headquarters (Research and Development)					PROJECT M65			
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M65 ARMY TEST AND EVALUATION COMMAND (ATEC)	11000	11842	12908	13772	14791	15444	16025	16629	

A. Mission Description and Budget Item Justification: This project provides solely 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.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.	8000	11842	12908	13772
Congressional add for domestic preparedness against weapons of mass destruction first responder training at NTPI.	3000	0	0	0
Totals	11000	11842	12908	13772

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
**0605898A - Management Headquarters
 (Research and Development)**

PROJECT
M65

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	11575	12177	12414
Current Budget (FY 2006/2007 PB)	11842	12908	13772
Total Adjustments	267	731	1358
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions	-156		
Congressional Increases			
Reprogrammings	501		
SBIR/STTR Transfer	-78		
Adjustments to Budget Years		731	1358

Change Summary Explanation: FY2006/FY2007: Funds provided for increased civilian manpower due to military positions converted to civilian positions.

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	83050	105444	114297	79657	23907	19815	13560	6357	0	520760
090 MLRS HIMARS	20411	10067	9424	16130	4423	8256	2014	0	0	99501
093 MLRS JOINT TECH ARCHITECTURE	8279	4793	1782	3263	9590	4077	4570	0	0	42777
784 GUIDED MLRS	54360	90584	103091	60264	9894	904	0	0	0	378482
787 HIMARS P3I	0	0	0	0	0	6578	6976	6357	0	0

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

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. The M270A1 is capable of firing either 12 MFOM rockets of 2 AFOM missiles from a single launcher.

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.

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February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	97422	127347	54718
Current Budget (FY 2006/2007 PB)	105444	114297	79657
Total Adjustments	8022	-13050	24939
Net of Program/Database Changes			
Congressional Program Reductions	-1739		
Congressional Rescissions			
Congressional Increases	12750		
Reprogrammings			
SBIR/STTR Transfer	-2989		
Adjustments to Budget Years		-13050	24939

Program Change Explanations:

FY06 - Funds realigned (\$13050K) to higher priority requirements.

FY 07 Increase of \$24939 will fund Improved Crew Protection on HIMARS; perform insensitive munitions upgrade on GMLRS and Selective Availability/Anti Spoofing Module and unit of action networks interoperability for launcher programs through the Joint Technical Architecture (JTA) program.

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
090 MLRS HIMARS	20411	10067	9424	16130	4423	8256	2014	0	0	99501

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 provides Multiple Launch Rocket System (MLRS) capability through a lighter weight, more deployable system in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle chassis, HIMARS is transportable on a C-130 aircraft, is self-locating and self-loading. It provides full MLRS Family of Munitions (MFOM) and Army TACMS (ATACMS) Family of Munitions (AFOM) capability yet requires significantly reduced airlift resources to transport a HIMARS battery compared to the heavy M270/M270A1 MLRS tracked battery. HIMARS, as part of the Fires Brigade, will provide fires that shape, shield and isolate the battle space.

HIMARS meets Army's modernization goals for the 21st century and was selected by Army strategic planners as one of the Army's core systems of the Unit of Employment (UE).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
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 and Joint Tactical Radio. Perform technical assessments, concept studies, risk reduction and prepare milestone documentation.	10902	10067	9424	16130
Completed Production Qualification Test (PQT); conducted Extended System Integration Test (ESIT), C-130 Demonstrations, Automotive Endurance testing, and Command, Control, Communications, Computers and Intelligence (C4I) evaluations. Integrate Advanced Field Artillery Tactical Data System (AFATDS); conducted ground and completed Joint HIMARS/Guided MLRS Initial Operational Test and Evaluation (Ground and Flight phases).	9509	0	0	0
Totals	20411	10067	9424	16130

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
HIMARS Launcher (C02901)	121747	168596	174929	226887	235323	247398	258865	261380	2366883	4195629
HIMARS Modifications (C67501)	1986	472	8001	9238	10387	11675	11855	9246	90560	153420
HIMARS Modifications: Initial Spares (CA0289)	69	71	681	1285	1233	1040	1813	1862	31600	39654
Initial Spares, HIMARS (CA0288)	6571	4016	8363	7742	11278	11762	12289	8447	127808	198276

C. Acquisition Strategy: The HIMARS program is currently in Low Rate Initial Production (LRIP) and awarded the last contract (LRIP-3) in December 2004. The Full Rate Production (FRP) Decision Review will be conducted in 3QFY05 and the program will award FRP-1 in FY06. HIMARS follow-on Horizontal Technology Insertion (HTI) efforts include the Increased Crew Protection and Joint Tactical Radio Systems (JTRS) integration.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFC, Texas	112724	0		0		0		0	112724	0
b . Path through Operational Test	SS/CPFF	LMMFC, Texas	19607	0		0		0		0	19607	0
c . Work Directives/ Chassis and Cab	N/A	TACOM (S&S)	4701	6455	1-2Q	1057	1-2Q	882		1840	14935	0
d . Battle Command	SS/CPFF	CECOM, STRICOM, UA Networks, LMMFC, Texas	4040	0	2-3Q	1663	1-3Q	1893		7437	15033	0
e . Government Support	N/A	AMCOM/ GSA, RSA, TSM & PM	16425	1216	1-4Q	1112	1-4Q	1584		1018	21355	0
f . Increased Crew Protection	SS/CPFF	LMMFC, Texas	0	521	1-4Q	2028	1-4Q	2199		926	5674	0
Subtotal:			157497	8192		5860		6558		11221	189328	0

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 Network
 JTRS - Joint Tactical Radio Systems

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C /CPFF	Camber Research/S3/TMI, Alabama	1537	522	1-4Q	551	1-4Q	581		718	3909	0
Subtotal:			1537	522		551		581		718	3909	0

Remarks: S3 - Systems Studies Simulation, Inc.
 TMI - Tec Masters Inc

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	Fort Hood,ATEC,APG MD,WSMR NM & RTTC RSA	26526	1076	1-4Q	2696	1-4Q	8667		1745	40710	0
Subtotal:			26526	1076		2696		8667		1745	40710	0

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

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Project Office, Redstone Arsenal, AL	6695	277	1-4Q	317	1-4Q	324		1009	8622	0
Subtotal:			6695	277		317		324		1009	8622	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			192255	10067		9424		16130		14693	242569	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
PQT II Flight/Ground Testing	PQT II																															
(1) LRIP 2 CA	▲ LRIP 2 CA																															
IOT Ground Test					IOT Grnd																											
IOT Flight Test					IOT Flts Test																											
(2) LRIP 3 CA					▲ LRIP 3 CA																											
(3) FUE					▲ FUE																											
(4) Full Rate Production (FRP) Contract Award (CA) 1									▲ FRP 1 CA																							
Increased Crew Protection Development and Live Fire Test and Evaluation																	Increased Crew Protection & LFT&E															
Central Technical Support Facility Certification																									Software Blk 2-5							
JTRS Integration																									JTRS Integ							
JTRS Multiservice Operational Test & Eval (MOT&E)																									JTRS MOT&E							

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
PQT II Flight/Ground Testing	1-3Q							
LRIP 2 CA	1Q							
IOT Ground Test	4Q							
IOT Flight Test	4Q	1Q						
LRIP 3 CA		1Q						
FUE		2Q						
Full Rate Production (FRP) Contract Award (CA) 1			1Q					
Increased Crew Protection Development and Live Fire Test and Evaluation		2-4Q	1-4Q	1-4Q				
Central Technical Support Facility Certification				1-4Q	1-4Q	1-4Q	1-2Q	
JTRS Integration					1-4Q	1-4Q		
JTRS Multiservice Operational Test & Eval (MOT&E)						2-3Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
093 MLRS JOINT TECH ARCHITECTURE	8279	4793	1782	3263	9590	4077	4570	0	0	42777

A. Mission Description and Budget Item Justification: Compliance with the Joint Technical Architecture (JTA) 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 Office of the Secretary of Defense (OSD). As required by JTA, Digital Communications (DCOMMS), which incorporates Joint Variable Message Format (JVMF), has been implemented into both the HIMARS and M270A1 launchers. Additionally, JTA provides for the development and integration of Selective Availability/Anti-Spoofing Module (SAASM) and Unit of Action (UoA) network interoperability, which includes Sensor to Effects (STE) for both the HIMARS and M270A1 launchers. This effort reduces the total number of Executive Processor Circuit Card Assemblies used in the launcher which increases reliability, decreases unit cost, and mitigates future obsolescence issues.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Developed platform infrastructure requirements to support situational awareness.	2421	0	0	0
Developed, integrate, and test SAASM and JVMF(DCOMMS).	567	151	142	0
Perform developmental testing (software blocking).	203	0	382	0
Reduction in Total Ownership Cost/Card Consolidation Development.	4168	3687	356	2029
Develop anti-jamming hardware (analysis).	423	498	468	508
Perform technical assessments, concept studies, and risk reduction.	497	246	196	444
Develop, integrate and test to support UoA network interoperability.	0	211	238	282
Totals	8279	4793	1782	3263

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
MLRS Launcher (C65900)	37619	21118	20787	0	0	0	0	0	0	3020873
MLRS Mods(C67500)	19770	18897	14579	6813	5497	1858	3096	3098	27000	389279
MLRS Initial Spares (CA0257)	6473	6350	0	0	0	0	0	0	0	200625
MLRS Mod Initial Spares (CA0265)	1260	5036	5174	508	1019	1024	1024	1017	9000	41686
HIMARS Launcher (C02901)	121747	168596	174929	226887	235323	247398	258865	261380	2366883	4195629
HIMARS Modifications (C67501)	1986	472	8001	9238	10387	11675	11855	9246	90560	153420
HIMARS Initial Spares (CA0288)	6571	4016	8363	7742	11278	11762	12289	8447	127808	198276
HIMARS Mod Initial Spares (CA0289)	69	71	681	1285	1233	1040	1813	1862	31600	39654

C. Acquisition Strategy: The JTA-Army standards will be implemented for the M270A1 and HIMARS launchers. The JVMF is currently being developed in 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, SAASM efforts, and STE. Testing of software blocking upgrades are currently scheduled every 18 months.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract (Card Consolidation, SAASM, and STE)	CPFF	LMMFC-D, Dallas, Texas	14161	3930	2Q	667	2Q	2103	2Q	11995	32856	0
b . Government Support	N/A	AMCOM/GSA, Redstone Arsenal, Alabama	5138	284	1-3Q	251	1-3Q	351	1-3Q	2199	8223	0
Subtotal:			19299	4214		918		2454		14194	41079	0

Remarks: SAASM - Selective Availability/Anti-Spoofing Module STE - Sensor to Effects
 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 Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	Various		0	0		78	1-3Q	124	1-3Q	853	1055	0
Subtotal:			0	0		78		124		853	1055	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	CTSF, Ft. Hood, Texas	552	0		553	1-3Q	0		2249	3354	0
b . Test Support		AMCOM, Redstone Arsenal, Alabama	0	0		0		451	1-3Q	0	451	0
c . Test Support		WSMR, New Mexico	299	143	1-3Q	0		0		0	442	0
Subtotal:			851	143		553		451		2249	4247	0

Remarks: CTSF - Central Test Support Facility WSMR - White Sands Missile Range

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, Redstone Arsenal, Alabama	2407	436	1-4Q	233	1-4Q	234	1-4Q	941	4251	0
Subtotal:			2407	436		233		234		941	4251	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			22557	4793		1782		3263		18237	50632	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Card Consolidation	█				█				█				█																			
Sensor to Effects (STE)	█				█				█				█																			
SAASM-GPS Upgrades and Military Code Integration	█				█				█				█				█				█				█							
DCOMMS, SAASM Black Key Capability Development/Integration	█				█				█				█				█				█				█							
Software Blocking/Central Test Support Facility/OT Certification	█				█				█				█				█				█				█							
Anti-jamming Hardware	█				█				█				█				█				█				█							

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Card Consolidation	1-4Q	1-4Q	1-4Q	1-4Q				
Sensor to Effects (STE)		1-4Q	1-4Q					
SAASM-GPS Upgrades and Military Code Integration					1-4Q	1-4Q	1-4Q	1-4Q
DCOMMS, SAASM Black Key Capability Development/Integration	2-4Q	1-4Q	1-4Q					
Software Blocking /Central Test Support Facility/Operational Test Certification			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Anti-jamming Hardware	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
784 GUIDED MLRS	54360	90584	103091	60264	9894	904	0	0	0	378482

A. Mission Description and Budget Item Justification: The Guided Multiple Launch Rocket System (GMLRS) is the Army's primary precision strike, artillery rocket system. Coupled with the High Mobility Artillery rocket System (HIMARS) launcher platform, the GMLRS provides the joint warfighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition with a reduced logistics burden effective against: cannon, mortar, rocket and missile artillery; air defense; light materiel; personnel; and point surface targets with predictable collateral damage. GMLRS is a major upgrade/replacement for the aging M26A1/A2 inventory. GMLRS integrates a guidance and control package and a new rocket motor that has achieved greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. In addition to HIMARS, the GMLRS will also be the primary precision strike munition for artillery units fielded with the M270A1 launcher. 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 warhead making it an all weather, low collateral damage, precision rocket. This added capability expands the Multiple Launch Rocket System (MLRS) target set to include point targets within urban and complex environments. GMLRS Unitary satisfies a validated user requirement and will be fielded to support early entry forces, Stryker brigades and Brigade Combat Teams in the Modular Force. GMLRS Unitary development efforts will also provide an insensitive munition (IM) rocket motor that will be cut into all GMLRS production once it is qualified. Continued assessments of future technologies and munitions will be performed to better satisfy validated user requirements. Additionally, appropriate spiral development and technology insertions into the GMLRS program will provide operational flexibility and capability against an expanded target set including moving targets. The system includes training devices for tactical training, classroom training and handling exercises. GMLRS is also a key component of the Marine Corps Future Fighting Effort.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Conducted Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test	101	0	0	0
Performed Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze	3421	0	0	0
Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface	201	204	0	0
Conduct system test and evaluation activities to include Initial Operational Test (IOT), Ground and Flight Test.	1489	3813	0	0
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	103	105	249	152

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

Accomplishments/Planned Program (continued)

	FY 2004	FY 2005	FY 2006	FY 2007
Conduct Development and Engineering for Insensitive Munitions (IM) Program	96	2326	6096	2341
Conduct Development Engineering, Design and Develop Warheads and Multi Mode Fuzes for Unitary	18491	26608	18049	9852
Initiate Initial Common Hardware Buy for Test Activities for Unitary (123 test articles for Engineering Development Testing (EDT), Production Qualification Testing (PQT), Cold Region Testing, & Initial Operational Test & Evaluation (IOT&E))	0	5589	29293	6747
Perform Anti-Jamming Analysis and System Engineering/Integration for DPICM and Unitary	4013	3002	3939	4533
Conduct EDT Flight Test, PQT Ground and Flight Tests, Test Analysis for Unitary	13949	33595	10187	5321
Conduct Functional Configuration Audit, Final PDDP, and System Integration Test for Unitary	6046	8125	3622	3571
Perform Integration and Test of Alternative Multi-Mode Fuze for Risk Reduction for Unitary	3002	3111	3307	2681
Conduct system test and evaluation activities for Unitary	3448	4106	28349	25066
Totals	54360	90584	103091	60264

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Missile Procurement Army - GMLRS (C64400)	106767	111868	124814	210116	377288	461756	569232	709367	10369823	13041031

C. Acquisition Strategy: The GMLRS DPICM is currently in Low Rate Initial Production (LRIP) and preparing for a Full Rate Production (FRP) decision third quarter FY05. 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 and desired new rocket motor capabilities related to insensitive munition compliance and increased range.

The GMLRS Unitary Acquisition Strategy is a streamlined product improvement program employing a spiral development approach. 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 that will include an insensitive munition rocket motor, Global Positioning System (GPS) Anti-Jam capability and other technology opportunities (e.g., payloads, trajectory shaping, guidance, Cost As An Independent Variable (CAIV) initiatives). In FY05 Congress encouraged the Army to accelerate the GMLRS Unitary program and 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 (CENTCOM) requesting GMLRS Unitary rockets by fourth quarter FY06. Headquarters, Department of Army, validated the CENTCOM's urgent need statement on 6 January 2005 and authorized the Program to accelerate the GMLRS Unitary program.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD DPICM Contract	SS/CPAF	LMMFCS Dallas, TX	100909	1336	1-2Q	1263	2Q	1152	1-2Q	0	104660	0
b . SDD Unitary Contract	SS/CPFF	LMMFCS Dallas, TX	58631	64687	1Q	41358	1Q	13019	1Q	1578	179273	0
c . Government Support	N/A	AMCOM/AMRDEC, RSA	32617	2906	1-4Q	3514	1-4Q	2540	1-4Q	743	42320	0
Subtotal:			192157	68929		46135		16711		2321	326253	0

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 Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C/CPFF	Camber Research/S3/TMI, Alabama	6030	2040	1-3Q	4510	1-3Q	3513	1-3Q	397	16490	0
Subtotal:			6030	2040		4510		3513		397	16490	0

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

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	WSMR, NM	19818	12082	1-4Q	44076	1-4Q	35424	1-4Q	6132	117532	0
Subtotal:			19818	12082		44076		35424		6132	117532	0

Remarks: WSMR, NM - White Sands Missile Range, New Mexico

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	16268	7533	1-4Q	8370	1-4Q	4616	1-4Q	1948	38735	0
Subtotal:			16268	7533		8370		4616		1948	38735	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems
 RSA - Redstone Arsenal, Alabama

Project Total Cost:			234273	90584		103091		60264		10798	499010	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) DPICM LRIP II CA	▲ 1 LRIP II CA																															
DPICM LRIP I/Supplement Del	■				LRIP I Supplemental Deliveries (822)																											
DPICM IOTE	■				IOTE																											
DPICM LRIP II Deliveries (786)	■				LRIP II Deliveries																											
(2) DPICM LRIP III CA	▲ 2 LRIP III CA																															
(3) DPICM FRP Decision	▲ 3 FRP																															
(4) DPICM IOC	▲ 4 IOC																															
Unitary EDT-1	■				EDT-1																											
(5) Unitary SDD	▲ 5 SDD																															
Unitary PQT-1	■				PQT-1																											
Unitary EDT-2	■								EDT-2																							
(6) UNITARY MS C	▲ 6 MS C																															
(7) UNITARY LRIP I CA	▲ 7 LRIP I																															
(8) UNITARY IOTE	▲ 8 OT																															
(9) UNITARY FRP	▲ 9 FRP																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
DPICM LRIP II CA	2Q							
DPICM IOTE	4Q	1Q						
DPICM LRIP III C A		2Q						
Unitary Configuration EDT, PQT Grnd and Flight Tests	3-4Q	2-3Q	3Q					
Unitary MS C				2Q				
Unitary LRIP I CA				3Q				
Unitary IOTE					2Q			
Unitary FRP					4Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603820A - Weapons Capability Modifications UAV					PROJECT D20		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost	
D20 UAV WEAPONIZATION CAPABILITY MOD	0	0	0	16281	3871	0	0	0	0	20152	

A. Mission Description and Budget Item Justification: Weaponization of UAVs addresses the full scale development and integration of a weaponization capability modifications for UAV systems to include the refinement of requirements, the iterative selection of the optimum weapons matched to the aircraft capabilities, hardware and software design, development, and integration with UAV systems. This will include requisite airframe, mission management software, or weapon compatiability modifications to allow UAVs to carry and employ weapons. A spectrum of test will be required to ensure reliable, safe, accurate, and timely weapons stowage and delivery.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
System Development Demonstration	0	0	0	12881
IOT&E / Limited User Test (LUT)	0	0	0	3400
Totals	0	0	0	16281

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0603820A - Weapons Capability Modifications
 UAV**

PROJECT
D20

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget	0	0	0
Current Budget (FY 2006/2007 PB)	0	0	16281
Total Adjustments	0	0	16281
Net of Program/Database Changes			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			16281

Fy 07: Funds were added for ER/MP Weaponization

C. Other Program Funding Summary: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0603820A - Weapons Capability Modifications
UAV**

PROJECT
D20

D. Acquisition Strategy: Development/Integration of an extended range air vehicle will include a two phased approach. Phase I involves a paper downselect of two vendors. Phase II involves a competition and downselect with a flyoff to one qualified airframe vendor. This vendor will be integrated into the One System Ground Control Equipment. Initial activities would include Requirements Analysis and preparation of a Request for Proposal. Long lead items for the one system integration and testing will be ordered.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603820A - Weapons Capability Modifications UAV **PROJECT**
D20

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Development Demonstration		TBD	0	0		0		12881	1-2Q	0	12881	0
Subtotal:			0	0		0		12881		0	12881	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603820A - Weapons Capability Modifications UAV **PROJECT**
D20

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . IOT&E / LUT		TBD	0	0		0		3400	1-3Q	0	3400	0
Subtotal:			0	0		0		3400		0	3400	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			0	0		0		16281		0	16281	0
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE **PROJECT**
0603820A - Weapons Capability Modifications UAV **D20**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
System Development Demonstration				1-2Q	1-2Q			
IOT&E / Limited User Test (LUT)				1-3Q	1-3Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)				PROJECT E55		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
E55 JNT LAND ATK MSL DEF ELEVATED NETTED SENSOR-JLENS	56855	79316	106420	256893	471997	332428	0	0	Continuing	0

A. Mission Description and Budget Item Justification: The Under Secretary of Defense (Acquisition and Technology) and the Army Acquisition Executive (AAE) directed the establishment of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Project Office (PO), for Land Attack Cruise Missile Defense (LACMD). This is a multiservice effort with the Army as the lead service. The JLENS Project Office merged with the Short Range Air Defense (SHORAD) Project Office on January 11, 2005, to become the JLENS Product Office within the Cruise Missile Defense Systems (CMDS) Project Office. On January 13, 2005, the Program Executive Office for Air, Space and Missile Defense (PEO ASMD), which JLENS was assigned to merged with the Program Executive Office for Tactical Missiles (PEO TM) to become the Program Executive Office for Missiles and Space (PEO MS). JLENS is a Future Force theater level System of Systems element that meets the requirements of the Army Campaign Plan. JLENS uses advanced sensor and networking technologies to provide precision tracking and 360-degree wide-area over-the-horizon surveillance of land attack cruise missiles. A joint program, JLENS performs as a multi-role platform to enable extended range command and control linkages. A key element of the Army transformation Single Integrated Air Picture (SIAP), JLENS provides correlated fire control and surveillance data from multiple sensors to various battle command nodes. JLENS is the key long range surveillance and integrated fire control sensor in the Army Missiles and Space System of Systems architecture.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Contract work is continuing to design and to develop the system and to mitigate risk.	41771	66189	70323	221846
Continue work on Lightweight X-Band Radar Micro Electro Mechanical (MEMS) Antenna Technology.	1500	0	0	0
Other contracts and OGAs.	6569	7547	16467	14845
Project Management	7015	5580	6850	7500
Government Furnished Equipment	0	0	12780	12702
Totals	56855	79316	106420	256893

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	81514	110561	260253
Current Budget (FY 2006/2007 PB)	79316	106420	256893
Total Adjustments	-2198	-4141	-3360
Net of Program/Database Changes			
Congressional Program Reductions	-1463		
Congressional Rescissions			
Congressional Increases	1500		
Reprogrammings			
SBIR/STTR Transfer	-2235		
Adjustments to Budget Years		-4141	-3360

C. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BZ0525 - JLENS	0	0	0	0	0	29153	549707	397776	0	976636
PE 643869, MEADS	236823	251414	0	0	0	0	0	0	0	488237
PE 643869M06, PATRIOT/MEADS CAP	0	0	288785	326352	454511	510672	510389	490441	0	2581150
PE 273801, PATRIOT PIP	45587	32082	16188	10607	10884	11119	12029	12520	0	151016
PE 654865, PAC-3	151318	61482	0	0	0	0	0	0	0	212800
PE C49100, PATRIOT	616942	487364	489700	494754	466004	471770	0	0	0	3026534
PE C50001, PATRIOT/MEADS CAP	0	0	0	0	88425	64338	423209	663557	0	1239529
PE 654802, SLAMRAAM	36103	63111	36102	29200	0	0	0	0	0	164516
PE C81001, SLAMRAAM Production	7397	2440	19315	21970	59273	13124	0	0	0	123519

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0102419A - Joint Land Attack Cruise Missiles
 Defense (JLENS)**

PROJECT
E55

C. Other Program Funding Summary (continued)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	ToCompl	TotalCost
PE 654820, SENTINEL	0	5851	5080	2547	2647	0	0	0	0	16125
PE WK5057, SENTINEL Production	20646	7337	8393	15373	25074	31572	34473	32552	0	175420
PE 643327, Integrated Fire Control, AMD	40275	0	24961	42736	48894	50930	0	0	0	207796

C. Other Program Funding Summary: This PE is an integral part of the Missiles and Space System of Systems (SOS) including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, SENTINEL, and on-going initiatives to achieve Single Integrated Air Picture (SIAP).

D. Acquisition Strategy: An initial cruise missile defense capability is being developed (Spiral 1) that consists of a 38-meter aerostat with a SENTINEL-based Enhanced Tracking Range and Classification (ETRAC) sensor system employing a 360-degree fire control and surveillance capability that will be available by 4QFY05. JLENS will design, develop, fabricate, integrate and test System Development and Demonstration (SDD) systems by 4QFY10. The JLENS system (Spiral 2) consists of a Precision Track Illumination Radar (PTIR), and a Surveillance Radar (SR), each with its own aerostat platform, mobile mooring station, mobile processing station, and associated ground support equipment. This SDD system can provide operational capability as early as FY08, should it be required. Developmental Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) will be conducted in FY09-FY10 culminating in a First Unit Equipped (FUE) by 4QFY10.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Concept Definition	CPFF	H&R/MA & CA	2007	0		0		0		0	2007	0
b . Concept Definition	CPFF	Lockheed Martin/N.Y./OH/AL	2000	0		0		0		0	2000	0
c . Concept Definition	CPFF	Northrop Grumman/MD	1981	0		0		0		0	1981	0
d . OGAs	MIPR	Multiple	16083	2300		3149		7414		Continue	28946	Continue
e . Risk Mitigation, Design, Development	CR/CPIF	Raytheon System Co. MA/CA/FL	151241	66189		70323		221846		Continue	509599	Continue
f . GFE	MIPR	Multiple	1201	0		12780		12702		0	26683	0
g . CEC/ SM-2 CEC	MIPR	Navy/Multiple	4219	0		0		0		0	4219	0
h . Design/Dev/Demo Support	CPFF	CAS/AL	14789	2261		2351		2445		Continue	21846	Continue
i . Misc. Contracts	SS/CPFF	Multiple	7730	2258		10167		4086		Continue	24241	Continue
j . ADaM			1800	0		0		0		0	1800	0
k . ORD/AOA/TEMP/MS B Preparation			4885	300		100		100		0	5385	0
l . Lightweight x-band radar antenna			4311	0		0		0		0	4311	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
m . In-House JLENS		PEO AMD, HSV, AL	27803	5580		6850		7500		0	47733	0
Subtotal:			240050	78888		105720		256093		Continue	680751	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support			2084	0		0		0		0	2084	0
Subtotal:			2084	0		0		0		0	2084	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Maintain Test Bed/Government Furnished Equipment	SS/CPFF	CAS-TX, NM	2927	428		700		800		0	4855	0
b . Misc. OGA&Contracts	Mul/MPR	AL/TX/NM	1656	0		0		0		0	1656	0
Subtotal:			4583	428		700		800		0	6511	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			246717	79316		106420		256893		Continue	689346	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) ORD JROC	1				2																											
(2) MS B									2																							
(3) MS C					3																											
(4) First Unit Equipped (FUE)									4																							
Spiral 1: 38M Aerostat w/Sentinel ETRAC Based Radar System	DR				GRD Elev. Test																											
Government Training and Testing																																
Spiral 2:																																
71M PTIR System																																
71M Surveillance System																																
(5) System Critical Design Review																																
Government Testing																																

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0102419A - Joint Land Attack Cruise Missiles
Defense (JLENS)

PROJECT
E55

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
ORD JROC	2Q							
MS B		3Q						
MS C						4Q		
First Unit Equipped (FUE)							4Q	
Spiral 2 Critical Design Review					1Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	28308	17269	16064	16948	12507	9932	8316	8092	Continuing	6166
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	26432	17269	16064	16948	12507	9932	8316	8092	Continuing	0
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	1876	0	0	0	0	0	0	0	0	6166

A. Mission Description and Budget Item Justification: 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. The Advanced Field Artillery Tactical Data System (AFATDS) is the tool that performs automated fire support coordination for the Army, Navy, Air Force, and Marine Corps.

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, Battery Computer System and Fire Direction System. AFATDS will interoperate with the other Army Battle Command Systems, 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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	17994	17393	13021
Current Budget (FY 2006/2007 PB)	17269	16064	16948
Total Adjustments	-725	-1329	3927
Net of Program/Database Changes			
Congressional Program Reductions	-261		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-464		
Adjustments to Budget Years		-1329	3927

FY 2006 funds realigned (-\$1329K) to higher priority requirements.
 FY 2007 funds realigned (\$3927K) to support joint interoperability.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System				PROJECT 322		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	26432	17269	16064	16948	12507	9932	8316	8092	Continuing	0

A. Mission Description and Budget Item Justification: 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. The Advanced Field Artillery Tactical Data System (AFATDS) is the tool that performs automated fire support coordination for the Army, Navy, Air Force, and Marine Corps.

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, Battery Computer System and Fire Direction System. AFATDS will interoperate with the other Army Battle Command Systems, 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Prepare and Support AFATDS Version 6.4 Test, Materiel Release and subsequent software block releases.	5568	1242	3692	1672
Continue AFATDS Version 6.4 and subsequent software block effort.	20864	16027	12372	15276
Totals	26432	17269	16064	16948

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System

PROJECT
322

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA (B28600)	23349	26383	29537	21346	18549	15979	206	206	Continuing	Continuing
Spares (BS9708)	2452	96	100	102	0	0	0	0	Continuing	Continuing
Mod Of In Service Equip (B28620)	1972	3911	5104	5594	6202	8682	0	0	Continuing	Continuing

C. Acquisition Strategy: AFATDS have 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 is planned for May 2005. Future 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.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System

PROJECT
322

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	CPAF	Raytheon Systems Corp, Ft. Wayne, IN	195447	13151	1-2Q	10571	2Q	13740	2Q	Continue	Continue	0
b . ABCS System Engineering & Integration Efforts	PWD	PEO C3T, Ft Monmouth, NJ	5390	0		0		0		Continue	Continue	0
c . Peculiar Support Equipment (PSE)	C/FFP	General Dynamics, Taunton, MA	4267	380	2Q	269	2Q	274	2Q	Continue	Continue	0
Subtotal:			205104	13531		10840		14014		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development Support	MIPR	CECOM, Ft. Monmouth, NJ & Telos, Shrewsbury, NJ	5187	523	2Q	534	2Q	479	2Q	Continue	Continue	0
b . Engineering Support	MIPR	CECOM, Ft Monmouth, NJ	3641	580	1-2Q	589	2Q	360	2Q	Continue	Continue	0
Subtotal:			8828	1103		1123		839		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System **PROJECT 322**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Management		PM IE, Ft. Monmouth, NJ	723	140	2Q	143	2-3Q	146	2Q	Continue	Continue	0
b . Test Support	MIPR	Titan, Ft Sill, OK and Various	5594	950	2Q	890	2-3Q	514	2Q	Continue	Continue	0
c . Limited User Test/Government Confidence Demo	MIPR	Army Test & Evaluation Command	3000	0		1536	2-3Q	0		Continue	Continue	0
Subtotal:			9317	1090		2569		660		Continue	Continue	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	T&M	CSC, Eatontown, NJ	4104	509	2Q	505	2Q	450	2Q	Continue	Continue	0
b . Program Management		PM IE, Ft Monmouth, NJ	7263	1036	1-4Q	1027	1-4Q	985	1-4Q	Continue	Continue	0
Subtotal:			11367	1545		1532		1435		Continue	Continue	0

Project Total Cost:			234616	17269		16064		16948		Continue	Continue	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203726A - Adv Field Artillery Tactical Data System
PROJECT
322

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) Materiel Release	<div style="position: absolute; top: 10px; left: 10px;">1 MR 6.3.2</div> <div style="position: absolute; top: 30px; left: 30px;">2 LUT 6.4</div> <div style="position: absolute; top: 50px; left: 50px;">3 MR 6.4</div> <div style="position: absolute; top: 70px; left: 70px;">4 MR: S/W Block II</div> <div style="position: absolute; top: 90px; left: 90px;">5 MR: S/W Block III</div> <div style="position: absolute; top: 110px; left: 110px;">6 MR: S/W Block IV</div>				Fielding 6.3.2																											
Fielding									Fielding 6.4				Fielding SWB II				Fielding SWB III				Fielding SWB IV											
Development					Devel																											
(2) LUT																																
(3) Materiel Release																																
Fielding																																
(4) Materiel Release																																
Fielding																																
(5) Materiel Release																																
Fielding																																
(6) Materiel Release																																
Fielding																																

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE **PROJECT**
0203726A - Adv Field Artillery Tactical Data System **322**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Materiel Release 6.3.2	2Q							
AFATDS Version 6.4 Limited User Test (LUT)	4Q							
AFATDS Version 6.4 Materiel Release		3Q						
Software Release Block II				1Q				
Software Release Block III					3Q			
Software Release Block IV							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	31018	17174	12030	12547	27409	5936	0	0	0	185544
330 ABRAMS TANK IMPROVE PROG	24949	15257	12030	12547	27409	5936	0	0	0	178458
718 GRND COMBAT VEHICLE HTI	6069	1917	0	0	0	0	0	0	0	7086

A. Mission Description and Budget Item Justification: This Program Element (PE) corrects vehicle deficiencies identified in Army operations; continues technical system upgrades; 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. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks through a series of product improvements.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	15952	12796	13089
Current Budget (FY 2006/2007 PB)	17174	12030	12547
Total Adjustments	1222	-766	-542
Net of Program/Database Changes			
Congressional Program Reductions	-284		
Congressional Rescissions			
Congressional Increases	2000		
Reprogrammings			
SBIR/STTR Transfer	-494		
Adjustments to Budget Years		-766	-542

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
330

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
330 ABRAMS TANK IMPROVE PROG	24949	15257	12030	12547	27409	5936	0	0	0	178458

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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
M1A1 FLIR	14025	3000	0	0
Power Train Improvement & Integration Optimization Program (i.e., Total Integrated Engine Revitalization (TIGER), Transmission, Common Controller, Auxiliary Power Unit (APU))	8697	1000	1000	1000
Abrams Suspension Improvement Program (i.e., Track, Roadwheels, Roadarms)	933	0	1000	0
Improved Situational Awareness/Survivability (i.e. Driver's Rear Facing Camera, Tank Commanders 360 Camera, Improved Drivers Site (IDS), Active Protection System (APS), Abrams Tank Urban Survivability Kit (TUSK))	0	3093	1000	1000
Profile Verification Program (PVP)	0	700	200	200
Advanced Technology Insertion	0	0	4566	6083
Testing	25	6200	3000	3000
Engineering support	1269	1264	1264	1264
Totals	24949	15257	12030	12547

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
330

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	1928	0	0	0	0	0	0	0	0	1928
Abrams Vehicle Modification (GA0700)	111056	116466	443475	368916	344719	301955	0	0	601000	2287587
System Enhancement Pgm (GA0730)	180050	291024	0	40944	169410	301629	11299	0	0	994356
Abrams Training Devices (GB1302)	0	6997	3709	1098	1100	1102	0	0	0	14006
Training Device Mod (GA5208)	6206	3629	3754	1098	1100	1102	0	0	0	16889
Initial Spares (GE0161)	5350	11403	3342	0	0	0	0	0	0	20095

C. Acquisition Strategy: Honeywell is the prime contractor for the Abrams TIGER Program. General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs **PROJECT 330**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Power Train Improvement & Integration Optimization Program (TIGER)	C-CPAF	Honeywell International Phoenix, AZ	23427	1000		1000		1000		0	26427	191659
b . Integration of improved engine into vehicle	SS-CPFF	General Dynamics Sterling Heights, MI	11459	0		0		0		0	11459	84786
c . Abrams Suspension Improvement Program (Track)		United Defense Technologies, Huntsville, AL	933	0		1000		0		0	1933	0
d . Improved Situational Awareness/Survivability	TBD	TBD	0	3093		1000		1000		0	5093	0
e . PVP/MRM	MIPR	PM, MAS	0	700		200		200		0	1100	0
f . Advance Technology Insertion		General Dynamics Sterling Heights, MI	0	0		4566		6083		0	10649	0
g . FLIR	FFP	Raytheon Company, Mc Kinney, TX	7024	0		0		0		0	7024	0
h . FLIR integration into tank	SS-CPFF	General Dynamics Sterling Heights, MI	7000	3000		0		0		0	10000	0
Subtotal:			49843	7793		7766		8283		0	73685	276445

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs **PROJECT 330**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	MIPR	Various	1264	1264	1-3Q	1264	1-3Q	1264		0	5056	0
Subtotal:			1264	1264		1264		1264		0	5056	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . M1A1-FLIR	MIPR	Aberdeen Proving Ground, MD	0	2500		0		0		0	2500	0
b . Track testing	MIPR	Yuma Proving Ground, AZ	25	3500		0		0		0	3525	0
c . Improved Situational Awareness/Survivability	MIPR	Aberdeen Proving Ground, MD	0	200		0		0		0	200	0
d . Various sites	MIPR	Aberdeen Proving Ground, MD; Yuma Proving Ground, AZ; White Sands Missile Range, NM	0	0	2-4Q	3000	2-4Q	3000	2-4Q	0	6000	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs **PROJECT 330**

III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			25	6200		3000		3000		0	12225	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			51132	15257		12030		12547		0	90966	276445
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs
PROJECT
330

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Total Integrated Engine Revitalization (TIGER) Program	[Redacted]																															
TIGER Development (Honeywell) and Integration (GDLS)	[Redacted]																															
TIGER Government Testing	[Redacted]																															
(1) TIGER Production Contract Award	[Redacted]																															
Alternative Auxiliary Power Unit (AAPU)	[Redacted]																															
(2) AAPU Development Award	[Redacted]																															
AAPU Production	[Redacted]																															
M1A1 2nd GEN FLIR	[Redacted]																															
(3) M1A1 2nd GEN FLIR Development Contract Award	[Redacted]																															
Improved Situational Awareness/Spiral Development Program	[Redacted]																															
M1A1 2nd GEN FLIR Production	[Redacted]																															
PVP/MRM	[Redacted]																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203735A - Combat Vehicle Improvement Programs

PROJECT

330

Schedule Detail: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203740A - Maneuver Control System					PROJECT 484	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
484 MANEUVER CONTROL SYSTEM (MCS)	45403	23350	44903	14987	7285	6750	120	123	Continuing	0

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) 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Conduct MCS software development and support	30503	13253	6450	6225
Plan and participate in test events, and prepare for the MCS Operational Tests	2300	2555	0	0
Conduct MCS 6.4 IOT&E	5400	3942	0	0
JTCW Development	0	3600	20057	8762
CPOF Development	7200	0	18396	0
Totals	45403	23350	44903	14987

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
484

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	24753	16388	11774
Current Budget (FY 2006/2007 PB)	23350	44903	14987
Total Adjustments	-1403	28515	3213
Net of Program/Database Changes			
Congressional Program Reductions	-818		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-585		
Adjustments to Budget Years		28515	3213

FY06/07: Funds increased to cover development and Operational Testing of Joint Tactical COP Workstation (JTCW) and development for the Command Post of the Future (CPOF).

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA9320 - Maneuver Control System (MCS)	35689	28553	49562	38786	31127	2122	1002		0	Continue
BS9710 - MCS Spares	1888	1919	1834	1906	1499	1529	0		0	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**February 2005****BUDGET ACTIVITY**
7 - Operational system development**PE NUMBER AND TITLE**
0203740A - Maneuver Control System**PROJECT**
484

D. Acquisition Strategy: The MCS acquisition strategy is based on modular development of application software, integrated with the common system software, hosted on the ruggedized commercial off-the-shelf Common Hardware/ Software (CHS) computers and peripheral hardware that are procured under the Army CHS ordering contract. Software will be developed, tested, integrated and trained as necessary to meet warfighter tactical and training requirements. Upon completion of the base capability that is to be fielded, development will continue for Joint Interoperability, Common Operating Environment and Safety requirements as necessary to continue the life of the software in the field. Priced options on the MCS Software Development contract will be exercised for JTCW development. Fielding of the JTCW will begin upon obtaining Materiel Release planned for 1QFY07.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MCS 6.4 Software Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	171367	7100	1-2Q	6160	1-2Q	4750	1-2Q	4750	194127	197327
b . JTCW Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	0	3600	1-2Q	14226	1-2Q	4509	1-2Q	Continue	Continue	0
c . CPOF Development	MIPR	DARPA	5700	0		0		0		0	5700	0
d . CPOF Development	C/CP	To Be Selected	0	0		14124	1-2Q	0		Continue	Continue	0
e . Misc Contracts	Various	Various	13933	1025	1-2Q	1880	1-2Q	658	1-2Q	Continue	Continue	0
f . Software Development & Technical Support	MIPR	CECOM, NJ	25245	2843	1-2Q	2500	1-2Q	1067	1-2Q	Continue	Continue	0
g . Technical Support	In House	PM GC C2, NJ	12037	2079	1-4Q	2183	1-4Q	830	1-4Q	Continue	Continue	0
h . PSE H/W & S/W	Various	Various	2575	0		200	2Q	200	2Q	Continue	Continue	0
i . MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	8615	1106	1Q	875	1Q	755	1Q	Continue	Continue	0
j . ABCS SE&I	MIPR	PEO C3T, NJ	1830	0		0		0		0	1830	0
Subtotal:			241302	17753		42148		12769		Continue	Continue	197327

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support	In House	PM GC C2, NJ	3386	478	1-4Q	490	1-4Q	550	1-4Q	Continue	Continue	0
b . Misc Contracts	Various	Various	1963	165	1-2Q	200	1-3Q	225	1-2Q	Continue	Continue	0
Subtotal:			5349	643		690		775		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . OGA	MIPR	Various	2938	727	1-2Q	435	1-2Q	267	1Q	Continue	Continue	0
b . Misc Contracts	Various	Various	4071	508	1-2Q	422	1-2Q	250	1Q	Continue	Continue	0
c . Operational Test/Planning	MIPR	Various	16463	3065	1-2Q	524	2-3Q	221	1Q	Continue	Continue	0
Subtotal:			23472	4300		1381		738		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Mgmt	In House	PM GC C2, NJ	2105	654	1-4Q	684	1-4Q	705	1-4Q	Continue	Continue	0
Subtotal:			2105	654		684		705		Continue	Continue	0

Project Total Cost:			272228	23350		44903		14987		Continue	Continue	197327
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
484

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
S/W Development	Software Development and COE/Interoperability Upgrades																															
Fielding	Fielding (Purchase of CHS)																															
CTSF Integration Testing/Certification for MCS 6.4																																
(1) LRIP Approval for 809 systems	▲1																															
(2) MCS Full Rate Production Decision							▲2																									
(3) , (4) , (5) , (6) , (7) CHS Orders			▲3				▲4			▲5				▲6					▲7													
(8) MCS 6.4 IOT&E Completed							▲8																									
(9) JTCW Test														▲9																		
(10) JTCW Materiel Release Decision															▲10																	

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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0203740A - Maneuver Control System

PROJECT
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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
LRIP Approval	1Q							
CTSF Integration/Certification for MCS 6.4	3-4Q	1-2Q						
Complete MCS Initial Operational Test & Evaluation		2-3Q						
MCS Full Rate Production Decision		3Q						
Initial Operational Capability		4Q						
Joint Tactical Common Operational Picture (COP) Workstation (JCTW) Test			4Q					
JTCW Materiel Release Decision				1Q				
Software Development of MCS / JTCW / CPOF	1-4Q	1-4Q	1-4Q					
Evolving Software Upgrades (e.g., joint interoperability, COE compliance, etc.)		4Q	1-4Q	1-4Q	1-4Q	1-4Q		

DARPA is transitioning CPOF development to the Army in FY06 as a preferred solution to meeting certain MCS documented requirements. Any requirements for further development will be addressed in the FY07 Army POM.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	273381	242628	409103	420769	334468	314141	361837	396500	0	2914931
028 AERIAL COMMON SENSOR (ACS) (JMIP)	102755	121879	164646	239439	167491	56578	64782	21954	0	986359
430 IMPR CARGO HELICOPTER	13959	12372	19748	0	0	0	0	0	0	49350
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	155003	108377	114988	59225	0	0	20243	25272	0	595106
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP	1664	0	0	0	44741	70549	152320	243475	0	512749
D17 APACHE BLOCK III	0	0	109721	122105	122236	187014	124492	105799	0	771367

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, the Apache 2nd Generation Forward Looking Infrared (FLIR), and Longbow Apache Operational Systems Development.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	242853	201295	309107
Current Budget (FY 2006/2007 PB)	242628	409103	420769
Total Adjustments	-225	207808	111662
Net of Program/Database Changes			
Congressional Program Reductions	-23951		
Congressional Rescissions			
Congressional Increases	27200		
Reprogrammings			
SBIR/STTR Transfer	-3474		
Adjustments to Budget Years		207808	111662

FY 2006 - 2007 project D12 HQDA zero-summed FY 06 & FY 07 funding to SSN AA6607 (APA). Project 504 - increase of \$115 Million is for the P3I program to include CAAS, FADEC, Fly-By Wire and the Integrated Vehicle Health Mgmt System (IVHMS). Project D17 received a transfer from APA to RDTE in FY 06 & FY 07 in support for Apache Block III RDTE restructure efforts.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT 028		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
028 AERIAL COMMON SENSOR (ACS) (JMIP)	102755	121879	164646	239439	167491	56578	64782	21954	0	986359

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 and Navy's critical need for a responsive worldwide, self-deployable, airborne reconnaissance, intelligence, surveillance and target acquisition (RISTA) capability that can immediately begin operations when arriving in theatre. 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 Component 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 from 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 SIGINT collection, with a secondary mission of stand-off and overflight Imagery 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 Army/Land Force Commander Intelligence, Surveillance and Reconnaissance (ISR), reporting and targeting requirements, and those of the Joint and Combined Task Forces (JTF and CTF) across the full spectrum of Operations.

This project is assessing Horizontal Technology Integration (HTI) candidates. A key consideration is the affordability of these subsystems. The National Security Agency's Defense Cryptologic Program (DCP) provides funding to support enhanced SIGINT capabilities.

Navy is pursuing the Army's Aerial Common Sensor (ACS) as a replacement for the EP-3E, with the goal of reaching IOC in 2012.

FY06 funding continues to support the System Integration (SI) portion of the System Demonstration and Development (SDD) Phase. FY 07 funds support transition to the System Demonstration portion of the SDD phase, as well as the first of two Development Test and Evaluation events. The SDD phase will conclude the development and design of the Prime Mission Equipment (PME) on the air platform subsystem and Limited User Test.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 028
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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Award and execute contract for ACS Increment 1 System SDD Phase which will integrate technologies developed and demonstrated during the CAD phase	81438	95285	136561	198404
Modeling, Program Office, Matrix Engineering and Test support for the SDD Phase	21317	26594	28085	41035
Totals	102755	121879	164646	239439

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
ACS DCP	15124	12995	17545	19056	12331	12320	12320	12320	Continuing	Continuing
CHALS DCP	4190	2931	1930	1456	4235	4232	4188	4165	Continuing	Continuing
GRCS DCP	7678	7109	3835	3845	2478	2476	4437	4437	Continuing	Continuing
0305206/DK98 Tactical Reconnaissance	4704	5128	5398	5599	5320	5544	6005	6103	Continuing	Continuing
A02005 Aerial Common Sensor- Aircraft Procurement, Army	0	0	0	0	0	403445	300096	403358	Continuing	Continuing
0307207N/3015 Navy Aerial Common Sensor	0	20400	92800	2500	5600	49000	0	0	0	170300

FY06-FY07 DCP provides funding for the development of ACS technologies and technologies needed to ensure applicability of ACS in the evolving future force architecture. Tactical Reconnaissance funds MASINT/IMINT technologies that will be integrated into ACS during SDD Phase. Navy RDTE funding supports SDD efforts for the baseline ACS.

C. Acquisition Strategy: 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. This effort will take the ACS program through Development, Testing, Limited User Test (LUT) and IOT&E in 4QFY09. A MS C LRIP phase will be sole source to the SDD contractor and used to establish a manufacturing capability in support of a Full Rate Production Decision.

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS SDD Contract	C-CPAF	Lockheed Martin, Littleton, CO	81438	95285	1-2Q	136561	1-2Q	198404	1-2Q	Continue	511688	879000
Subtotal:			81438	95285		136561		198404		Continue	511688	879000

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Operational Performance Model	SS-CPFF	SAIC thru JPSD	9205	1815	2Q	1500	1-2Q	1500	1-2Q	Continue	14020	Continue
b . Model Evaluation Support	Gov't /Kr	Multiple	5771	1285	1-3Q	1290	1-3Q	1290	1-3Q	Continue	9636	Continue
Subtotal:			14976	3100		2790		2790		Continue	23656	Continue

ARMY RDT&E COST ANALYSIS(R3)

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Airframe Engineering Support	MIPR	AMRDEC, Redstone Arsenal, AL	3550	2600	1-3Q	2400	1-3Q	2000	1-3Q	Continue	10550	Continue
b . AEC Support	Govt/Kr; Various	Multiple	1497	1990	1-3Q	3000	1-3Q	15260	1-3Q	Continue	21747	Continue
Subtotal:			5047	4590		5400		17260		Continue	32297	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	In-House	PM, Signals Warfare	10930	4890	1-2Q	5500	1-2Q	5500	1-2Q	Continue	26820	Continue
b . Program Mangement	C-T&M	CACI, Eatontown, NJ	3304	3700	1-2Q	3700	1-2Q	3700	1-2Q	Continue	14404	Continue
c . Program Management	Kr; Various	Multiple	2857	2155	2Q	2065	1-3Q	2070	1-3Q	Continue	9147	Continue
d . Matrix Support	Gov't /Kr; Various	Multiple;	6802	3612	1-2Q	3680	1-2Q	3680	1-2Q	Continue	17774	Continue
e . Matrix Support	MIPR	CRDEC/I2WD, Ft Monmouth, NJ	0	2797	1-3Q	3200	1-3Q	4285	1-3Q	Continue	10282	Continue

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BUDGET ACTIVITY
7 - Operational system development

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IV. Management Services (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
f . Software Matrix Support	C-T&M	ITEL, Tinton Falls, NJ	0	1750	1-3Q	1750	1-3Q	1750	1-3Q	0	5250	0
Subtotal:			23893	18904		19895		20985		Continue	83677	Continue
Project Total Cost:			125354	121879		164646		239439		Continue	651318	Continue

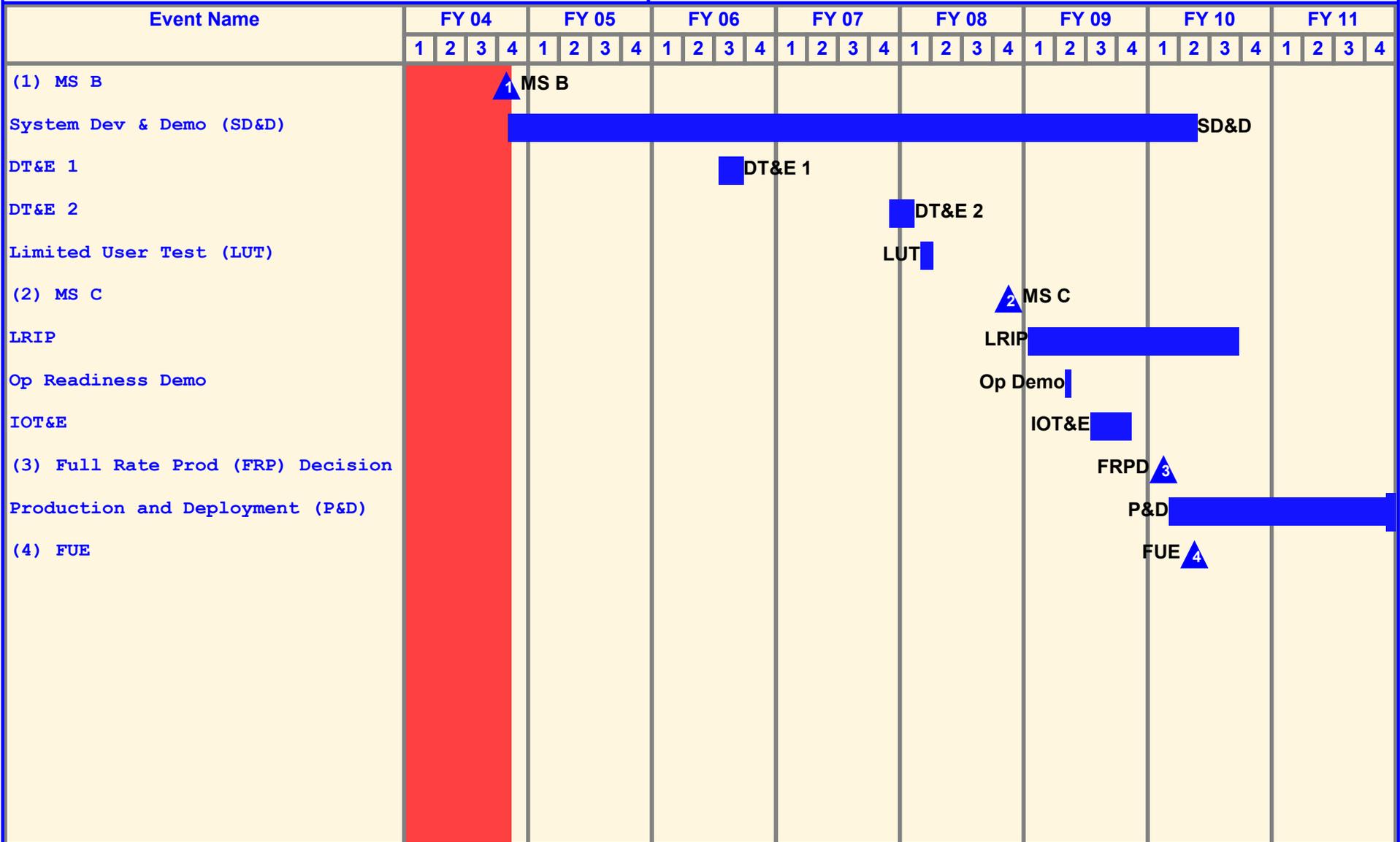
Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
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PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
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Schedule Detail (R4a Exhibit)

February 2005

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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
ACS Milestone B Decision	4Q							
ACS System Dev and Demo (SD&D) Phase Contract	4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-2Q	
DT&E 1			3Q					
DT&E 2				4Q	1Q			
ACS LUT					2Q			
MS C LRIP Decision					4Q			
LRIP Phase Contract						1-4Q	1-4Q	
Operational Readiness Demo						2Q		
IOT&E						3-4Q		
Full Rate Production Decision							1Q	
Production and Development Phase							1-4Q	1-4Q
FUE							2Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 430		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
430 IMPR CARGO HELICOPTER	13959	12372	19748	0	0	0	0	0	0	49350

A. Mission Description and Budget Item Justification: As the Army's only heavy-lift helicopter capable of intra-theater cargo movement of payloads up to 16,000 lbs in a high, hot environment, 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. The CH-47F Common Avionics Architecture System (CAAS) digital cockpit will provide future growth potential; include a digital data bus that permits installation of enhanced communications and navigation equipment for improved situational awareness, mission performance, and survivability. New airframe structural components and modifications will reduce harmful vibrations, improving operation and support (O&S) efficiency and crew endurance. The CH-47F program funds completion of the Independent Operational Test and Evaluation program. Developmental improvements to the T55-L-714A engines are funded as part of a shared, cooperative effort with the Component Improvement Program Office. Developmental improvements are included for the Low Maintenance Rotor Hub (LMRH), and testing for engine compressor Blade Coating.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Operational Test & Evaluation	0	0	2500	0
Provide product technical support	3690	0	1750	0
Continue Contract Live Fire Test & Evaluation	0	0	500	0
Continue in-house and program management administration.	316	300	827	0
Continue Government Test & Evaluation.	4800	0	2250	0
Test Analysis	1500	0	1000	0
714B Engine	3259	4375	2500	0
DT&E for Low Maintenance Rotor Hub	0	7697	7421	0
Blade Coating	0	0	1000	0
Small Business Innovative Research/Small Business Technology Transfer Programs	394	0	0	0
Totals	13959	12372	19748	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
APA, SSN AA0252, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc)	510226	857411	677532	624357	757674	1046959	863713	967937	6381767	12687576

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)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
430

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . EMD	CPIF	Various	117221	0		0		0		0	117221	117098
b . TOCR	CPIF	Various	1600	0		0		0		0	1600	1600
c . Technical Support	CPFF	Various	6658	0		1750	1-2Q	0		0	8408	0
d . 714B Engine	CPIF	Various	3259	4375	1-2Q	2500	1-2Q	0		0	10134	0
e . Low Maintenance Rotor Hub	CPIF	Boeing	0	7697	2-3Q	7421	2-3Q	0		0	15118	0
f . Blade Coating	CPIF	Honeywell	0	0		1000	1-2Q	0		0	1000	0
Subtotal:			128738	12072		12671		0		0	153481	118698

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0203744A - Aircraft Modifications/Product
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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO/OGA	Reimbursable	Various government	12380	300	2-3Q	827	2-3Q	0		0	13507	0
Subtotal:			12380	300		827		0		0	13507	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DT/OT	Reimbursable	Various government	14221	0		4750	1-2Q	0		0	18971	0
b . Live Fire Test & Eval	Reimbursable	Contract/Govt	6365	0		500	1-2Q	0		0	6865	0
c . Live Fire Test & Eval	Contract		50	0		0		0		0	50	0
d . Test Analysis	Reimbursable	Various Government	1500	0		1000	1-2Q	0		0	2500	0
Subtotal:			22136	0		6250		0		0	28386	0

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CAMBER/Westar	SS/FP	Huntsville, AL	3901	0		0		0		0	3901	3901
Subtotal:			3901	0		0		0		0	3901	3901

Project Total Cost:			167155	12372		19748		0		0	199275	122599
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
LRIP Lot 2 Contract Award	1Q							
Full Rate Production RFP	3Q							
Initial Oper Test & Eval (IOT&E) Phase I	3Q							
Milestone III		1Q						
Full Rate Pdn		1Q						
Initial Oper Test & Eval (IOT&E) Phase II			3Q					
Initial Oer Test & Eval (IOT&E) Phase III				2Q				
FUE				3Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT 504		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	155003	108377	114988	59225	0	0	20243	25272	0	595106

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 continues to procure UH-60L helicopters today. 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. 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 funding reflects the initial efforts to move the UH-60M program to 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. Also in FY05, funds are included for incorporation of Integrated Vehicle Health Management System (IVHMS) on the UH-60M. FY05 funds continue UH-60M integration and testing. FY05 also funds the Integrated Mechanical Diagnostic - Health Monitoring System (IMD-HUMS) and Maintenance Analysis Safety and Training (MAST) demonstration programs and initiation of the Helicopter Autonomus Landing Systems (HALS).

FY06 and FY07 Funding is for Pre-Planned Product Improvements (P3I) for the UH-60M, it includes the Fly-By-Wire (FBW), CAAS, and the Full Authority Digital Engine Controls (FADEC). FY06-FY07 funds UH-60M testing efforts and completion of the Baseline integration contract.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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PROJECT
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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
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.	28550	18833	9211	2528
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.	20094	4215	863	609
Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.	14732	3787	591	40
Prototype build and delivery to support Development Testing (DT).	32756	25951	11266	841
Testing (Conduct flight testing, EME testing and ground testing).	33115	13268	7193	1342
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.	3941	1893	997	883
Conduct training course to support test.	418	632	1970	408
Maintain Continuous Acquisition and Life Cycle Support (CALS)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's).	665	465	106	22
Support Equipment	308	103	0	0
Helicopter Autonomous Landing System (HALS) - Development and delivery of a complete unit; technical support; and integration of the unit.	0	1905	0	0
IMD-HUMS demonstration program.	6763	20120	0	0
UH-60M P3I Efforts	0	14799	82791	52552
MAST Demonstration Program	4865	2406	0	0
SBIR/STTR	4383	0	0	0
Internal Reprogramming	3413	0	0	0
Performance Support System (NG) - For Apache program	1000	0	0	0
Totals	155003	108377	114988	59225

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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
A05002 BLACK HAWK (MYP)	254196	454454	584702	846200	1132091	1084630	1088557	1135938	Continuing	Continuing

C. Acquisition Strategy: The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. The Army has revised the acquisition strategy for the UH-60M. Since the previous submission, the Army has decided to procure new UH-60M helicopters in lieu of Recap/Upgrade. The result of this decision is a significant increase in funding for SSN A05002 (UH-60 BLACK HAWK MYP), with a resulting decrease in funding to SSN AA0492 (UH-60 BLACK HAWK Mods). This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) and increasing O&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 (FY01-07), Production/Readiness Phase (FY05-30), and Operations and Sustainment Phase (FY06-FY49).

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0203744A - Aircraft Modifications/Product
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PROJECT
504

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co 30 Moffitt Street Stratford, CT 06601	293153	58374	1-2Q	19386	1-2Q	734	1-2Q	0	371647	0
b . Development Support - Organic	MIPR	UH PMO/matrix	8746	2849	1-3Q	3102	1-3Q	767	1-3Q	0	15464	0
c . Development Support - Contractor	C/FP	Support Contractors	11468	500	1-3Q	526	1-3Q	482	1-3Q	0	12976	0
d . IMD-HUMS Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	5471	1464	3Q	0		0		0	6935	0
e . IMD-HUMS Development Support - Contractor	C/FP	Goodrich, 100 Panton Road, Vergennes, Vermont 05491	27985	18656	3Q	0		0		0	46641	0
f . MAST Development Support - Organic	MIPR'S	Other Government Agency Support	334	1160	1Q	0		0		0	1494	0
g . MAST Development Support - Contractor	MIPR	Smith Industries Clear Water , FLI	4531	1246	2Q	0		0		0	5777	0
h . UH-60M P3I Efforts - Organic	MIPR		0	5503	2Q	11318	1-2Q	5719	1-2Q	0	22540	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
504

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . UH-60M P3I Efforts - Contractor	CPAF		0	9296	2Q	71473	1-3Q	46833	1-2Q	0	127602	0
j . Future Utility Rotorcraft (FUR) - Organic			0	0		0		0		5157	5157	0
k . Future Utility Rotorcraft (FUR) - Contractor			0	0		0		0		40358	40358	0
l . Internal Reprogramming - Payback for FY03			3413	0		0		0		0	3413	0
m . HALS			0	1905	3Q	0		0		0	1905	0
n . Performance Support System - NG (Apache)	MIPR	Other Government Agency Support	1000	0		0		0		0	1000	0
Subtotal:			356101	100953		105805		54535		45515	662909	0

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.
 CAAS, FBW, and FADEC are all part of a separate P3I program for the UH-60M.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
504

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Cost Analysis Support	MIPR	AMCOM Matrix	521	106	1-3Q	149	1-3Q	137	1-3Q	0	913	0
b . Logistics Analysis Support - Organic	MIPR	AMCOM Matrix	0	149	1-3Q	394	1-3Q	362	1-3Q	0	905	0
c . Logistics Analysis Support - Support Contractor	MIPR	Support Contractor	0	262	1-3Q	693	1-3Q	635	1-3Q	0	1590	0
Subtotal:			521	517		1236		1134		0	3408	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning, Test and Evaluation	MIPR	Various Activities	6451	4691	1-3Q	5543	1-3Q	848	1-3Q	0	17533	0
b . Test Planning, Test and Evaluation	MIPR	Various Activities	0	100	1-3Q	131	1-3Q	121	1-3Q	0	352	0
Subtotal:			6451	4791		5674		969		0	17885	0

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
504

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support - Organic	MIPR	UH PMO/matrix	4681	1413	1-4Q	1351	1-4Q	1745	1-4Q	0	9190	0
b . PM Support - Contract	C/FP	O2K Contractor	1135	703	1-3Q	922	1-3Q	842	1-3Q	0	3602	0
c . SIBR/STTR			4383	0		0		0		0	4383	0
Subtotal:			10199	2116		2273		2587		0	17175	0
Project Total Cost:			373272	108377		114988		59225		45515	701377	0

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
504

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
UH-60M Program																																
(1) MS C					▲ ₁ MS C																											
(2) LRIP Contract Award, (3) FRP					▲ ₂ LRIP CA				FRP IPR ▲ ₃																							
(4) Full Rate Production Contract Award, (5) FUE									FRP CA ▲ ₄				▲ ₅ FUE																			
(6) RFP					▲ ₆ UH-60M FRP RFP																											
Test Article Fab/Checkout	UH-60M Test Article																															
DT/Flight Test	UH-60M DT/Flight Test																															
LRIP					UH-60M LRIP																											
OT					UH-60M OT																											
MYP VII PRODUCTION (UH-60M NEW)													UH-60M MYP VII PRODUCTION																			
HH-60M MED Kit													HH-60M MED KIT PRODUCTION																			
UH-60M P3I DEVELOPMENT					UH-60M P3I Development																											
UH-60M P3I Cut-In																	UH-60M P3I Cut-In															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
504

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
IMD-HUMS: demonstration program	1-4Q	1-4Q						
Test article delivery for testing (UH-60M)	1Q	2Q	1-2Q					
OT preparation and conduct			1-4Q	1Q				
HALS		3-4Q						
Closeout of Integration and Qualification				2Q				
Milestone C (UH-60M)		3Q						
LRIP Lot 1 Contract Award (UH-60M)		3Q						
LRIP Lot 2 Contract Award (UH-60M)			2Q					
Full Rate Production IPR (UH-60M)				3Q				
First Unit Equipped (FUE) (UH-60M)					2Q			
Mast Demonstration Program	2-4Q	1-4Q						
Performance Support System	2-4Q							
UH-60M Low Rate Initial Production RFP	2Q							
UH-60M Full Rate Production RFP		3Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D12

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP	1664	0	0	0	44741	70549	152320	243475	0	512749

A. Mission Description and Budget Item Justification: A FY04 Congressional add funded an Army Distributed Mission Training System (ADMTS) that provided US Army and USAF attack aircraft with a training capability to develop the skills needed to conduct coordinated attacks on enemy targets. This initiative is known as the Joint Air Attack Team (JAAT). The ADMTS will utilize the existing USAF DMT network and Army and Air Force flight simulators in a synthetic environment. This effort introduces the AH-64A Combat Mission Simulator (CMS) as the first rotary-wing member of the ADMTS and identifies the database constraints that have to be overcome for AH-64A pilots to participate in JAAT training scenarios. The follow-on FY 05 funding will enable the introduction of a second AH-64A CMS and a UH-60 simulator to the network and provide for the investigation of sample scenarios with a USAF A-10 simulator.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Contract modifications for ADMTS by PEO STRI (PM CATT)	1664	0	0	0
Totals	1664	0	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D12

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
APA, SSNs: AA6606, AA6670	831292	694456	685404	822071	650782	587392	638706	611846	2193200	7715149
RDTE, 0203744A, D17	0	0	109721	122105	122236	187014	124492	105799	0	771367

C. Acquisition Strategy: PEO STRI (PM CATT) will manage the planned program under a revision to the Memorandum of Agreement with PM AAH which currently provides for the matrix support cell that administers the AH-64A Combat Mission Simulator (CMS) upgrade program. The effort is being contracted as a modification to the existing firm-fixed-price CMS upgrade delivery order under contract N61339-00-D-0712, or as a separate delivery order under the aforementioned contract.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
D12

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MIPR to PEO STRI (PM CATT) for Contracting	C, FFP	Northrop Grumman Space & Mission Systems	1664	1630	1Q	0		0		0	3294	3294
Subtotal:			1664	1630		0		0		0	3294	3294

Remarks: Northrop Grumman Space and Mission Systems (NGSMS), formerly TRW, Inc., Fairfax, VA, shall perform the work. NGSMS is the prime contractor for the current CMS upgrade effort.

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
D12

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			1664	1630		0		0		0	3294	3294
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D12

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) ADMTS II Contract Award					▲ 1																				Army Distributed Mission Training System (ADMTS)							
(2) Draft Security Doc Complete						▲ 2																										
(3) Install Enhanced Voice Comm							▲ 3																									
(4) CMS Phase II Demo								▲ 4																								

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D12

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Contract Award		2Q						
EAATS Security Draft Documentation Complete		3Q						
Install of enhanced dual voice communication		4Q						
CMS/JAAT Connectivity Demonstration			1Q					

This program will determine the standards that need to be updated to integrate the AH-64A CMS with the DMT network; upgrade one CMS to determine external interface requirements; and establish connectivity between the CMS and the DMT network via DMT portal and T1 lines.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT D17		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D17 APACHE BLOCK III	0	0	109721	122105	122236	187014	124492	105799	0	771367

A. Mission Description and Budget Item Justification: Project D17 funding is for the non-recurring engineering, development, and testing work associated with the planned remanufacture of 284 Apache Block I into Block III aircraft (deliveries to begin in FY10). This Block III program will provide Network-Centric capabilities for 284 Apache Longbows at a critical time as the Army transitions from the current force to the future force. Block III capability enhancements are achieved via planned technology insertions such as: Future Force (FF) Connectivity-Seamless Global Information Grid Communications (Joint Tactical Radio System (JTRS) 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 Future Force (FF) operations. The Block III Modernized Apache program upgraded system architecture will enable FF compatibility and enhanced war-fighting capability. Apache Block III Contract Award is scheduled for third quarter FY05; DD1415 has been submitted to support this requirement.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Proposal Prep	0	0	0	0
Operational Assessments	0	0	670	766
Joint Venture Contracts	0	0	14000	19000
Boeing NRE Contracts	0	0	80721	87105
NRE Program Support Activities	0	0	8300	9150
Management Services	0	0	6030	6084
Totals	0	0	109721	122105

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D17

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
APA, SSN 6670, SSN 6605;	834692	689918	685405	822071	659782	587392	638706	611846	Continuing	Continuing
RDTE, 0203744A, D12	1664	0	0	0	44741	70549	152320	243475	Continuing	Continuing

C. Acquisition Strategy: The NRE for FY 05 will result in a Program Closeout Design Review. The NRE for FY06 – FY09 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 50 aircraft which will take 16 months for delivery and therefore will be two separate contractual actions (FY 09 & FY 10). These 50 LRIP aircraft are to be used for operational testing, FUE and training base fielding.

In FY 11, a contract for Apache Block III Lot 3 (60 aircraft), initiating full rate production, will be awarded with options for Lot 4 (60 aircraft), Lot 5 (60 aircraft) and Lot 6 (54 aircraft), for a total of 284 aircraft.

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 08 to support the LRIP deliveries in FY 10 – 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.

As the acquisition strategy and plan unfolds Multi-Year authority may be requested for the out-years, FY 11 and beyond. It is the Army's intent to remanufacture the balance of the Longbow fleet thru those years, which would result in a total of 501 Block III configured aircraft.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D17

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint Venture Contract	Cost Reimb	Orlando, FL	0	0		14000	1-2Q	19000	1-2Q	53000	86000	86000
b . Boeing Contract	Cost Reimb	Mesa, AZ	0	0		80721	1-2Q	87105	1-2Q	398151	565977	565977
Subtotal:			0	0		94721		106105		451151	651977	651977

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Block III NRE Support	Various	Various Activities	0	0		8300	1-3Q	9150	1-3Q	37428	54878	54878
Subtotal:			0	0		8300		9150		37428	54878	54878

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
D17

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	MIPR, Various	Various Activities	0	0		670	1-2Q	766	1-2Q	26817	28253	28253
Subtotal:			0	0		670		766		26817	28253	28253

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Management Svcs (In-House, Travel, etc.)	Various	PMO AAH, Matrix Support, O2K	0	0		6030	1-2Q	6084	1-2Q	24235	36349	36349
Subtotal:			0	0		6030		6084		24235	36349	36349

Project Total Cost:			0	0		109721		122105		539631	771457	771457
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product
Improvement Program

PROJECT
D17

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11											
	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) RFP					▲ 1																																			
NRE Contracts - Boeing																																								
NRE Contracts - Joint Venture																																								
(2) Critical Design Review (CDR)													▲ 2																											
(3) Capabilities Production Document (CPD)																					▲ 3																			
(4) JROC Approval																									▲ 4															
(5) MS C																													▲ 5											
LRIP Contract Award (Lots 1&2)																																								
TWIG, TEMP, Etc.																																								
Limited User Test I																																								
Operation Assessment I (OAI)																																								
(6) FRP Contr Award (Lot 3)																																								
(7) Production (Lot 4)																																								

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203744A - Aircraft Modifications/Product Improvement Program

PROJECT
D17

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
RFP		1Q						
NRE Contract Award -- Boeing		3Q	1-2Q	1-2Q				
REU Contract Award -- Joint Venture		3Q	1-2Q	1-2Q				
Critical Design Review				2-3Q				
Capabilities Production Document (CPD)						1Q		
JROC Approval						1Q		
Milestone C						1-2Q		
TWIG, TEMP, Other Testing Activities			1-4Q	1-4Q				
LRIP Contract Awards (Lots 1 and 2)						3Q	1Q	
Limited User Test (LUT)					4Q	1Q		
Operational Assessment I (OAI)							2-3Q	
FRP Contract Award (Lot 3)								1Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203752A - Aircraft Engine Component Improvement Program

PROJECT
106

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
106 A/C COMPON IMPROV PROG	5285	7121	2066	6702	8454	9303	10756	10674	0	67120

A. Mission Description and Budget Item Justification: Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Flight Safety Parts program. CIP is included in the RDTE budget vice procurement appropriations in accordance with congressional direction.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
<p>T700 Engine: Continue addressing flight safety and readiness problems that arise in the field by providing timely engineering support. Continue the development of the T700-GE-701D, an essential upgrade required for the UH-60M aircraft. Continue the engineering support of fielded engines to enhance war fighting capability and improve durability and reliability while reducing cost of ownership.</p> <p>2004: Continued the development of the T700-GE-701D engine to reduce engine O&S costs and improve engine on-wing life. Completed Low Cycle Fatigue (LCF) test teardown reviews and continued component life analysis. Continued development of the Enhanced Digital Electronic Control Unit (EDECU) program [funded separately via Congressional directive] to reduce costs and improve safety). Initiated Full Authority Digital Electronic Control (FADEC) development program to improve flight safety and readiness while reducing O&S costs.</p> <p>2005: Perform life analysis work on the 701D engine to reduce engine O&S costs, increase flight safety, and improve engine on-wing life. Complete development of the Enhanced Digital Electronic Control Unit and support flight testing on the UH-60L to reduce O&S costs and improve safety.</p> <p>2006: Initiate Time-On-Wing driver program to investigate causes for engine removals to improve readiness and reduce OS costs. Begin an Altitude Test on the 701D engine to improve flight safety.</p> <p>2007: Complete the 701D Altitude Test and perform analysis of the test data to complete qualification of the 701D engine. Perform engineering analysis of service revealed deficiencies; major readiness drivers and high operating cost items. Develop new seals to preclude leakage in accessory gearbox to improve readiness and reduce O&S costs.</p>	1856	1039	992	3285

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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Accomplishments/Planned Program A(continued)	FY 2004	FY 2005	FY 2006	FY 2007
<p>T55 Engine: Continue applying engineering effort to unanticipated flight safety problems revealed in the field & provide timely support. Continue development of T55-GA-714B for CH-47 D/F aircraft. Continue the engineering support of fielded engines to enhance war-fighting capability, improve durability & reliability while reducing cost of ownership.</p> <p>2004: Continue with the design & qualification of an improved bleed system and enhanced tailpipe to reduce O&S costs. Continued Safety Enhanced Plumbing program which improves engine safety. Continued efforts on the N2 Speed Sensor System to reduce amount of hardware O&S. Continued with the design effort & development of the Prime Item Development Specification (PIDS) for the T55-GA-714B engine upgrade program, a program which will increase temperature margin & reduce specific fuel consumption (SFC) and O&S costs. Started efforts to complete the qualification of an improved Engine Control Unit (ECU), a member of the "Universal Control" family of engine controls, previously funded by Congressional funding.</p> <p>2005: Complete the qualification of the Safety Enhanced Plumbing and Improved Bleed System and submit the ECPs. Continue with the design & qualification of the Enhanced Tailpipe and N2 Speed Sensor Program. Finalize design and begin qualification testing for the T55-GA-714B engine program.</p> <p>2006: Completed design work & continue qualification effort for the Enhanced Tailpipe, N2 Speed Sensor and T55-GA-714B programs. Complete qualification efforts for the improved ECU program and submit ECPs. Initiate Compressor Erosion Resistant Coating program.</p> <p>2007: Complete Enhance Tailpipe, N2 Speed Sensor and T55-GA-714B programs and submit ECPs. Continue the Compressor Erosion Resistant Coating program.</p>	855	750	785	2614
<p>GTCP36 Auxiliary Power Unit (APU): Continue to provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs).</p> <p>2004: Initiated effort to qualify barrier filters that will prevent sand erosion damage resulting in increased APU life. Conducted engineering analysis of SRDs, life analysis of critical rotating parts and analysis/testing of fuel solenoid kickplate bracket.</p> <p>2005: Complete life analysis and establish and/or verify life limits for turbine and compressor wheels to improve flight safety. Conduct engineering analysis of service revealed deficiencies.</p> <p>2006/2007: Develop new repairs and extend wear limits, new repair tools and techniques to reduce O&S costs. Conduct engineering analysis of service revealed deficiencies. Initiate program to improve Low Oil Pressure switch reliability and decrease life cycle costs.</p>	188	150	80	270

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program		PROJECT 106	
Accomplishments/Planned Program B(continued)	FY 2004	FY 2005	FY 2006	FY 2007
T62 APU: Continue to provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs). 2004: Conducted engineering analysis of service revealed deficiencies as well as continued life analysis of critical rotating components. Completed material testing in support of life analysis. 2005: Complete life analysis and establish and/or verify life limits for turbine and compressor wheels to improve flight safety. Conduct engineering analysis of service revealed deficiencies. 2006/2007: Develop new repairs and extend wear limits, new repair tools and techniques to reduce O&S costs. Conduct engineering analysis of SRDs. Evaluate current combustor fuel manifold failures from field and initiate redesign effort to increase reliability and maintainability.	150	150	80	270
IN HOUSE: In-house support for the CIP engineers. Contracting support for CIP contracts.	226	241	129	263
Continued development of Universal Full Authority Digital Engine Control (FADEC).	2010	4791	0	0
Totals	5285	7121	2066	6702

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	2427	2575	7717
Current Budget (FY 2006/2007 PB)	7121	2066	6702
Total Adjustments	4694	-509	-1015
Net of Program/Database Changes			
Congressional Program Reductions	-104		
Congressional Rescissions			
Congressional Increases	5000		
Reprogrammings			
SBIR/STTR Transfer	-202		
Adjustments to Budget Years		-509	-1015

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0203752A - Aircraft Engine Component
Improvement Program**

PROJECT
106

Funds realigned to higher priority Army programs.

C. Other Program Funding Summary: PE 0205633N (Aircraft Engine CIP Navy) and PE 0207268F (Aircraft Engine CIP Air Force)

D. Acquisition Strategy: Improved designs will be implemented via Engineering Change Proposal (ECP) and follow-on procurement or modification to a production contract to introduce the improved hardware.

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203752A - Aircraft Engine Component Improvement Program

PROJECT
106

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . T700 Engine	SS/CPFF	GE-Air, Lynn, MA	56934	1039	1-2Q	992	1-2Q	3285	1-2Q	Continue	62250	Continue
b . T55 Engine	SS/CPFF	Honeywell, Phoenix, AZ	26628	750	1-2Q	785	1-2Q	2614	1-2Q	Continue	30777	Continue
c . APU's	MIPR	Air Force, Kelly AFB, TX	13557	0		0		0		0	13557	13557
d . EDECU	SS/CPFF	GE-Air, Lynn, MA	774	0		0		0		0	774	0
e . FADEC/FDU	MIPR	CECOM, Ft. Monmouth, NJ	8107	4791		0		0		0	12898	5716
f . APU's	MIPR	Air Force, Hill AFB, UT	1263	300	3Q	160	3Q	540	3Q	Continue	2263	Continue
g . LOLA	MIPR	CECOM, Ft. Monmouth, NJ	938	0		0		0		0	938	0
Subtotal:			108201	6880		1937		6439		Continue	123457	Continue

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203752A - Aircraft Engine Component Improvement Program

PROJECT
106

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract Engineering	SS/CPFF	Westar, St. Louis, MO	10	0		0		0		0	10	10
b . Contract Engineering	SS/CPFF	Camber, Huntsville, AL	199	0		0		0		0	199	199
c . Contract Engineering	SS/CPFF	AMS, Huntsville, AL	107	0		0		0		0	107	107
d . Contract Engineering	SS/CPFF	Westar, Albuquerque, NM	30	0		0		0		0	30	0
Subtotal:			346	0		0		0		0	346	316

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Redstone Avn Prop Test Res (RAPTR) Facility Data Reduction Prog	MIPR	Redstone Technical Test Center, RSA, AL	946	0		0		0		0	946	Continue
Subtotal:			946	0		0		0		0	946	Continue

Remarks: Not Applicable

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203752A - Aircraft Engine Component Improvement Program

PROJECT
106

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-house Engineering		ATCOM, St. Louis, MO	10342	0		0		0		0	10342	10342
b . In-house Engineering	NA	AMCOM, Redstone Arsenal, AL	1182	241	1-4Q	129	1-4Q	263	1-4Q	Continue	1815	Continue
c . DA Withhold			118	0		0		0		0	118	0
d . Prior Year Closed Account Funding			5	0		0		0		0	5	0
e . SBIR/STTR			147	0		0		0		0	147	0
Subtotal:			11794	241		129		263		Continue	12427	Continue
Project Total Cost:			121287	7121		2066		6702		Continue	137176	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203758A - Digitization					PROJECT 374		
COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost	
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
374 HOR BATTLEFLD DIGITIZN	17865	29045	12343	13061	10174	11423	10809	8489	0	140936	

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; Integration of physical interfaces and logical mechanisms between and across multiple battlefield operating systems and across multiple Program Executive Offices, providing improved capability to operate in the common battlefield picture/SA and common operating environment (COE). Enhance synchronization of maneuvers, direct/indirect fires, intelligence and targeting, and reduce fratricide. 3) Unit Set Fielding (USF) operationally releases, fields, and incorporates materiel systems as part of the whole C4ISR system of systems architecture associated with the critical mission threads the Army requires to support Strategic National Tasks. USF serves as the synchronizing process, ensuring that fieldings are implemented in an integrated and complimentary fashion and support a unit's modernization with minimum disruption to unit readiness. 4) Software Blocking to synchronize system developments in order to support SOS interoperability for legacy, interim and objective forces.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Conduct technical interoperability studies, perform interoperability/integration analyses, analyze networked weapon system and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system compatibility, and assess technical and operational test plans, activities, and results.	2052	1253	1200	1300
Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.	1100	1130	1100	1307
Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization and database management, the TCP priorities.	5566	5189	5165	5554
Develop C4I systems software baselines and manage Horizontal Technology Integration efforts. Provide assessments for risk, interoperability, performance, and scheduling. Perform System Integration functions for baselining and process improvements.	1900	2379	1378	1400

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203758A - Digitization				PROJECT 374
Accomplishments/Planned Program B(continued)	FY 2004	FY 2005	FY 2006	FY 2007	
Synchronize system/platform integration, through the use of common components, across ground and aviation programs.	500	500	500	500	
Migrate full Joint interoperability and integration standards, including the robust near real time network integration of Aviation systems with Ground systems, and robust networked and databased integration of Weapon systems with Command & Control (C2) systems. Influence requirement and materiel development to produce integrated/synchronized systems for the Future Force.	2316	3000	3000	3000	
Integrate and synchronize interoperability across C4ISR programs in support of testing, training, and fielding system of systems developments to the force. Continue efforts to strengthen and leverage S&T advanced capabilities. Continue application across current and future force.	2000	1867	0	0	
Single Integrated Ground Picture (SIGP) is an Army-led, multi-service initiative that maximizes the effectiveness of mission execution and significantly enhances the warfighting capabilities for U.S., Allied and Coalition Ground Forces by providing integrated information of the ground-based battlespace to the warfighter. The Single SIGP focus is the development of Joint processes, methods, architectures, standards, Operational Concept and Concept of Operations that provides the Warfighter with enhanced ground picture of the battlespace, enabling the Warfighters to more precisely and decisively command and control that battlespace.	0	9973	0	0	
Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.	1000	2000	0	0	
Support Joint and Coalition interoperability programs to improve operational integration in accordance with Joint Planning Guidance, including C4I Coalition Warfare, interoperability database developments, operational system architectures and coalition data strategies.	986	1000	0	0	
Small Business Innovative Research/Small Business Technology Transfer programs.	445	754	0	0	
Totals	17865	29045	12343	13061	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	24506	23390	15835
Current Budget (FY 2006/2007 PB)	29045	12343	13061
Total Adjustments	4539	-11047	-2774
Net of Program/Database Changes			
Congressional Program Reductions	-1707		
Congressional Rescissions			
Congressional Increases	7000		
Reprogrammings			
SBIR/STTR Transfer	-754		
Adjustments to Budget Years		-11047	-2774

FY05 Adjustment for Single Integrated Ground Picture (SIGP) which is a new joint effort to provide integrated information of the ground-based battlespace to the warfighter.

FY05 Congressional increase of \$2.0M for digitization support to Fort Hood, TX. FY05 Congressional add of \$5.0M to support satellite communications for learning and broad band language training (funds being held in HQ pending creation of new project element).

FY06/07 Funds realigned to reflect higher Army Priorities including termination of SIGP.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

C. Other Program Funding Summary: Not Applicable

D. Acquisition Strategy: 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.

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Integration/Software Blocking	MIPR/PWD	Various	87324	11338	1Q	6543	2-3Q	7561	2-3Q	Continue	112766	0
b . International Digitization	MIPR/PWD	Various	11001	0	1Q	0		0		0	11001	0
c . Technical Analysis	MIPR	MITRE, McLean, VA	6447	1600	1Q	1600		1300	1Q	Continue	10947	0
d . Other Government Agencies	MIPR	Various	6522	0		0		0		0	6522	0
e . Single Integrated Ground Picture	MIPR		0	9973	2-3Q	0		0		0	9973	0
Subtotal:			111294	22911		8143		8861		Continue	151209	0

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	9207	1450	1-4Q	1500		1500	1-4Q	0	13657	0
b . Digitization Planning, Internet and graphics support	MIPR	General Dynamics Corp. Pentagon, Arlington, VA	6999	0		0		0		0	6999	0
c . Info Ops, System Eng. Integration & Ops Spt. Planning, Internet and graphics support.	PWD	Quantum Res International, Pentagon, Arlington, VA, Ft. Monroe, VA, & Ft. Hood, TX and others	16383	2684	3Q	2700		2700		0	24467	0
d . Other Integration Support	MIPR	L3Com, Pentagon	2119	0		0		0		0	2119	0
Subtotal:			34708	4134		4200		4200		0	47242	0

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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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Govt. Agencies	MIPR	Various	5062	0		0		0		0	5062	0
b . University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	12692	2000		0		0		0	14692	0
c . Studies/Analyses	MIPR	Pentagon, Arlington, VA	2116	0		0		0		0	2116	0
d . DISM Battalion Test	MIPR/PWD		1000	0		0		0		0	1000	0
Subtotal:			20870	2000		0		0		0	22870	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			166872	29045		12343		13061		Continue	221321	0
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)					PROJECT 120		
COST (In Thousands)		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
120	FORCE XXI BATTLE CMD, BRIGADE & BELOW (FBCB2)	47414	22546	20201	10451	8798	8715	0	0	Continuing	0

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 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.

FY06 and FY07 funds continue execution of Chief of Staff of the Army Directives for Battle Command Architecture and Joint Requirements Oversight Council Memorandum-161 (JROCM-161) efforts. Efforts include Type 1 Encryption and interoperability between TI and L-Band based FBCB2 systems. Funds will be used to provide platform-level situational awareness interoperability with the United Kingdom Bowman program; and provide interoperability with ABCS System of Systems, Bradley, Abrams, Aviation, Stryker and support mandated Army/DoD protocol/system updates; as well as, provide over the air database update of the Global Reference Table, follow-on efforts will completely update databases for L-Band and EPLRS networks. FBCB2 is an Army designated Horizontal Technology Integration (HTI) program.

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade
and Below (FBCB2)

PROJECT
120

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Complete Army Battle Command System (ABCS) architecture and system of systems network engineering and integration efforts in support of v6.4.1 and Software Block Functionality	14900	1000	0	0
Type I Encryption and NSA Endorsement	0	3530	0	0
Conduct Development Test/Operational Test for Block I (in FY04) and Block II (in FY05) Capability of FBCB2-BFT at Electronic Proving Ground (EPG) and multiple FORSCOM unit NTC rotation at Ft. Irwin, CA	6210	1192	0	0
PM FBCB2 Program Management	3974	2124	2050	1050
Develop/Maintain Joint Interoperability (USMC, Land Warrior/Dismount) and implement Coalition (UK) interoperability	8088	7200	6400	6899
Develop Satellite Spectrum and Tactical Internet Interoperability, Data Loading/Management initialization to synchronize updates	5312	0	0	0
Common Software Product Line	8930	7500	5900	0
JROCM-161 - USMC & SOCOM Common Solution Brigade & Below	0	0	5851	2502
Totals	47414	22546	20201	10451

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	23510	14744	8010
Current Budget (FY 2006/2007 PB)	22546	20201	10451
Total Adjustments	-964	5457	2441
Net of Program/Database Changes			
Congressional Program Reductions	-343	-580	-61
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-621		
Adjustments to Budget Years		6037	2502

FY06 \$6.037M and FY07 \$2.502M Additional funding to support JROCM-161

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and Below (FBCB2

PROJECT
120

C. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA - W61900	110042	117670	146085	137375	42817	0	44635	27856	0	626480
OPA - BS9736 (Spares)	4041	3348	3549	464	2859	6231	0	0	0	20492
OMA - 432142	0	11319	11694	14394	19794	19793	0	0	0	76994

D. Acquisition Strategy: The initial System Development and Demonstration (SDD) contract, awarded in 1995, is a Cost Plus Incentive Fee (CPIF), Systems Engineering and Integration (SE&I) effort. The contract is for the development of software versions v1.0-v3.4, prototype computers, and associated hardware. A follow-on SE&I contract (Cost Plus Award Fee (CPAF)) was awarded in May 2001 for software versions v3.5. SE&I Contract Delivery Order was awarded for development of Software Version 6.4.1 on 14 June 2002. This will satisfy the Operational Requirements Document (ORD) Block II requirements and synchronize with ABCS 6.4. SE&I Follow-on contract awarded September 2004.

A Low Rate Initial Production (LRIP) Fixed Price Incentive Fee (FPIF) contract was awarded in January 2000 for the production of 5,952 systems with OPA funds. An LRIP Contingency Option for an additional 6,774 FBCB2 Systems was authorized in Nov 2002 and an Acquisition Decision Memorandum was approved Sept 22, 2003 for an additional one-year of LRIP. A Full Rate Production (FRP) decision was approved as a result of ASARC, Aug 2004.

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and Below (FBCB2

PROJECT
120

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software/Systems Engineering	CPIF/CPAF	Northrup Grumman, CA	168006	8930	1-2Q	7325	1-2Q	5567	1-2Q	Continue	189828	0
b . Hardware Development	FFP	Northrup Grumman, CA	27645	0		0		0		Continue	Continue	0
c . Software Development	CPIF/CPAF	Northrup Grumman, CA	238650	10300	1Q	10826		3834	1-2Q	Continue	263610	0
d . TACNAV	CPIF	TRW CA	1000	0		0		0		0	1000	0
Subtotal:			435301	19230		18151		9401		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Office Support	N/A	CECOM, Ft. Monmouth	13437	750	1-4Q	750	1-4Q	750	1-4Q	Continue	Continue	0
b . Matrix Support	MIPR	CECOM, Ft. Monmouth	4430	350	1-2Q	350	1-2Q	150	1-2Q	Continue	Continue	0
c . Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	25420	1024	1-2Q	950	1-2Q	150	1-2Q	Continue	Continue	0
Subtotal:			43287	2124		2050		1050		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and Below (FBCB2

PROJECT
120

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CTSF	MIPR	CTSF	2323	0		0		0		0	2323	0
b . ATEC	MIPR	ATEC	35280	700	1-2Q	0		0		Continue	35980	0
c . EPG	MIPR	EPG	19444	492	1-2Q	0		0		Continue	19936	0
d . CRTC	MIPR	CRTC	1040	0		0		0		0	1040	0
e . Misc Contract Support			2488	0		0		0		0	2488	0
Subtotal:			60575	1192		0		0		Continue	61767	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and
Below (FBCB2)

PROJECT
120

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			539163	22546		20201		10451		Continue	Continue	0

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)

PROJECT
120

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SYSTEM DEV & DEMO (SDD)/LOW RATE INITIAL PROD (LRIP)																																
LRIP Contract Phase																																
(1) LRIP Extension (Beyond FY03) Contract Award																																
SE & I Contract Phase																																
(2) FBCB2-BFT Developmental/Operational Test (DT/OT)																																
(3) Follow-On SE & I Contract Award																																
(4) FRP DR																																
FULL RATE PRODUCTION & DEPLOYMENT																																
(5) Full Rate Production Contract Award																																
Full Rate Production (FRP) Contract Phase																																
(6) Software Version 6.4x Operational Evaluation																																
(7) Follow-on Test and Evaluation (FOT&E)																																

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203759A - Force XXI Battle Command, Brigade and Below (FBCB2

PROJECT
120

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Developmental Test/Operational Test	2Q							
Award Follow-on SE&I Contract	4Q							
Full Rate Production Decision Review	4Q							
Full Rate Production Contract Award	4Q							
FBCB2 Software v6.4.1 Delivery		1Q						
Operational Test on v6.4.1 software		3Q						
Follow-on Test and Evaluation				1Q				
FBCB2 SW Upgrade and Test						1Q		

NOTE: The Office of the Secretary of Defence, Director of Operational Test and Evaluation and the Army Test & Evaluation Command have changed the Initial Operational Test & Evaluation (IOT&E) to a Developmental Test/Operational Test (DT/OT) which included the validation of the FBCB2 System performance during Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF). Software Version 7.0 has been changed to V6.4.1.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program				PROJECT 036		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
036 PATRIOT PROD IMP PGM	46055	32082	16188	10607	10884	11119	12029	12520	Continuing	190278

A. Mission Description and Budget Item Justification: Patriot is an advanced Surface-to-Air guided missile system with a high single shot kill probability 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 missile likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes culminating in the attainment of the Patriot Advanced Capability-3 (PAC-3) System. Program objective will be to define and implement software changes necessary to enhance system capabilities against advanced Air Breathing Threat (ABT), Tactical Ballistic Missile (TBM) and Cruise Missile threats. Recapitalization development efforts address Mode V/S Identification Friend or Foe (IFF), launcher and design improvements. Single Integrated Air Picture (SIAP) continues efforts associated with Block 0 improvements initiated in FY03.

On January 13, 2005, the Program Executive Office (PEO), Air, Space and Missile Defense (ASMD) merged with the PEO, Tactical Missiles to become the PEO, Missiles and Space.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Post Deployment Software Development	9241	5758	7548	10607
Recapitalization	29714	19472	8640	0
SIAP, Block 0 Integration	6000	4852	0	0
Advanced Composite RADOME	1100	2000	0	0
Totals	46055	32082	16188	10607

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203801A - Missile/Air Defense Product Improvement Program

PROJECT
036

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	31690	16576	10785
Current Budget (FY 2006/2007 PB)	32082	16188	10607
Total Adjustments	392	-388	-178
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions	-686		
Congressional Increases	2000		
Reprogrammings			
SBIR/STTR Transfer	-922		
Adjustments to Budget Years		-388	-178

FY 05 SBIR/STTR Transfer (-\$922K); Congressional Program Reductions (-\$686K); Congressional Increase for Advanced Composite Radome (+\$2000K).
 FY 06 Funds realigned (-\$388K) to higher priority requirements.
 FY 07 Funds realigned (-\$178K) to higher priority requirements.

C. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Budget Activity 3 - Patriot Mod (C50700)	225022	87608	77411	68845	88129	61782	65923	68222	Continue	Continue
Budget Activity 3 - Patriot Mod Initial Spares CA0267	31817	14674	14656	15193	18369	18510	20378	7016	Continue	Continue
PE 0604865A, PAC-3	151318	61482	0	0	0	0	0	0	0	212800
PE 0603869A, MEADS	236823	251414	0	0	0	0	0	0	0	488237
PE 0604869A, Patriot/MEADS Combined Aggregate Program (CAP), project M06	0	0	288785	326352	454511	510672	510389	490441	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0203801A - Missile/Air Defense Product
Improvement Program**

PROJECT
036

C. Other Program Funding Summary (continued)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	ToCompl	TotalCost
SSN C49100, PAC-3 Missile	616942	487364	489700	494754	466004	471770	0	0	0	3026534
SSN C50001, Patriot/MEADS CAP	0	0	0	0	88425	64338	423209	663557	Continue	Continue
PE 0102419, JLENS Development	57803	79316	106420	256893	471997	332428	0	0	0	1304857
SSN BZ0525, OPA, JLENS	0	0	0	0	0	29153	549707	397776	0	976636
PE 0604802, Project S23, SLAMRAAM	36103	63111	36102	29200	0	0	0	0	0	164516
SSN C81001, SLAMRAAM Production	7397	2440	19315	21970	59273	13124	0	0	0	123519
PE 0604820, SENTINEL Development	0	5851	5080	2547	2647	0	0	0	0	16125
SSN WK5057, OPA, SENTINEL	20646	7337	8393	15373	25074	31572	34473	32552	0	175420
PE 643327, Project S23, Integrated Fire Control	40275	0	24961	42736	48894	50930	0	0	0	207796

C. Other Program Funding Summary: This PE is an integral part of the Air, Space and Missile Defense System of Systems (SoS) including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, SENTINEL and on-going initiatives to achieve Single Integrated Air Picture (SIAP).

D. 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 program consists of two interrelated acquisition programs - the Patriot growth program and the PAC-3 missile program. Growth program modifications are grouped into configurations, which are fielded in the same timeframe as they technically mature. However, incremental increases in performance will be determined for each configuration in order to provide benchmarks for configuration testing and for the development of user doctrine and tactics. This incremental approach to fielding will continue through the Combined Aggregate Program (CAP) as Patriot is evolved to MEADS.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203801A - Missile/Air Defense Product
Improvement Program

PROJECT
036

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Post Deployment Software Development	1095/SS-CPIF	MRDEC, AL/Raytheon, MA	9253	2732	2-3Q	4952	2Q	8507	2Q	Continue	25444	Continue
b . Recapitalization	SS-CPIF/MIPR	LM/CECOM	61514	19472	1-2Q	8640	2Q	0		0	89626	0
c . SIAP	SS-FP	Raytheon, MA	10000	4852	2Q	0		0		0	14852	0
d . Advanced Composite RADOME	SS-CPIF	LMMFC - D, TX	1100	2000		0		0		0	3100	0
Subtotal:			81867	29056		13592		8507		Continue	133022	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	1095	RSA/AL	15911	850	1-4Q	550	1-2Q	500	1-2Q	Continue	17811	Continue
b . Matrix Support	1095	RSA/AL	4217	520	1-2Q	500	1-2Q	400	1-2Q	Continue	5637	Continue
Subtotal:			20128	1370		1050		900		Continue	23448	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203801A - Missile/Air Defense Product
Improvement Program

PROJECT
036

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Missile Command	1095	RSA/AL	17321	500	1Q	446		350		Continue	18617	Continue
b . White Sands Missile Range	MIPR	WSMR/NM	13367	400	2Q	300		250		Continue	14317	Continue
c . RDEC and Other Govt Agent	1095/MIPR	RSA/AL	98436	756	1Q	800		600		Continue	100592	Continue
Subtotal:			129124	1656		1546		1200		Continue	133526	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			231119	32082		16188		10607		Continue	289996	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203801A - Missile/Air Defense Product Improvement Program

PROJECT
036

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11							
	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				
PAC-3 MISSILE PROGRAM MILESTONES																																				
(1) DAB IPR PATRIOT/MEADS COMBINED PROG, (2) PAC-3 Missile IOC	▲1	▲2																																		
(3) OIPT/DAB			▲3																																	
MISSILE SEGMENT ENHANCEMENT (MSE) Development (Transferred to CAP)	MSE Development																																			
LOW-RATE INITIAL PRODN	PAC-3																																			
BLOCK 2002 PRODUCTION DELIV	PAC-3 BLOCK 2002																																			
(4) PAC-3 BLOCK 2004 PRODN Decision								▲4																												
BLOCK 2004 PRODUCTION DELIV	PAC-3 BLOCK 2004																																			
(5) PAC-3 BLOCK 2006 PRODN Decision																▲5																				
BLOCK 2006 PRODUCTION DELIV	PAC-3 BLOCK 2006																																			
RECAPITALIZATION	RECAPITALIZATION (SYNCHRONIZED UPGRADES)																																			

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203801A - Missile/Air Defense Product
Improvement Program

PROJECT
036

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
PAC-3 Missile Block 04 Production Decision		2Q						
PAC-3 IOC	3Q							
PAC-3 Missile Block 06 Production Decision				4Q				
OIPT DAB PAC-3/MEADS Combined Program	4Q							

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	1050	4659	23560	24622	22993	5656	6049	4789	0	105607
785 LONGBOW HELLFIRE PIP	1050	0	0	0	0	0	0	0	0	13279
786 APKWS SIMULATOR UPGRADE	0	4659	4879	5227	5462	5656	6049	4789	0	36721
788 ATACMS PIP	0	0	18681	19395	17531	0	0	0	0	55607

A. Mission Description and Budget Item Justification: The Longbow HELLFIRE missile system provides the Army with a fire-and-forget, anti-armor capability for the Apache Longbow and armed reconnaissance helicopters. The fire-and-forget Longbow HELLFIRE system greatly increases aircraft survivability and dramatically improves target acquisition and engagement capabilities in adverse weather when the battlefield is obscured (smoke, fog, dust), and when the threat is using countermeasures. Evolutionary improvements are required to maintain the current effectiveness of the Longbow HELLFIRE missile against expanding regional power threats. The Longbow HELLFIRE Product Improvement Program (PIP) will improve Home-on-Jam (HOJ)/Anti-Jam (AJ) capabilities for the missile.

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 the AH-64 Apache, and armed reconnaissance helicopter simulators. The training simulator upgrades will aid the pilot in the initial and annual training required for firing the APKWS munition. The training simulator upgrades will significantly reduce the number of munitions required for initial and annual training.

The Army Tactical Missile Systems (ATACMS) Quick Reaction Unitary (QRU) is a 24/7 all weather low collateral damage precision strike, artillery missile system. Coupled with the High Mobility Artillery Rocket System (HIMARS) and Multiple Launch Rocket System (MLRS) M270A1 launch platforms, the ATACMS Unitary provides the joint war fighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition. It is effective against counter fire, air defense, light material, and urban infrastructure targets. During Operation Iraqi Freedom (OIF), 456 ATACMS precision missiles were launched from Multiple Launch Rocket System (MLRS) M270A1 and High Mobility Artillery Rocket System (HIMARS) launchers by the Joint Land Component Commander and Joint Special Operations Command (JSOC) providing critical Operational Shaping/Precision Strike fires. ATACMS Quick Reaction Unitary (QRU) missiles were subsequently used during Operation IVY CYCLONE II against terrorist insurgent hard targets. The following efforts will further develop the ATACMS QRU into the ATACMS Block IA Unitary. These efforts encompass the acquisition of a new warhead, the development and implementation of a tri-mode capable fuze, and Insensitive Munitions (IM) trade studies. The new warhead and multi-mode fuze will provide the capability of point detonation, air burst, and delay. Future technologies and munitions will be assessed for spiral development and potential insertion into ATACMS Block IA Unitary to provide operational flexibility and capability.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	4863	9858	8987
Current Budget (FY 2006/2007 PB)	4659	23560	24622
Total Adjustments	-204	13702	15635
Net of Program/Database Changes			
Congressional Program Reductions	-70		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-34		
Adjustments to Budget Years		13702	15635

FY 2006 - Project 786 funds realigned to higher Army priority requirements (-\$4,979K)
 Project 788 funds increased to initiate ATACMS Product Improvement Program (+\$18,681K)

FY 2007 - Project 786 funds realigned to higher Army priority requirements (-\$3,760K)
 Project 788 funds increased for ATACMS Product Improvement Program (+\$19,395K)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
785

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
785 LONGBOW HELLFIRE PIP	1050	0	0	0	0	0	0	0	0	13279

A. Mission Description and Budget Item Justification: The Longbow HELLFIRE missile system provides the Army with a fire-and-forget, anti-armor capability for the Apache Longbow and armed reconnaissance helicopters. The fire-and-forget Longbow HELLFIRE system greatly increases aircraft survivability and dramatically improves target acquisition and engagement capabilities in adverse weather when the battlefield is obscured (smoke, fog, dust), and when the threat is using countermeasures. Evolutionary improvements are required to maintain the current effectiveness of the Longbow HELLFIRE missile against expanding regional power threats. The Longbow HELLFIRE Product Improvement Program (PIP) will improve Home-on-Jam (HOJ)/Anti-Jam (AJ) capabilities for the missile.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Implement design changes; formal hardware qualification; hardware in the loop; complete critical/final design; complete guidance section and rocket ball design evaluation.	1050	0	0	0
Totals	1050	0	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
785

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
C70300 Longbow Hellfire/LBHF	24875	15575	2519	0	0	0			0	1667879
C71500 HELLFIRE Modifications	0	9770	0	0	0	0			0	9770

C. Acquisition Strategy: Development of the Longbow HELLFIRE HOJ/AJ will be sole source to the prime contractor, Longbow Limited Liability Company (LLLC). The U.S. Army Aviation and Missile Command (AMCOM) laboratories will provide assistance/technical expertise during the development effort. A sole source contract was awarded to the LLLC for development and qualification of HOJ/AJ.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
786 APKWS SIMULATOR UPGRADE	0	4659	4879	5227	5462	5656	6049	4789	0	36721

A. Mission Description and Budget Item Justification: The Advanced Precision Kill Weapon System (APKWS) Simulator Upgrade program develops upgrades for new and existing aircraft flight simulators and combat mission simulators. These simulator upgrades are required to enable combat aircrews to train with APKWS. The APKWS Simulator Upgrade funding will develop, test, qualify, and integrate the software/hardware required for AH-64D flight simulators and combat mission simulators. The use of both flight simulators and combat mission simulators for training is an integral part of the APKWS program. Extensive use of simulators will reduce the number of APKWS rounds required for annual live fire training.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Develop system requirements for training simulator hardware and software.	0	1142	634	584
Develop simulator software upgrades.	0	2954	1609	2176
Validation and verification of software upgrades.	0	175	823	203
APKWS software devices integration.	0	0	1414	1853
Perform government engineering support.	0	388	399	411
Totals	0	4659	4879	5227

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
PE 604802/705 Advanced Precision Kill Weapon System (APKWS) SD&ED	45224	15296	10779	8696	17483	15966	5803	0	0	119247

C. Acquisition Strategy: Development and qualification of APKWS training simulator hardware/software will be accomplished via full and open competition. The U.S. Army Aviation and Missile Command (AMCOM) will provide assistance and technical expertise during the development effort.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prime Contract	Cost Plus Incentive Fee/Award Fee (CPIF/AF)	To Be Decided (TBD)	0	3509	2Q	2973	1Q	3109	1Q	12824	22415	0
b . Support Contracts	Various	Various	0	125	2-4Q	391	1-4Q	412	1-4Q	1699	2627	0
c . Developmental Engineering	Various	Various	0	425	2-4Q	678	1-4Q	746	1-4Q	3107	4956	0
Subtotal:			0	4059		4042		4267		17630	29998	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	Various	Various	0	212	2Q	441	1Q	549	1Q	2462	2604	0
Subtotal:			0	212		441		549		2462	2604	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	Various	Various	0	388	2-4Q	396	1-4Q	411	1-4Q	1722	2917	0
Subtotal:			0	388		396		411		1722	2917	0

Project Total Cost:			0	4659		4879		5227		21814	35519	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

Event Name	FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12			
	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
APKWS Simulator																																
(1) Contract Award																																
Software Design Review																																
Software Integration/Testing																																
Simulator Upgrade																																

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
786

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Award APKWS Simulator Contract		2Q						
APKWS Simulator Software Design Review			2-4Q	1-4Q	1-4Q	1-4Q	1-2Q	
APKWS Simulator Software Integration/Testing			3-4Q	1-4Q	1-4Q	1-4Q	1-3Q	
APKWS Simulator Upgrade			4Q	1-4Q	1-4Q	1-4Q	1-4Q	1Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs				PROJECT 788		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
788 ATACMS PIP	0	0	18681	19395	17531	0	0	0	0	55607

A. Mission Description and Budget Item Justification: The Army Tactical Missile Systems (ATACMS) Quick Reaction Unitary (QRU) is a 24/7 all weather low collateral damage precision strike, artillery missile system. Coupled with the High Mobility Artillery Rocket System (HIMARS) and Multiple Launch Rocket System (MLRS) M270A1 launch platforms, the ATACMS Unitary provides the joint war fighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition. It is effective against counter fire, air defense, light material, and urban infrastructure targets. During Operation Iraqi Freedom (OIF), 456 ATACMS precision missiles were launched from Multiple Launch Rocket System (MLRS) M270A1 and High Mobility Artillery Rocket System (HIMARS) launchers by the Joint Land Component Commander and Joint Special Operations Command (JSOC) providing critical Operational Shaping/Precision Strike fires. ATACMS Quick Reaction Unitary (QRU) missiles were subsequently used during Operation IVY CYCLONE II against terrorist insurgent hard targets. The following efforts will further develop the ATACMS QRU into the ATACMS Block IA Unitary. These efforts encompass the acquisition of a new warhead, the development and implementation of a tri-mode capable fuze, and Insensitive Munitions (IM) trade studies. The new warhead and multi-mode fuze will provide the capability of point detonation, air burst, and delay. Future technologies and munitions will be assessed for spiral development and potential insertion into ATACMS Block IA Unitary to provide operational flexibility and capability.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Conduct Development Engineering which includes: Warhead design, evaluation and qualification, tri-mode fuze development and qualification, and Insensitive Munitions (IM) trade studies.	0	0	15763	14384
Conduct system Test and Evaluation program which includes: Developmental (Arena/Sled) and Operational (Flight) tests.	0	0	873	2917
Develop Advance Field Artillery Tactical Data System (AFATDS) interface.	0	0	511	491
Perform continuous technical and risk assessments, conduct studies, and prepare milestone documentation for milestone review.	0	0	1534	1603
Totals	0	0	18681	19395

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
788

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
ATACMS Block IA - Procurement Army C98510	57572	61247	58458	60484	61044	0	0	0	0	298805
ATACMS MODS - Procurement Army C98510	0	0	0	0	2245	37817	40331	42000	426150	548543

C. Acquisition Strategy: The Army Tactical Missile Systems (ATACMS) Quick Reaction Unitary (QRU) is the only ATACMS variant currently in production and is the fourth variant of the ATACMS developed. It is a modification of the ATACMS Block IA system, which replaced the M74 anti-personnel, anti-materiel (APAM) bomblets with a Navy WDU-18 Unitary Warhead. The System Development and Demonstration (SDD) program will focus on developing capabilities toward meeting requirements in the ATACMS Unitary Operational Requirements Document (ORD). The SDD program will also include a development and operational test program which will assess system survivability, accuracy, and effectiveness. The Acquisition Strategy is to leverage technology already gained from the QRU program, and execute a stream-lined product improvement program employing a spiral development approach. These efforts encompass the acquisition of a new warhead, the development and implementation of a tri-mode fuze, and Insensitive Munitions (IM) trade studies.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
788

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prime Contract	TBD	TBD	0	0		14921	2Q	13308	2Q	11133	39362	0
b . Developmental Engineering	Various	RDEC, AL	0	0		842	1-2Q	1076	1-2Q	1228	3146	0
Subtotal:			0	0		15763		14384		12361	42508	0

Remarks: TBD - To Be Determined, RDEC - Research Development Engineering Center, Huntsville, AL.

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C/CPFF	S3, GSA, CAS	0	0		511	1-2Q	491	1-2Q	0	1002	0
Subtotal:			0	0		511		491		0	1002	0

Remarks: S3 - Systems Studies Simulation, Inc., Huntsville, AL; C/CPFF - Competitive/Cost Plus Fixed Fee; GSA - Government Service Agency; CAS - Clark and Stender, Inc.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203802A - Other Missile Product Improvement Programs

PROJECT
788

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	Various	WSMR, FSA, APG, Eglin, China Lake	0	0		873	1-2Q	2917	1-2Q	4136	7926	0
Subtotal:			0	0		873		2917		4136	7926	0

Remarks: WSMR - White Sands Missile Range, New Mexico; RSA - Redstone Arsenal, Alabama; APG - Aberdeen Proving Grounds, Maryland; Eglin Air Force Base, Florida; China Lake, California

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Project Office, Redstone Arsenal, AL	0	0		1534	1-4Q	1603	1-4Q	1034	4171	0
Subtotal:			0	0		1534		1603		1034	4171	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems; N/A - Not Applicable

Project Total Cost:			0	0		18681		19395		17531	55607	0
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications Program
(TRI-TAC)

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15932	17414	24906	5980	1525	914	0	0	Continuing	17212
01D TACTICAL INTERNET MANAGEMENT SYSTEM	7409	17405	24906	5980	1525	914	0	0	Continuing	0
107 ISYSCON DEVELOPMENT	8523	9	0	0	0	0	0	0	0	17212

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.

The ISYSCON Development (i.e., ISYSCON(V)1 and (V)2) automated Signal Corps units' capability to manage multiple tactical communications systems in support of battlefield operations. The Integrated System Control (ISYSCON) facility provides centralized management of the tactical communications network, establishes an interface with each technical control facility in the Army Battlefield Command System (ABCS) architecture, and enables automated configuration and management in a dynamic battlefield data network, provided by MSE and the ACUS MOD Programs. ISYSCON was developed with incremental software releases to support blocked requirements in accordance with the ORD. The ISYSCON Program serves as a baseline foundation to support future network management initiatives tied to and part of the digitized division and the Warfighter Information Network (WIN) Architecture.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0208010A - Joint Tactical Communications Program
 (TRI-TAC)**

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	18177	16719	5877
Current Budget (FY 2006/2007 PB)	17414	24906	5980
Total Adjustments	-763	8187	103
Net of Program/Database Changes			
Congressional Program Reductions	-265		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-498		
Adjustments to Budget Years		8187	103

Change Summary Explanation: Funding - FY06/07 increases to fund ISYSCON(V)requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications
Program (TRI-TAC)

PROJECT
01D

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
01D TACTICAL INTERNET MANAGEMENT SYSTEM	7409	17405	24906	5980	1525	914	0	0	Continuing	0

A. Mission Description and Budget Item Justification:- Army's communication planning and engineering system for current, future, and contingency operations, brigade and below

- Manage Local Area Networks (LANs) devices, battalion through theater
- Performs network device management functions critical for Army Battle Command Systems (ABCS) and Force XX1 Battle Command, Brigade and Below (FBCB2)
- Located at Tactical Operation Centers (TOCs) and Command Posts (CPs)

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Test & Evaluation	556	2200	0	1500
Requirement Analysis, System Engineering, and Software Development ABCS6.4	6853	0	0	0
Requirement Analysis, System Engineering, Software Development "Must Have Beyond Good Enough" Block 5 requirements	0	15205	24906	4480
Totals	7409	17405	24906	5980

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0208010A - Joint Tactical Communications
 Program (TRI-TAC)**

PROJECT
01D

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
B93900 TIMS	12967	11135	16962	11517	9346	3964	0	0	0	65891

C. Acquisition Strategy: 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. A DD-2028 change to the ISYSCON Requirement Operational Capability (ROC) identified the need for Tactical Internet and Tactical Operation Command (TI and TOC) Local Area Network management. An Operational Requirements Document (ORD), superceding the ISYSCON ROC/2028 Change, was approved in May 02. 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 4ID, 1CD and SBCTs 1, 2 & 3. The next ISYSCON (V)4 release will satisfy the Chief of Staff, Army approved ABCS 6.4 "Good Enough" requirements. The ISYSCON(V)4 IOTE will be conducted during 2-3QFY05. Full Rate Production IPR and Material Release will follow in 2nd and 3rd Qtr FY06. Beginning in FY05, the Block 5 Initialization Capability (IC) Key Performance Parameters will be developed 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 FY-06. LUT is scheduled to begin in 1Qtr FY07.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications Program
(TRI-TAC)

PROJECT
01D

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Software Development and Upgrade	CPIF	NGMS, Carson, CA	8457	12590	2Q	22446	2Q	3205	2Q	Continue	Continue	0
Subtotal:			8457	12590		22446		3205		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Contractor Engr	MIPR/PWD	Various	464	703	2Q	732	2Q	350	2Q	Continue	Continue	0
b . TIMS Government Engr	MIPR	Various	1027	587	2-4Q	616	2-4Q	647	2-4Q	Continue	Continue	0
Subtotal:			1491	1290		1348		997		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications Program
(TRI-TAC)

PROJECT
01D

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS IOT&E	MIPR	AEC-Various	556	2200	2-3Q	0		0		0	2756	0
b . IC Op Eval (Block 5)	MIPR	AEC-Various	0	0		0		1500	2-3Q	0	1500	0
Subtotal:			556	2200		0		1500		0	4256	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MITRE	MIPR/PWD	Eatontown, NJ	1506	1325	2Q	1112	2Q	278	2Q	Continue	Continue	0
Subtotal:			1506	1325		1112		278		Continue	Continue	0

Project Total Cost:			12010	17405		24906		5980		Continue	Continue	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications Program
(TRI-TAC)

PROJECT
01D

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Software Development																																
ABCS6.4	[Red Bar]																															
IC (Block 5)	ABCS 6.4								[Red Bar]																							
Software DT																																
ABCS 6.4																																
(1) CTSF Certification																																
IC													[Red Bar]																			
LUT																																
OT, Test Report									[Red Bar]																							
LUT, Test Report													[Red Bar]																			
Milestones																																
(2) Full Rate Prod IPR, (3) Mat'l Rel/Init Oper Capab, (4) Follow-on MR																																
									▲ ² FRP IPR				▲ ³ MR/IOC								▲ ⁴ Follow-on MR											

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications Program
(TRI-TAC)

PROJECT
01D

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
ABCS 6.4 Development Test Completion	4Q							
IOTE		3Q						
Full Rate Prod IPR			2Q					
Materiel Release/ IOC			3Q					
IC (Block 5) Contract Award		2Q						
IC (Block 5) Developmental Testing			3Q					
IC (Block 5) LUT				1Q				
Follow-on MR					1Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208010A - Joint Tactical Communications
Program (TRI-TAC)

PROJECT
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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
107 ISYSCON DEVELOPMENT	8523	9	0	0	0	0	0	0	0	17212

A. Mission Description and Budget Item Justification: A requirement exists to provide Signal Corps units the automated capability to manage multiple tactical communication systems in support of dynamic battlefield operations.

- The Integrated System Control (ISYSCON) facility provides automated tools for the Signal Staff to plan, install, operate and maintain communications networks.
- ISYSCON is following the Evolutionary Acquisition Strategy; software improvements/enhancements are being developed and fielded through incremental software releases.
- The ISYSCON program serves as a baseline foundation to support future network management initiatives tied to and part of the digitized division and the Warfighter Information Network (WIN) architecture.
- The ISYSCON V1/V2 program ends with FY04 funding.
- The ISYSCON (V)4 Tactical Internet Management System (TIMS) funding transitioned to a new Project, 01D, within PE 208010A in FY03.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Block 3 Development (P2 Increment 2.1)	8523	9	0	0
Totals	8523	9	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0208010A - Joint Tactical Communications
 Program (TRI-TAC)**

PROJECT
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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BX0007 ISYSCON	21368	0	0	0	0	0	0	0	0	21368
028010/01D Tactical Internet Management System	7535	17405	24906	5980	1525	914	0	0	0	58265

C. Acquisition Strategy: Successful Milestone III - Feb 99 for ISYSCON (V)1 and (V)2. ISYSCON Phase 2 Increment 1 and later versions of software supports the fielding of production systems starting with echelon corps and below units. The ISYSCON ROC to ORD conversion was completed May 02 with the approval of the ISYSCON ORD. ISYSCON is following the Evolutionary Acquisition Strategy with Block upgrades for major functionality and incremental software releases for software maintenance and minor enhancements. The next Block Software Release provides Network Management for Echelons Above Corps (EAC) units. ISYSCON production systems include acquisition of Government Furnished Equipment (GFE) (Common Hardware and Software (CHS)/Standardized Integrated Command Post System (SICPS)) hardware for the integration into system assemblages and fielding.

Tactical Internet Management System (TIMS) - See 01D Exhibit R-2A in FY03 and beyond.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208053A - Joint Tactical Ground System					PROJECT 635	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
635 JOINT TACT GRD STATION-P3I(TIARA)	9568	9822	12854	14817	23281	8043	18955	7846	0	Continuing

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). 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 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. The objectives of the improvements are to upgrade JTAGS to the Multi-Mission Mobile Processor (M3P) configuration for operation with the next generation of the space based infrared satellites, Space Based Infrared System (SBIRS), and to improve system accuracy and timeliness. The M3P development for the SBIRS is a cooperative (joint interest) developmental effort with the U.S. Air Force. On January 13, 2005, the Program Executive Office (PEO), Air, Space and Missile Defense (ASMD) merged with the PEO, Tactical Missiles (TM) to become the PEO, Missiles and Space (MSLS). JTAGS is an integral part of the Army Missiles and Space System of Systems (SoS) architecture.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue Block I & Begin Block II M3P Integrated Product and Process Development (IPPD)	6717	7967	9554	8117
Continue Block I & Begin Block II M3P Development	773	0	3300	6400
Continue Block I M3P Test and Evaluation Support	2078	1855	0	300
Totals	9568	9822	12854	14817

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	9967	13356	15033
Current Budget (FY 2006/2007 PB)	9822	12854	14817
Total Adjustments	-145	-502	-216
Net of Program/Database Changes			
Congressional Program Reductions	-145		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		-502	-216

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BZ8420 Joint Tactical Ground Station Mods (JTAGS)	0	0	7654	325	0	0	7196	5557	Continue	Continue
BZ8430 JTAGS M3P Institutional Training Equipment	0	0	4994	9396	0	0	0	0	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

D. Acquisition Strategy: Under this program element, critical improvements will be developed making maximum use of Non-Developmental Items/Commercial Off-The-Shelf elements. After design and integration, the system will be subject to thorough developmental and operational testing to verify performance and operational effectiveness and suitability. Both Block I DSP Only M3P (DM3P) and Block II (SBIRS High) Geosynchronous M3P (GM3P) are joint interest developmental efforts with the U.S. Air Force and involve cost sharing of the acquisition.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Primary Hardware Development	C/CPAF	Lockheed / Sunnyvale, CA	26663	0		3300	1Q	6400	1Q	Continue	36363	Continue
b . Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	4456	355	1Q	424	1Q	450	1Q	0	5685	0
c . In-House IPPD	N/A	Various	13334	3523		4392		3068		Continue	24317	Continue
d . Contractor Engineering IPPD Support	C/CPFF	Various	9767	2500	2Q	2738	2Q	2479	2Q	Continue	17484	Continue
e . Government Engineering IPPD	N/A	Various	11944	1381		2000		2120		Continue	17445	Continue
f . Government Furnished Equipment	N/A	Various	511	208		0		0		0	719	0
Subtotal:			66675	7967		12854		14517		Continue	102013	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . WSMR			590	312		0		300		Continue	1202	Continue
b . ATEC			1720	1182		0		0		Continue	2902	0
c . JITC			358	361		0		0		Continue	719	0
Subtotal:			2668	1855		0		300		Continue	4823	Continue

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												
Project Total Cost:			69343	9822		12854		14817		Continue	106836	Continue

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) (DSP Only) Multi-Mission Mobile Processor (DM3P) First Unit Equipped (FUE)									1																							
(2) Materiel Release Approval									2																							
(3) DM3P Full Operational Capability (FOC)													3																			
P3I Block I (DM3P)																																
DM3P Development																																
SBIRS System Test (SST)-9000 Combined DT/OT																																
DM3P Production Unit 2 Fielding (Army) (Ft. Bliss)																																
DM3P Production Unit 3 Fielding (Army) (CENTCOM)																																
DM3P Production Unit 4 Fielding (Army) (Colorado Springs)																																
DM3P Unit 5 Fielding (Army) (EUCOM)																																
DM3P Production Unit 1 Fielding (Army) (PACOM)																																

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Continue P3I Block I Development	1-4Q							
Continue P3I Block I Development (DM3P DT/OT)		1-4Q						
Complete P3I Block I (DM3P Fielding) / Begin P3I Block II Development (Geosynchronous M3P (GM3P))			1-4Q					
Continue P3I Block II Development (GM3P)				1-4Q				
Continue P3I Block II Development (GM3P)					1-4Q			
Continue P3I Block II Development (GM3P)						1-4Q		
Continue P3I Block II Development (GM3P DT/OT)							1-4Q	
Continue P3I Block II Development (GM3P DT/OT and Fielding)								1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)					PROJECT JH1		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost	
JH1 JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY	0	0	3261	5090	5081	2915	3113	3230	0	22690	

A. Mission Description and Budget Item Justification: The Joint High Speed Vessel (JHSV) program is a result of a signed Department of Army (DA) and Department of Navy (DoN) Memorandum of Intent (MOI) which resulted in the proposed merging 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 will combine the two separate programs (TSV and HSC) and take advantage of inherent commonality of 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 execution, 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. The acquisition program will be structured for a FY08 lead ship award and FY10-11 launch. DA and DoN will maintain separate and distinct funding streams to support the joint program. DA will resource to the critical Army requirement set validated for the joint Initial Capabilities Document (ICD) for HSC. While 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. A Memorandum of Agreement (MOA) between the Army and Navy Service Acquisition Executives (SAEs) is in final staffing and is expected to establish, in January 2005, a balanced approach to development of a combined program under the acquisition lead of a Navy program office (PMS-325) in PEO Ships.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Joint High Speed Vessel Program	0	0	3261	5090
Totals	0	0	3261	5090

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208058A - Joint High Speed Vessel (JHSV)

PROJECT
JH1

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget	0	0	0
Current Budget (FY 2006/2007 PB)	0	3261	5090
Total Adjustments	0	3261	5090
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		3261	5090

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
RDT&E, 0604804A, 461, Marine Oriented Logistics, Engineering	59127	62641	0	0	0	0	0	0	0	121768
OPA 3, M11203, Joint High Speed Vessel (JHSV),	0	996	15000	15361	299351	301615	154195	154356	0	940874

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**February 2005**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0208058A - Joint High Speed Vessel (JHSV)

PROJECT

JH1

D. Acquisition Strategy: The JHSV program will combine the two separate programs (Theater Support Vessel (TSV) - Army and High Speed Connector (HSC) - Navy) and take advantage of inherent commonality of hull forms to create a more flexible asset for the Department of Defense. Based on the efforts accomplished and data collected to date by the two services, it appears that a hardware solution will incorporate the evolutionary development of commercial based high speed vessel technology employing integrated military unique capabilities/adaptations. The JHSV would be acquired competitively and production would be based in the United States. The Joint High Speed Vessel (JHSV) program Acquisition Strategy will be formally established once the Joint Initial Capabilities Document (JICD) and Analysis of Alternatives (AoA) efforts are finalized.

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 execution, even in the absence of developed infrastructure, and conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208058A - Joint High Speed Vessel (JHSV)

PROJECT
JH1

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208058A - Joint High Speed Vessel (JHSV)

PROJECT
JH1

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint High Speed Vessel	MIPR	PEO Ships Washington Navy Yard, DC	0	0		3261	1-2Q	5090	1-2Q	0	8351	0
Subtotal:			0	0		3261		5090		0	8351	0
Project Total Cost:			0	0		3261		5090		0	8351	0

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208058A - Joint High Speed Vessel (JHSV)

PROJECT
JH1

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
High Speed Vessel Lease (HSV-X1, Joint Venture)	1-4Q	1-4Q	1-4Q					
Theater Support Vessel Lease (TSV 1X, Spearhead)	1-4Q	1-4Q	1Q					

HSV X1: FY06 an option is available, however, this not funded in the current budget.

TSV 1X: FY06-08 options are available with Justification and Approval, however, this is not funded in the current budget.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	19991	28618	22903	24282	21718	23802	32544	34020	0	230309
491 INFORMATION ASSURANCE DEVELOPMENT	7208	7855	6380	7445	5028	5711	12167	14875	0	87688
501 ARMY KEY MGT SYSTEM	1311	1351	1482	1555	1006	1044	1922	0	0	10884
50B BIOMETRICS	11472	19412	15041	15282	15684	17047	18455	19145	0	131737

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 Technology (COMSEC) 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 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 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 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	24725	25684	26522
Current Budget (FY 2006/2007 PB)	28618	22903	24282
Total Adjustments	3893	-2781	-2240
Net of Program/Database Changes			
Congressional Program Reductions	-430		
Congressional Rescissions			
Congressional Increases	5100		
Reprogrammings			
SBIR/STTR Transfer	-777		
Adjustments to Budget Years		-2781	-2240

FY06/07 funds realigned to higher Army requirement

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost
	Actual	Estimate	Complete							
491 INFORMATION ASSURANCE DEVELOPMENT	7208	7855	6380	7445	5028	5711	12167	14875	0	87688

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 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 C2 Protect 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. Work is performed by the Communications-Electronics Research Development and Engineering Center, Ft. Monmouth NJ.

Accomplishments/Planned Program

- Provide Secure Gateway development and testing of the developing products.
- Conduct exploration and validation of Commercial Off the Shelf and NSA information security products. Development of installation kits for network security equipment.
- Investigate Low Probability of Intercept (LPI)/Low Probability of Detection (LPD) techniques for integration in the Global Information Grid (GIG) Architecture.
- Support High Assurance Internet Protocol Encryptor (HAiPE) Inline Networking Encryption (INE) test and integration into the tactical net-centric networks.
- Provide technical engineering support on Army Cryptographic modernization program.
- Provide technical engineering support on Electronic Key Management System, Key Management Plans and Key Management Infrastructure programs.
- Support future narrow band digital terminal devices, test and integration into the tactical circuit switching devices.
- Support development of cross domain security solution sets to be integrated into the GIG architecture.

FY 2004 FY 2005 FY 2006 FY 2007

7208 4687 1969 2248

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program	PROJECT 491
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Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
<ul style="list-style-type: none"> - Developed a Government Off the Shelf (GOTS) Purge Tool for use on a myriad of drives. - Evaluated and recommended changes to several Information Assurance (IA) tools targeted for the 3rd ID Division under the modularity fielding effort. - Supported Joint User Interoperability Communication Experiment (JUICE) effort. - Develop and evaluate information assurance tools for the tactical warfighter. - Select, assess, develop, integrate, stress and demonstrate advanced commercial off-the-shelf/government off-the-shelf (COTS/GOTS) information assurance tools for tactical and/or sustaining base security requirements. - Tailor tool enhancements for unique tactical applications. - Enhance secure Wireless LAN technologies targeted for the tactical warfighter. 	0	3168	4411	5197
Totals	7208	7855	6380	7445

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA TA0600	118017	114188	72994	56382	47400	47444	0	0	Continuing	Continuing

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. FY06 and beyond focuses on completing development and evaluation of C2 Protect 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 meeth the challenge of modernizing the Army's aging cryptographic systems.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Engineering		CECOM, RDEC	30810	3618	1Q	3730		4795		Continue	42953	Continue
b . Hardware/Software Engineering	Various	CECOM, RDEC	5224	0		0		0		0	5224	0
c . C2 Protect Common Tools	Subcontracts reflected in d. through k. below	Subcontracts reflected in d. through k. below	4504	1800	1Q	1800	1Q	1800	1Q	0	9904	0
d . Engineering Support	Various	CECOM, RDEC	7847	0		0		0		Continue	Continue	0
e . Engineering Support	T&M	SRI Int., Eatontown, NJ	1348	250	1Q	250	1Q	250	1Q	0	2098	0
f . Secure Management System	C-Reimburs	MITRE, McLean, VA	1113	0		0		0		0	1113	0
g . Malicious Mobile Code Analysis	T&M	ILEX Tinton Falls, NJ	577	0		0		0		0	577	0
h . C2 Protect ATD Engineering Support	T&M	Madentech Consulting	373	600	1Q	600	1Q	600	1Q	0	2173	0
i . Tactical/Strategic Interface Development	T&M	Lockheed Martin, Tinton Falls, NJ	370	0	1Q	0	1Q	0	1Q	0	370	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . Tactical Intrusion Detection System	T&M	MIT, Cambridge, MA	135	0		0		0		0	135	0
k . Model & Simulation for Information Assurance Trainer	T&M	Atlantic Consulting Services, GA	1020	0		0		0		0	1020	0
l . DHIAP	Various	CIO/G6 BMO	12027	0		0		0		0	12027	0
m . DoD Biometrics Program	TBD	CIO/G6 BMO	18280	0		0		0		0	18280	0
n . Crypto Mod	Various	CECOM, RDEC	455	587	2Q	0		0		0	1042	0
o . SEGATE	CPFF	VIASAT, Carlsbad, CA	1500	1000	2Q	0		0		0	2500	0
p . Maden Technologies		Gaithersburg, Md.	247	0		0		0		0	247	0
Subtotal:			85830	7855		6380		7445		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			85830	7855		6380		7445		Continue	Continue	Continue
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
· Full fielding of AIRTERM (KY-100)								
TISM (Laboratory Testing)								
· Field Testing (Prototype Development Initiation)	1-4Q							
C2 Protect								
- Network Access Control	1-4Q	1-4Q	1-4Q	1-4Q				
- Intrusion Detection Control	1-4Q	1-4Q	1-4Q	1-4Q				
- Host Machine Vulnerabilities	1-4Q	1-4Q	1-4Q	1-4Q				
- Purge Tools	1-4Q	1-4Q	1-4Q	1-4Q				
- Security Management	1-3Q							
TACLANE								
Type Classification (conditional)								
Acquisition of Installation Kits	1-4Q	1-4Q						
Type Classification Standard (TC Standard)	1-4Q	1-4Q						
INE Upgrades	1-4Q	1-4Q	1-4Q					
LPI Techniques - Investigate Techniques	1-4Q							
LPI - Prototype & Test		1-4Q	1-4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 501		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
501 ARMY KEY MGT SYSTEM	1311	1351	1482	1555	1006	1044	1922	0	0	10884

A. Mission Description and Budget Item Justification: 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).

- 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).
- LCMS is the COMSEC accounting and generation software that provides Information Systems with Cryptographic Key capability.
- ACES provides Information Systems with Cryptonet Planning & SOI/EP Fill for Combat Net.
- DTDs/SKLs move the ACES/LCMS data to End Crypto Units (ECUs).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue development of next set of software tools for the AKMS workstation development environment to support Army Campaign Plan (ACP).	1022	1053	1175	1239
Engineering Support	289	298	307	316
Totals	1311	1351	1482	1555

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA1201 TSEC - AKMS	2587	2777	2994	3165	3227	3416	3828	0	0	21994

C. Acquisition Strategy: Milestone III was conducted in JUN 99 and the acquisition strategy and type classification for LCMS was approved. LCMS completed fielding to all COMSEC custodians in FEB 02 and the IOC for ACES was completed 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) on 10 JUN 02. The production contract for the Simple Key Loader (SKL), the upgrade to the DTD, was awarded in FY03. The RDTE effort to upgrade ACES v1.7 Block II software for the LCMS continues through FY05. Upon completion, ACES Block III software upgrade effort is scheduled to begin. The SKL software block I and II upgrades began in FY04 and are scheduled to continue into FY-06, with the Block III initiating upon completion. Functional Qualification testing will be conducted to validate the upgrades.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software development	C/T&M	SYPRIS, Tampa, FL	21009	0		0		0		0	21009	0
b . Software development/Upgrade	C/T&M	ISS, Tinton Falls, NJ	4148	1053	2Q	1175	2Q	1239	2Q	Continue	Continue	0
c . EKMS	MIPR	Navy, Washington	3900	0		0		0		0	3900	0
Subtotal:			29057	1053		1175		1239		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Testing	MIPR	SPAWAR, San Diego, CA	25	0		0		0		0	25	0
Subtotal:			25	0		0		0		0	25	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering	C/T&M	TELOS System Integration, Ashburn, VA	154	0		0		0		0	154	0
b . Government Engineering	MIPR	CECOM, Fort Monmouth, NJ	955	298	2-4Q	307	2-4Q	316	2-4Q	Continue	Continue	0
Subtotal:			1109	298		307		316		Continue	Continue	0

Project Total Cost:			30191	1351		1482		1555		Continue	Continue	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11																											
	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																								
Local COMSEC Management Software	<div style="position: absolute; top: 10%; left: 10%; width: 80%; height: 80%;"></div>																																																							
(1) LCMS Tier 1 IOC																													▲ LCMS Tier 1 Initial Operational Capability																											
LCMS Tier 2 Phase 4																													■ LCMS Software Development/Fielding																											
Automated Communications Engineering Software (ACES)																													■ ACES NET/Fielding																											
ACES NET Fielding																																																								
ACES V1.6 Block I Upgrade, ACES V1.7 Block II Upgrades, ACES Block III Upgrades																													■ ACES V1.6 ACES V1.7 Future ACES BLK III Upgrades																											
Simple Key Loader/Data Transfer Device (SKL/DTD) (Tier 3)																													■ Hardware Production/Fielding																											
SKL Hardware Production/Fielding																																																								
SKL FQT																																																								
SKL LUT																													■ LUT																											
(2) SKL FAT																													▲																											
SKL Block Upgrades																													■ DTD/SKL S/W BLK I & II																											
SKL Block Upgrades																													■ DTD/SKL Block III Upgrade																											
(3) SKL FUE																													▲																											

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
LCMS Tier 1 IOC	3Q							
SKL LUT	2Q							
SKL FAT		1Q						
ACES V1.7 Blk II Completion			4Q					
SKL FUE		3Q						
SKL Software Blk I & II Upgrade Completion		4Q						
SKL BLock III Upgrade Start				1Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 50B		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
50B BIOMETRICS	11472	19412	15041	15282	15684	17047	18455	19145	0	131737

A. Mission Description and Budget Item Justification: SA is the Executive Agent for the DoD Biometrics (automated methods of human recognition) Program. The DoD BMO supports biometric research, testing, evaluation, and related activities through its Biometric Fusion Center (BFC). The BFC is the technical element of the BMO, providing DoD's biometric testing and evaluation capability, operational support, and future housing for DoD biometric repository functions. The DoD Biometrics 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	FY 2004	FY 2005	FY 2006	FY 2007
Conduct test and evaluation of biometric commercial off-the-shelf 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.	11472	19412	15041	15282
Totals	11472	19412	15041	15282

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
50B

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
TA0600 - Information Systems Security	4965	1462	1371	1410	1404	1434	1463	1492	0	15001

Program

C. Acquisition Strategy: The objective of this project is to develop DoD Automated Biometric Identification System (ABIS) to provide technological solutions and business practices that support the Global War on Terrorism. FY05 focus will leverage technologies for sharing biometric data on persons of interest that are being detained by DoD entities. FY 2006 and beyond will continue to support the testing and evaluation of COTS products and other analysis and evaluation of applicable technologies, as well as finalize and synthesize an interoperable biometrics enterprise approach.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
50B

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Enterprise Development	Various	Various	11129	19412	1-4Q	15041	2Q	15282	1-4Q	Continue	60864	0
b . SBIR/STTR			343	0		0		0		0	343	0
Subtotal:			11472	19412		15041		15282		Continue	61207	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
50B

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			11472	19412		15041		15282		Continue	61207	0
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
50B

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Enterprise Development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	54656	90351	79752	54033	40595	7500	8306	8198	0	392664
083 GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	54656	90351	62895	27577	21241	7500	8306	8198	0	329997
08A PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)	0	0	16857	26456	19354	0	0	0	0	62667

A. Mission Description and Budget Item Justification: Implement an Enterprise Resource Planning (ERP) instance for deployable Army forces (Global Combat Support System-Army (Field/Tactical) (GCSS-Army (F/T), and a Product Life-Cycle Management Plus (PLM+) technical enabler) that will integrate GCSS-Army (F/T) and Logistics Modernization Program (LMP) into a Single Army Logistics Enterprise (SALE). All SALE components are tailored implementation of commercial off-the-shelf (COTS) software from Systems, Applications, and Products (SAP) developer, AG. The SALE will enable Army to implement SAP defined best business practices and achieve an integrated end-to-end (E2E) logistics business process that will integrate/interface with applicable Combat Support/Combat Service Support (CS/CSS) systems and Command and Control systems.

GCSS-Army (F/T) and PLM+ in combination with LMP, the ERP instance for non-deployable Army logistics organizations/personnel, will derive an integrated SALE.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	94215	68729	54349
Current Budget (FY 2006/2007 PB)	90351	79752	54033
Total Adjustments	-3864	11023	-316
Net of Program/Database Changes			
Congressional program reductions	-1365		
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer	-2499		
Adjustments to Budget Years		11023	-316

PE 0303141A 08A was created for PLM+ beginning in FY06. FY06 and FY07 program adjustments reflect HQDA decisions to fund GCSS-A (F/T) and PLM+.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303141A - Global Combat Support System				PROJECT 083		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
083 GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	54656	90351	62895	27577	21241	7500	8306	8198	0	329997

A. Mission Description and Budget Item Justification: Global Combat Support System-Army (Field/Tactical) (GCSS-Army (F/T) will implement systems, applications, and products (SAP) defined best business practices for logistics functions such as Supply Operations, Property Accountability, Maintenance, Ammunition and Logistics Management. The SAP based solution will support reengineered business processes for all deployed Army logistics users/organizations. This Enterprise Resource Planning (ERP) implementation will be the Army's automation enabler for logistics functions performed by and for deployable forces. It will enable a seamless, integrated, and interactive Combat Service Support (CSS) information management and operations system for users at all echelons. Coupled with Product Life-Cycle Management Plus (PLM+) and Logistics Modernization Program (LMP), it will establish a net centric management system with robust communications for timely and responsive Army logistics.

PLM+ will be an Army specific implementation of commercial off-the-shelf (COTS) Product Lifecycle Management (PLM) and Netweaver software from SAP developer, AG. The two key components of Netweaver for the Army SAP implementation are Exchange Infrastructure (XI) and Master Data Management (MDM). Other SAP components within Netweaver are Business Warehouse (BW), Event Manager, and Strategic Enterprise Management. Key components of PLM include Product Data Management (PDM) and Enterprise Document Management (EDM). PLM+ will serve as the single point of entry for Army logistics and the broker of technical information across Army logistics including GCSS-Army (F/T) and LMP. PLM+ will link the logistics information systems together in an integrated environment (GCSS-Army (F/T) and LMP) to achieve an end-to-end (E2E) logistics process within a Single Army Logistics Enterprise (SALE).

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
GCSS-Army ERP	35539	72881	45929	10176
PM operations	13117	10755	16966	17401
Product Life-Cycle Management Plus (PLM+) Development	6000	6715	0	0
Totals	54656	90351	62895	27577

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA SSN: W00800, STACOMP	33687	37549	68500	94777	114167	43221	26522	26651	Continuing	Continuing
OMA APE: 432612	2788	3475	1600	27700	37800	45040	30198	30198	Continuing	Continuing
OPA SSN: BZ8889, LOGTECH	0	10330	14000	27767	63710	21668	0	14407	Continuing	Continuing

C. Acquisition Strategy: For GCSS-Army (F/T), the Product Manager (PM) Enterprise Logistics Systems (ELS) will follow commercially proven ERP phases for project lifecycle. The lifecycle contains evaluation and preparation on the front end and after all cycles are completed, sustainment of the project is the final action. The phases making up the ERP lifecycle follow:

-Evaluation. Complete ERP solution scope, outline business benefits, refine system development, finalize change management and training & knowledge transfer strategy for GCSS-Army (F/T) and PLM+.

-Project Preparation. Refine and approve program scope/strategies, business practices, and project methodology, to include leveraging off other ERP initiatives e.g., LMP, Business Systems Modernization (BSM), etc. for GCSS-Army F/T and PLM+.

-Blueprinting. Creation of the Business Blueprint document. This document contains a detailed description of the reengineered “to be” business processes that will be automated through SAP AG. The document is also used to define baseline scope and refine project goals, objectives, and schedule for GCSS-Army (F/T) and PLM+.

-Realization. Transformation of the business requirements defined in the Business Blueprints into an approved working system. Activities include developing user authorization requirements, end user documentation, end user training plans, data conversion processes, and Continuity of Operations Plan (COOP). System integration and user acceptance testing are conducted during this phase.

-Final Preparation. Completion of the preparation and validation of the production system, including end user training, system management, and cutover activities; which includes test and evaluation of data conversion, training plans, and Joint Interoperability for GCSS-Army (F/T). Successful completion of operational testing during this phase assures the system is ready for Fielding, Support and Sustainment.

-Field and Sustain. Implement and field GCSS-Army (F/T); provide service support as required.

On 5 Nov 02, a non-milestone Army Systems Acquisition Review Council (ASARC) approved rebaselining the program to an ERP solution that will replace the 13 current system baselines with a single seamless automated system.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303141A - Global Combat Support System

PROJECT

083

A Joint Requirements Oversight Council (JROC) approved the GCSS-Army Operational Requirements Document (ORD) in Aug 03. On 2 Jul 03 an Overarching Information Technology (IT) Integrated Product Team (OIPT), chaired by Office of the Secretary of Defense (Networks and Information Integration) (OSD (NII)), approved the rebaselining.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Engineering, Development, Testing, Program Management	C/CPIF	Northrop Grumman, Los Angeles, CA	110729	0		0		0		0	110729	0
b . Enterprise Resource Planning (ERP) Implementation	C/FP	Northrop Grumman, Chester, VA	53504	67656	1-4Q	40489	1-4Q	6516	1-4Q	Continue	168165	Continue
c . Tactical Combat Developer	MIPR	CASCOM, Ft Lee, VA	6663	1552	1Q	1040	1Q	1060	1Q	Continue	Continue	Continue
d . PLM+ ERP Implementation	TBD	TBD	6000	6715	1-4Q	0		0		0	12715	0
Subtotal:			176896	75923		41529		7576		Continue	Continue	Continue

Remarks: PLM+ FY06 and outyears funding reflect under Project 08A

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	C/FP	Titan Corp, Colonial Heights, VA	12218	2622	1-4Q	3750	1-4Q	3820	1-4Q	Continue	Continue	Continue
b . Engineering and Security	MPIR	ISEC, Ft Huachuca, AZ	10248	2000	1-4Q	2000	1-4Q	2031	1-4Q	Continue	Continue	Continue
c . Technical Services/Testing	C/FP	L3 Govt Svcs Inc., Ft Hood, TX	9036	2527	1-3Q	3496	1-4Q	3600	1-3Q	Continue	Continue	Continue
d . Technical Services	C/FP	Log Mgt Institute, McLean, VA	7828	2868	1-3Q	1841	1-4Q	1896	1-3Q	Continue	Continue	Continue
e . Technical Services	C/FP	Cherry Road G-T Inc., Vienna, VA	6620	1960	1-3Q	1457	1-4Q	1500	1-3Q	Continue	Continue	0
Subtotal:			45950	11977		12544		12847		Continue	Continue	Continue

Remarks: PLM+ FY06 and outyears funding reflect under Project 08A

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Army Test & Evaluation Center/Operational Test Command	MIPR	ATEC/OTC, Ft Hood, TX	9693	1146	1-4Q	4400	1-4Q	2600	1-4Q	Continue	Continue	Continue
Subtotal:			9693	1146		4400		2600		Continue	Continue	Continue

Remarks: PLM+ FY06 and outyears funding reflect under Project 08A

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO Operations	NA	NA	18924	1305	1-4Q	4422	1-4Q	4554	1-4Q	Continue	Continue	Continue
b . SATCOM Proof of Concept	C/FFP	Veridian, Virginia	1426	0		0		0		0	1426	0
c . SATCOM Proof of Concept	C/FFP	Verestar, Virginia	683	0		0		0		0	683	0
d . SATCOM Proof of Concept	C/FP	TAMSCO, New Jersey	1285	0		0		0		0	1285	0
Subtotal:			22318	1305		4422		4554		Continue	Continue	Continue

Remarks: PLM+ FY06 and outyears funding reflect under Project 08A

Project Total Cost:			254857	90351		62895		27577		Continue	Continue	Continue
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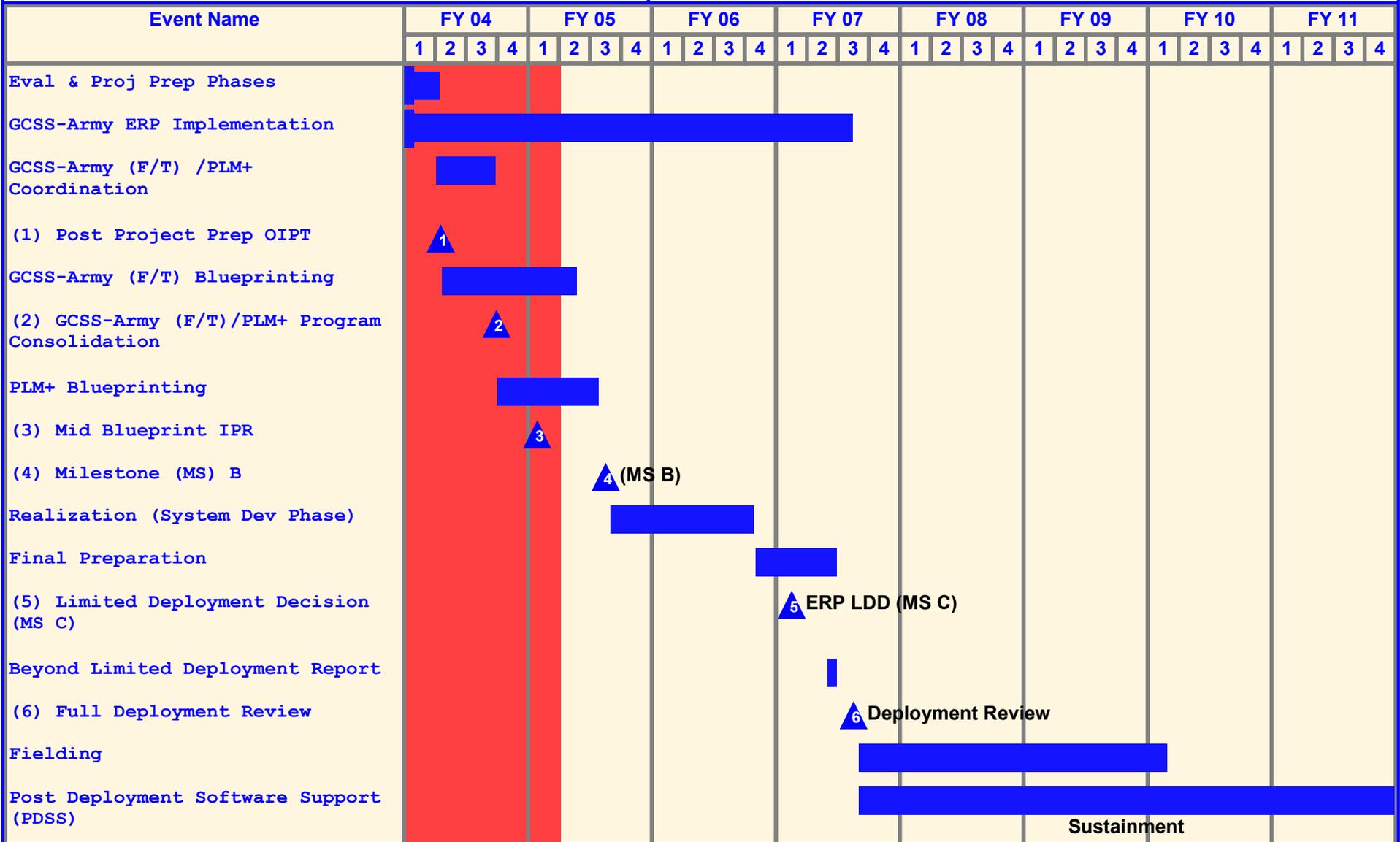
Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083



Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Enterprise Resource Planning (ERP) Vendor Selection								
GCSS-Army ERP Implementation	1-4Q	1-4Q	1-4Q	1-3Q				
Evaluation	1Q							
Project Preparation	1-2Q							
Blueprinting	2-4Q	1-2Q						
MS B		3Q						
Realization		3-4Q	1-3Q					
Final Preparation			4Q	1-2Q				
MS C				1Q				
Fielding				3-4Q	1-4Q	1-4Q	1Q	
Post Deployment Software Support (PDSS)				3-4Q	1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303141A - Global Combat Support System					PROJECT 08A	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
08A PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)	0	0	16857	26456	19354	0	0	0	0	62667

A. Mission Description and Budget Item Justification: Product Life-Cycle Management Plus (PLM+) is a component of Global Combat Support System-Army (Field/Tactical) (GCSS-Army (F/T)). PLM+ will be an Army specific implementation of commercial off-the-shelf (COTS) Product Lifecycle Management (PLM) and Netweaver software from systems, applications, and products (SAP) developer, AG. The two key components of Netweaver for the Army SAP implementation are Exchange Infrastructure (XI) and Master Data Management (MDM). Other SAP components within Netweaver are Business Warehouse (BW), Event Manager, and Strategic Enterprise Management. Key components of PLM include Product Data Management (PDM) and Enterprise Document Management (EDM). PLM+ will serve as the single point of entry for Army logistics and the broker of technical information across Army logistics including GCSS-Army (F/T) and Logistics Modernization Program (LMP). PLM+ will link the logistics information systems together in an integrated environment (GCSS-Army (F/T) and LMP) to achieve an end-to-end (E2E) logistics process within a Single Army Logistics Enterprise (SALE).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
PLM+ Lead Systems Integrator (LSI)	0	0	9602	22231
PM Operations	0	0	7255	4225
Totals	0	0	16857	26456

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA SSN: W11001, STACOMP	0	0	4500	4098	3078	0	0	0	Continuing	Continuing
OMA APE: 423612	0	0	0	0	0	7000	7000	7000	Continuing	Continuing

C. Acquisition Strategy: For PLM+, the Acquisition Strategy has been approved by Office of Secretary of Defense for Networks and Information Integration (OSD (NII)). The lifecycle contains evaluation and preparation on the front end and after all cycles are completed, sustainment of the project is the final action. The phases making up the Enterprise Resource Planning (ERP) lifecycle follow:

- Evaluation. Complete ERP solution scope, outline business benefits, refine system development, finalize change management and training and knowledge transfer strategy. This effort was accomplished in FY04 and FY05 in PE 0303141A 083.

- Project Preparation. Refine and approve program scope/strategies, business practices, and project methodology, to include leveraging off other ERP initiatives, e.g., LMP, Business Systems Modernization (BSM), etc. This effort was accomplished in FY04 and FY05 in PE 0303141A 083.

- Blueprinting. Creation of the Business Blueprint document. This document contains a detailed description of the reengineered "to be" business processes that will be automated through SAP AG. The document is also used to define baseline scope and refine project goals, objectives, and schedule. This effort was accomplished in FY04 and FY05 in PE 0303141A 083.

- Realization. Transformation of the business requirements defined in the Business Blueprints into an approved working system. Activities include developing user authorization requirements, end user documentation, end user training plans, data conversion processes, and Continuity of Operations Plan (COOP). System integration and user acceptance testing are conducted during this phase.

- Final Preparation. Completion of the preparation and validation of the production system, including end user training, system management, and cutover activities; which include test and evaluation of data conversion, training plans, and Joint Interoperability. Successful completion of operational testing during this phase assures the system is ready for Fielding, Support and Sustainment.

- Field and Sustain. Implement and field; provide service support as required.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Enterprise Resource Planning (ERP) Implementation	TBD	TBD	0	0		9602	1-4Q	21735	1-4Q	Continue	31337	0
Subtotal:			0	0		9602		21735		Continue	31337	0

Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	C/FP	Titan Corp, Colonial Heights, VA	0	0		721	1-4Q	745	1-3Q	Continue	Continue	0
b . Technical Services	C/FP	Cherry Road G-T Inc., Vienna VA	0	0		283	1-4Q	291	1-4Q	Continue	Continue	0
Subtotal:			0	0		1004		1036		Continue	Continue	0

Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Army Test & Evaluation Center/Operational Test Command	MIPR	ATEC/OTC, Ft Hood TX	0	0		0		496	1-4Q	Continue	Continue	0
Subtotal:			0	0		0		496		Continue	Continue	0

Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO Operations	NA	NA	0	0		6251	1-4Q	3189	1-4Q	Continue	Continue	0
Subtotal:			0	0		6251		3189		Continue	Continue	0

Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

Project Total Cost:			0	0		16857		26456		Continue	Continue	0
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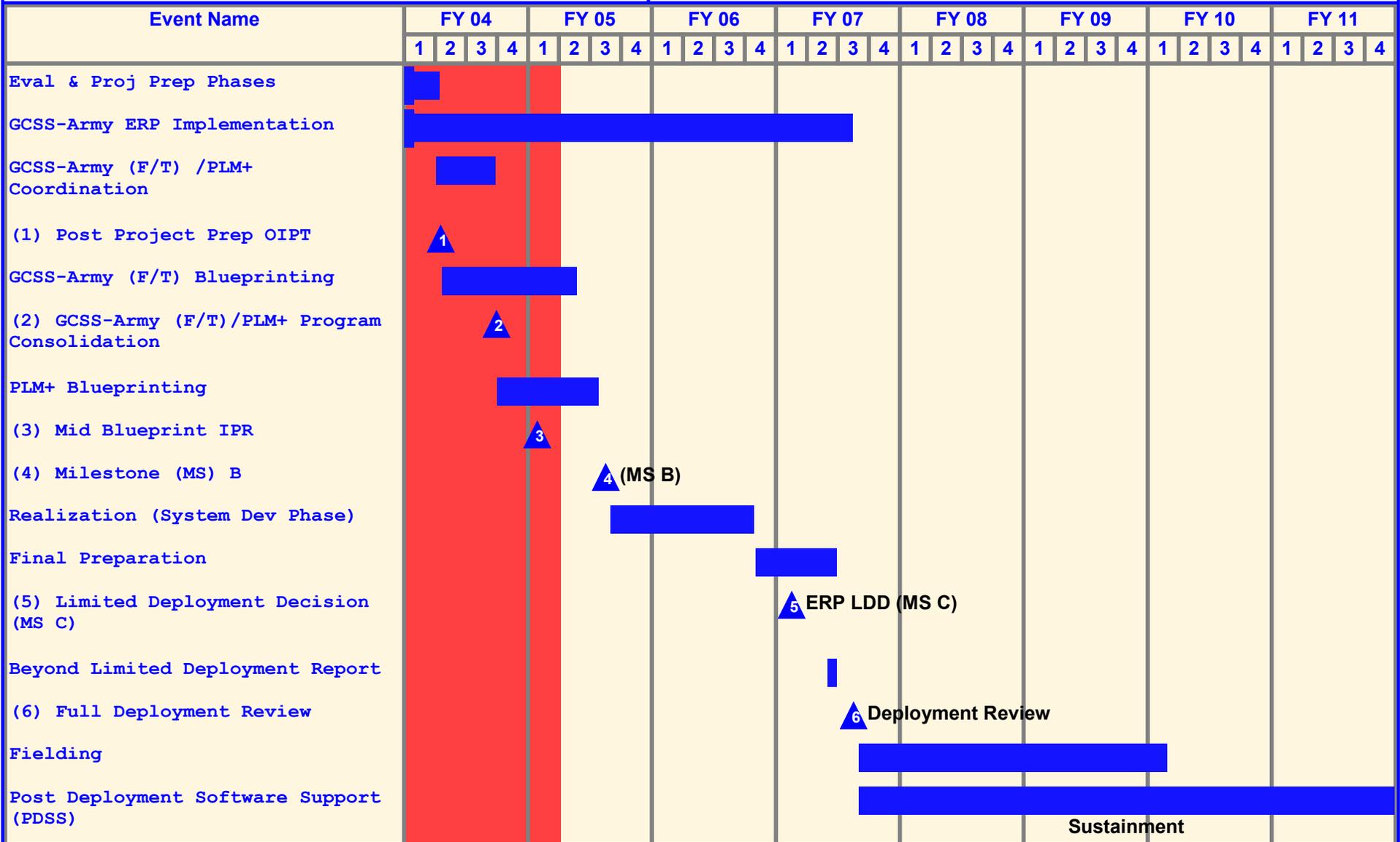
Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A



Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Realization		3-4Q	1-3Q					
Final Preparation			4Q	1-2Q				
MS C				1Q				
Fielding				3-4Q	1-4Q	1-4Q	1Q	
Post Deployment Software Support (PDSS)				3-4Q	1-4Q	1-4Q	1-4Q	1-4Q

Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE)

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	85302	51829	58659	55882	54090	56579	30632	25037	Continuing	Continuing
253 DSCS-DCS (PHASE II)	13051	8969	11549	11784	8609	8682	7989	7413	0	89671
384 SMART-T	25649	15508	5261	0	0	0	0	0	0	62725
456 MILSATCOM SYSTEM ENGINEERING	46602	14081	8933	8812	10226	10038	7704	7767	0	154156
562 MBAND INT SAT TERM MIST	0	13271	32916	35286	35255	37859	14939	9857	Continuing	Continuing

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) MILSTAR system; the MILSTAR Communication Planning Tool-integrated (MCPT-I); 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 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE)

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	51959	58566	95101
Current Budget (FY 2006/2007 PB)	51829	58659	55882
Total Adjustments	-130	93	-39219
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions	-130		
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		93	-39219

FY 2007 funds realigned \$39.219M to higher priority Army requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment
(SPACE)

PROJECT
253

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
253 DSCS-DCS (PHASE II)	13051	8969	11549	11784	8609	8682	7989	7413	0	89671

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 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	4597	3190	3600	4348
Continue the development of the Common Network Planning Software (CNPS) program	5167	3135	5067	4143
Multiband Enterprise Terminal (MET)	700	369	683	1044
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	2587	2275	2199	2249
Totals	13051	8969	11549	11784

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0303142A - SATCOM Ground Environment
 (SPACE)**

PROJECT
253

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
DSCS Other Procurement Army	94707	101503	55023	52494	85814	95978	93812	85439	Continuing	Continuing

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 DSCS 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 DSCS Operations Centers and DISA Management Sites at worldwide locations. The Multiband Enterprise Terminal (MET) will be the replacement terminal for the Wideband Ground Segment starting in FY09. PM DCATS must develop the technology for the new ground segment which will include paper studies, Simple Management Network Protocol (SMNP), system integration and demonstration to accommodate a multi-cast environment, integration of commercial technology into new terminals, and use of commercial technology to conform to Department of Defense (DoD) requirements.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 253**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DIMS Software	C / CPFF	JHU/APL, Laurel, MD	23553	2864	1-2Q	3000	1-2Q	3723	1-2Q	Continue	33140	Continue
b . CNPS	C / FFP	Logicon, Winter Park, FL	22710	2085	1-2Q	3991	1-2Q	3183	1-2Q	Continue	Continue	Continue
c . MET	S/CPFF	Hypres, Elmsford, NY	700	369	1-2Q	683	1-2Q	1044	1-2Q	Continue	Continue	Continue
Subtotal:			46963	5318		7674		7950		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Fort Monmouth, NJ	4217	1049	1-2Q	1160	1-2Q	1190	1-2Q	Continue	Continue	Continue
b . SETA Support	C / CPFF	Fort Monmouth, NJ	1923	511	1-2Q	700	1-2Q	700	1-2Q	Continue	Continue	Continue
c . Engineering Support	C / CPFF	Femme Comp, Chantilly, VA	350	150	1-2Q	176	1-2Q	60	1-2Q	Continue	Continue	Continue
d . Core Support	Various	Fort Monmouth, NJ	2509	223	1-4Q	224	1-4Q	249	1-4Q	Continue	Continue	Continue
Subtotal:			8999	1933		2260		2199		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 253**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SEL	MIPR	Fort Monmouth, NJ	5359	1118	2Q	1015	2Q	1035	2Q	Continue	Continue	Continue
Subtotal:			5359	1118		1015		1035		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Admin	Various	Fort Monmouth, NJ	3584	600	1-4Q	600	1-4Q	600	1-4Q	Continue	Continue	Continue
Subtotal:			3584	600		600		600		Continue	Continue	Continue

Project Total Cost:			64905	8969		11549		11784		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT 253

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11											
	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								
CNPS Testing V1.0	V1.0																																							
(1) CNPS Materiel Release V 1.0, (2) CNPS Materiel Release V 2.0, (3) CNPS Materiel Release V 3.0									▲ 1				▲ 2				▲ 3																							
DIMS Testing V5.1, DIMS Testing V 5.2																																								
(4) DIMS Materiel Release V 5.1, (5) DIMS Materiel Release V 5.2									▲ 4				▲ 5																											
MET Studies					[Redacted]																																			
(6) Complete MET Risk Mitigation																					▲ 6																			
DIMS Testing V6.0																																								
(7) DIMS Materiel Release V 6.0																																								
Wideband Transformation System Engineering, Conduct System Engineering Studies/Analysis, Advanced Component Experimentation / Joint Interoperability Tests																									[Redacted]															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 253**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
DIMS Version 5.1 Software Testing - Beginning		1Q						
DIMS Version 5.1 Software Testing - Ending		3Q						
DIMS Version 5.1 Materiel Release		4Q						
DIMS Version 5.2 Software Testing - Beginning			1Q					
DIMS Version 5.2 Software Testing - Ending			3Q					
DIMS Version 5.2 Materiel Release			4Q					
DIMS Version 6.0 Testing						2-3Q		
DIMS Version 6.0 Materiel Release						4Q		
CNPS V1.0 Testing - Beginning	2Q							
CNPS V1.0 Testing - Ending		2Q						
CNPS V1.0 Materiel Release			1Q					
CNPS V2.0 Materiel Release				1Q				
CNPS V3.0 Materiel Release					2Q			
Start MET Risk Component Studies	3Q							
Complete MET Risk Mitigation					4Q			
Conduct Systems Engineering Studies / Analysis						1-4Q	1-4Q	1-4Q
Advanced Component Experimentation							1-4Q	1-4Q
Joint Interoperability Tests							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)					PROJECT 384		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
384 SMART-T	25649	15508	5261	0	0	0	0	0	0	62725

A. Mission Description and Budget Item Justification: The Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T) provides a range extension capability to the Army's current and future tactical communications networks. Specifically, the SMART-T provides a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight of terrestrial systems. The SMART-T communicates at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It is compatible with the UHF Follow-On (UFO), the Navy Fleet SATCOM EHF satellite packages, and MIL-STD-1582D compatible payloads. SMART-T provides the security, mobility, and anti-jam capability required to defeat the threat to assured communications and satisfy the critical need for robust, secure, beyond line of sight communications. The SMART-T provides Low Probability of Interception and Low Probability of Detection (LPI/LPD), avoiding being targeted for destruction, jamming, or intercept. The prime mover is a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna.

This program is the developmental effort to allow SMART-T to operate over the Advanced Extremely High Frequency (AEHF) satellite constellation. The AEHF upgrade modification is under development. The upgrade provides a four-fold increase in communication capacity over the current SMART-T. Three satellite payload simulators were developed to support the AEHF RDT&E activities.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Payload specification change development	1073	2078	941	0
Development of AEHF satellite payload simulators	2082	0	0	0
AEHF development efforts	22494	13430	4320	0
Totals	25649	15508	5261	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0303142A - SATCOM Ground Environment
 (SPACE)**

PROJECT
384

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BC4002 - SMART-T	50017	70220	14607	71933	90461	143712	2544	2444	Continuing	Continuing
BS9720 - Spares	991	2928	4618	5796	10550	7286	0	0	0	32169

C. Acquisition Strategy: The SMART-T terminal is currently being upgraded with RDT&E dollars to be compatible with the emerging Advanced EHF (AEHF) satellites being developed by the Air Force. The SMART-T AEHF terminal development effort is synchronized with the Air Force satellite development effort to insure that AEHF terminals are available when the AEHF satellites are operationally available. As part of the AEHF upgrade effort, satellite simulators are being developed for testing of the AEHF waveform and terminal integration efforts. A total of 263 SMART-T terminals (176 Army, 29 Air Force, 40 Marines, 4 JCSE and 14 other DoD) have been procured to date. A Follow-on Production contract is currently in place to procure the remaining Army and other Service requirements. Contract options can be exercised through FY06. All SMART-T terminals currently being procured will be upgraded to provide the AEHF capability, beginning in FY07, following completion of the development effort.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Dual Development Contracts	C / CPIF	Rockwell - Richardson, TX / Raytheon - Marlborough, MA	117173	0		0		0		0	117173	0
b . Baseline Mods	SS / CPFF	Raytheon - Marlborough, MA	120113	12628	1-3Q	4148	1-2Q	0		0	136889	0
c . Transmitter Development	SS / CPFF	Raytheon - Marlborough, MA	2044	2196	1-2Q	0		0		0	4240	0
d . Govt Support	MIPR	Various	14646	181	1Q	189	1Q	0		0	15016	0
e . GFE	MIPR	Various	149	0		0		0		0	149	0
Subtotal:			254125	15005		4337		0		0	273467	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	MIPR	Various	11290	0		0		0		0	11290	0
b . Engineering Services	N/A	Fort Monmouth, NJ	5565	109	1Q	129	1Q	0		0	5803	0
c . Lab Activities	MIPR	Various	7767	256	1Q	269	1Q	0		0	8292	0
Subtotal:			24622	365		398		0		0	25385	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Simulator Development	MIPR	MIT Lincoln Labs - Lexington, MA	24859	0	1Q	0		0		0	24859	0
b . DT & OT Test Support	MIPR	Various	6700	138	3-4Q	526	1-4Q	0		0	7364	0
c . Test Bed Development	MIPR	MIT Lincoln Labs Lexington, MA	2980	0		0		0		0	2980	0
Subtotal:			34539	138		526		0		0	35203	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Tech Support of SMART-T Development	MIPR	MIT Lincoln Labs Lexington, MA	7900	0		0		0		0	7900	0
Subtotal:			7900	0		0		0		0	7900	0
Project Total Cost:			321186	15508		5261		0		0	341955	0

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

<u>Schedule Detail</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
Continue AEHF Simulator Development	1-3Q							
AEHF Simulator Development Completed	4Q							
Continue AEHF Development	1-4Q	1-4Q	1-4Q	1Q				
AEHF Development Completed				1Q				
Developmental Testing Completed				1Q				
Award Production AEHF Mod Contract				1Q				
Interoperability Testing Events			3-4Q	1-4Q	1-4Q	1-4Q		
Fielding of AEHF Retrofit Kits						1-4Q	1-4Q	1-4Q
Multi Service Operational Test & Evaluation (MOT&E)							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 456		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
456 MILSATCOM SYSTEM ENGINEERING	46602	14081	8933	8812	10226	10038	7704	7767	0	154156

A. Mission Description and Budget Item Justification: 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
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	4614	3134	2889	2783
System Engineering in support of technology assessment and transistion for WIN-T network / communication systems	1764	1481	1283	1236
Experimentation and prototyping of critical communication and network technologies	3441	3131	2567	2678
AEHF, WGS, TC, MUOS System Engineering in support of network system / terminal acquisition and joint interoperability	3183	2532	2194	2115
Continued Development of SHF Ka band augmentation (KaSAT)(on the quick halt)	9600	3803	0	0
Continued Army technology development IAW DoD Transformation Communication (TC) effort - funds moved to 0303142A Proj 562 (MIST)	13000	0	0	0
Continued Development of an integrated Ka band capability for upgrade of Phoenix terminals	11000	0	0	0
Totals	46602	14081	8933	8812

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0303142A - SATCOM Ground Environment
 (SPACE)**

PROJECT
456

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BB8417 - MOD OF IN-SVC (TAC SAT)	36064	194	7699	7982	205	0	0	0	0	52144
BA9350 - SHF TERM	16592	26088	23359	23799	0	0	0	0	0	89838
BC4002 - SMART-T	50017	70220	14607	71933	90461	143712	2544	2444	Continuing	Continuing

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 will transition to cognizant SATCOM programs managed by PMO WIN-T.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 456**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Terminal Upgrades	Various	Various	1524	0		0		0		0	1524	0
b . Ka Band Integration	C/CPFF	L-3 Communications - West - Salt Lake City, UT	20000	0		0		0		0	20000	0
c . Ka Band Augmentation	C/CPAF/T&M	Titan Corporation - San Diego, CA	29700	3803	2Q	0		0		0	33503	0
d . Advanced Wideband/TCS	Various	Various	19351	0		0		0		0	19351	0
e . ABCS SE&I	MIPR	Various	1288	0		0		0		0	1288	0
Subtotal:			71863	3803		0		0		0	75666	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 456**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	MIPR	Various	10819	1400	2Q	1226	2Q	1181	2Q	Continue	14626	0
b . Engineering (Contract)	Various	Various	11341	2807	2Q	4354	2Q	4420	2Q	Continue	22922	0
c . System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	6382	2121	2Q	530	2Q	500	2Q	Continue	9533	0
Subtotal:			28542	6328		6110		6101		Continue	47081	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	3169	700	2Q	600	2Q	578	2Q	Continue	Continue	Continue
b . Test Support	Various	Various	7486	1400	1Q	1213	1Q	1189	1Q	Continue	11288	Continue
Subtotal:			10655	2100		1813		1767		Continue	Continue	Continue

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT
456

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Transformational Communication MILSATCOM (TCM)	[Red bar]																															
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	[Red bar]																															
Advanced Component Experimentation/Prototyping	[Red bar]																															
Technology Assessment	[Red bar]																															
Joint Interoperability Test	[Red bar]																															
Upgrade of Phoenix to quadband	[Red bar]																															
KaSAT Development / Prototypes	[Red bar]																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE **PROJECT**
0303142A - SATCOM Ground Environment (SPACE) **456**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Transformational Communication MILSATCOM (TCM)	1-4Q							
AEHF System Engineering and Analysis	1-4Q							
AEHF Mission Planning Element (AMPE)	1-4Q	1-4Q	1-3Q	1-4Q	1-4Q	1-2Q		
Wideband Gapfiller and Ka Band System Engineering	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Advanced Component Experimentation / prototyping	1-4Q							
Technology Assessment /MUOS	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Joint Interoperability Tests	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Support MPE Upgrade for AEHF				2-4Q				
Support AEHF AEST 8000 (System Test)				1Q				
Conduct Transformation Communication (TC) System Engineering Studies/Analysis	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
TC Technical Requirement Document / Interface Control Document Development	1-4Q	1-4Q	1-4Q					
TC Design Review SDR / PDR / CDR	1-4Q	3Q	2Q	4Q				
Upgrade of Phoenix terminals to Quadband (integrated Ka band capability)	1-4Q	1-3Q						
KaSAT development / prototypes	1-4Q	1-2Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment
(SPACE)

PROJECT
562

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
562 MBAND INT SAT TERM MIST	0	13271	32916	35286	35255	37859	14939	9857	Continuing	Continuing

A. Mission Description and Budget Item Justification: Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability (HC3) efforts were initiated and funded in FY03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM). The vision for TCM is to build and operate a network of networks which inter-connect at selected points in space and on the ground to improve interoperability and redundancy while still protecting sensitive classified information that flows in portions of the system.

HC3 will develop the high data rate communications capability for the Future Force and will be pervasively integrated into the Army's Future Force communication architecture, as well as other service and joint communication architectures. The Warfighter Information Network-Tactical (WIN-T) and Transformational Communications MILSATCOM/Architecture (TCM/TCA) will leverage the high capacity communications capability. The high capacity communications capability is envisioned to be integrated into a family of tactical Multi-band, modular in design, communications terminals that will provide inter-network and reach back communications services across the Army's Future Force tactical networks while on the move and on the quick halt. It will also provide low, near zero, probability of detection, interception (LPD/LPI) and exploitation. The high capacity communications capability family consists of a Mobile embedded terminal that will provide Communications-on-the-Move (COTM), as well as Communications-on-the-Quick-Halt (COTQH) and Transportable configurations. The terminals will be multi-band and network (IP) capable and will be compliant with JTRS Software Communication Architectures (SCA) requirements.

The high capacity communications capability System Development and Demonstration (SDD) phase will commence in FY06. Prior to the start of SDD, various studies have been initiated which will incorporate tri-service participation towards building a joint specification. The program will be structured to allow for block enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Competitive high capacity communications capability studies that include Waveform integration and porting issues for Multi-band SCA compliant terminals and Modeling and Simulation	0	6250	0	0
Antenna and Architecture design efforts and risk mitigation efforts	0	6353	7931	3900
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	0	668	2630	0
HC3 Development	0	0	22355	31386
Totals	0	13271	32916	35286

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0303142A - SATCOM Ground Environment
 (SPACE)**

PROJECT
562

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
0303142A D456 - MILSATCOM SYSTEM ENG	46602	14081	8933	8812	10226	10038	7704	7767	Continuing	Continuing
BC4150 - HC3	0	0	0	0	0	2628	192027	155015	Continuing	Continuing

Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability (HC3) efforts were initiated and funded in FY03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM).

C. Acquisition Strategy: A competitive high capacity communications capability SDD contract will be awarded in FY06, following competitive studies that are being performed by 2 contractors in FY04/05. The SDD phase will be structured to maximize competitive opportunities throughout Low Rate Initial Production and Full Rate Production. The SDD phase will also ensure synchronization with the Transformational Communications MILSATCOM (TCM) and the Warfighter Information Network-Tactical (WIN-T).

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Development	MIPR	MIT Lincoln Labs, Lexington MA	0	2623	1-2Q	2875	1Q	1725	1Q	Continue	Continue	0
b . Pre-SDD Study Contracts	T&M	Raytheon, Marlborough, Mass and Boeing, Anaheim, Ca.	0	6250	1-2Q	0		0		0	6250	0
c . Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	0	560	1-2Q	1140	1-2Q	1175	1-2Q	Continue	Continue	0
d . SDD Contracts	C/CP	TBD	0	0		19125	2Q	23801		Continue	42926	0
e . Other Contracts	T&M		0	1270	1Q	1000	1Q	1000	1Q	Continue	Continue	0
Subtotal:			0	10703		24140		27701		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Services	N/A	Fort Monmouth, NJ	0	498	1-2Q	1510	1-2Q	1270	1-2Q	Continue	Continue	0
b . Other Contracts	Various	Various	0	600	1-2Q	2910	1-2Q	2650	1-2Q	Continue	Continue	0
Subtotal:			0	1098		4420		3920		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	N/A	PM WIN-T, Fort Monmouth, NJ	0	270	1-2Q	285	1-2Q	295	1-2Q	Continue	Continue	0
Subtotal:			0	270		285		295		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Core Support	N/A	PM WIN-T, Fort Monmouth, NJ	0	1200	1-2Q	4071	1-2Q	3370	1-2Q	Continue	8641	0
Subtotal:			0	1200		4071		3370		Continue	8641	0
Project Total Cost:			0	13271		32916		35286		Continue	Continue	0

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT 562

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Pre-Milestone B Activities																																
High Capacity Communications Capability Studies																																
(1) RFP																																
SSEB																																
(2) MS B																																
(3) SDD Contract Award																																
System Design/Demonstration																																
EUTE																																
(4) MS C: COTM/COTQH																																
LRIP																																
IOT&E																																

Note: Pre-Milestone B activities through FY04 funded under another PE/Proj 0303142A/D456.

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
High capacity communications capability studies	3-4Q	1-4Q						
Pre-Milestone B Activities	1-4Q	1-4Q	1-2Q					
SDD RFP Release		4Q						
Milestone B			2Q					
SDD Contract Award			2Q					
SDD Phase			2-4Q	1-4Q	1-4Q	1-4Q		
SDD EUTE						3-4Q		
Milestone C							1Q	
LRIP Phase							1-4Q	1-4Q
IOTE								4Q

Pre Milestone B activities thru FY04, and FY04 study efforts are funded under PE/Proj 0303142A/D456.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System				PROJECT C86		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
C86 ARMY GLOBAL C2 SYSTEM	16762	18459	13647	12067	50898	48361	14145	0	0	191043

A. Mission Description and Budget Item Justification: 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).

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Perform Systems Engineering	2400	1793	1965	1913
Software Development	11704	12881	9107	8202
Perform Data Engineering	797	903	939	510
Conduct Test and Evaluation	534	1474	675	700
Perform Program Support and Management Efforts	1327	1408	961	742
Totals	16762	18459	13647	12067

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	19204	17607	15430
Current Budget (FY 2006/2007 PB)	18459	13647	12067
Total Adjustments	-745	-3960	-3363
Net of Program/Database Changes			
Congressional Program Reductions	-745		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		-3960	-3363

FY2006: -3960 funds realigned to higher priority requirements
 FY2007: -3363 funds realigned to higher priority requirements

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA8250 Global Command & Control System-Army (GCCSA)	15996	19394	17358	16997	60314	82751	23095		0	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303150A - WWMCCS/Global Command and Control System

PROJECT

C86

D. Acquisition Strategy: 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 Delta (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. Seven major incremental software releases are planned for GCCS-A. There have been four major releases to date, the Strategic Capability Package 1 (CP1), and the Theater Delivery 1 (D1), Delivery 2 (D2), and Delivery 3 (D3). 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. An additional consideration for GCCS Block IV is integration and interoperability with the Deployable Joint Command and Control (DJC2) capability, which will provide a responsive and deployable joint C2 weapons system to fully command, control, and direct Combatant Command and JTF operations.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	HYBRID	Lockheed Martin Corp, Springfield, VA	104838	10100	1-2Q	6338	1-2Q	5293	1-2Q	Continue	126569	Continue
b . COE Support	MIPR	Various	1766	0		0		0		0	1766	1766
c . GFE	MIPR	Various	1464	0		0		0		0	1464	1465
d . ABCS System Engineering & Integration Efforts	MIPR	PEO C3T, NJ	1514	0		0		0		0	1514	1514
e . Matrix	MIPR	CECOM, NJ & Fort Belvoir, VA	4889	79	1-2Q	81	1-2Q	83	1-2Q	Continue	5132	Continue
f . Product Studies	MIPR	SAIC, VA	2391	0		0		0		0	2391	2391
g . Project Management	In House	PM GC C2, NJ	26042	2702	1-4Q	2688	1-4Q	2826	1-4Q	Continue	34258	Continue
h . System Engineering	MIPR	Various	0	1793	2-4Q	1965	2-4Q	1913	2-4Q	Continue	5671	Continue
Subtotal:			142904	14674		11072		10115		Continue	178765	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . FCBS/CSC	MIPR/Del Ord	Various	2389	0		0		0		0	2389	2389
b . INRI	MIPR	Various	200	0		0		0		0	200	200
c . Support Contractors			0	903	2Q	939	2Q	510	2Q	0	2352	0
Subtotal:			2589	903		939		510		0	4941	2589

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government	MIPR	Various	3367	625	2Q	475	2Q	500	2Q	Continue	4967	Continue
b . EPG	MIPR	Various	786	0		0		0		0	786	786
c . ATEC	MIPR	Various	802	849	1Q	200	1Q	200	1Q	Continue	2051	Continue
Subtotal:			4955	1474		675		700		Continue	7804	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Management	In House	PM GC C2, NJ	3993	1408	1-4Q	961	1-4Q	742	1-4Q	Continue	7104	Continue
Subtotal:			3993	1408		961		742		Continue	7104	Continue
Project Total Cost:			154441	18459		13647		12067		Continue	198614	Continue

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
IT - IPT	IT-OIPT Review and Family of Systems (FOS) /																															
Software Development	CP1 and DEL ORD Updates																															
Software Development Block 4	Block 4																															
(1) Block 4 I&T	▲ 1																															
(2) Block 4 Site Test	▲ 2																															
(3) Block 4 Delivery	▲ 3																															
Block 4 Hardware Fielding	Block 4																															
(4) JC2 Concept Decision OIPT	▲ 4																															
(5) JC2 Milestone A	▲ 5																															
Software Development JC2	JC2 Development																															
(6) JC2 Block 1 MS B	▲ 6																															
(7) JC2 Block 2 MS B	▲ 7																															
(8) JC2 Block 3 MS B	▲ 8																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
GCCS-A Block 4 Development	1-4Q	1-4Q	1-3Q					
JC2 Milestone A		3Q						
JC2 Block 1 Development			2-4Q	1-4Q				
JC2 Block 2 Development				2-4Q	1-4Q	1-4Q		
JC2 Block 3 Development						2-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303158A - Joint Command and Control - Army					PROJECT 714	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
714 JOINT COMMAND AND CONTROL - ARMY	0	0	1696	1730	1731	1732	1731	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Joint Requirements Oversight Council (JROC)-approved Joint Command and Control (JC2) Capability Operational Requirements Document (ORD) established a need for 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 and consists of joint mission capability packages. JC2 Capability 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>	FY 2004	FY 2005	FY 2006	FY 2007
Program Management	0	0	1696	1730
Totals	0	0	1696	1730

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303158A - Joint Command and Control - Army

PROJECT
714

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget	0	0	0
Current Budget (FY 2006/2007 PB)	0	1696	1730
Total Adjustments	0	1696	1730
Net of Program/Database Changes			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		1696	1730

FY0607 funding increase in support of the Joint Command and Control Program

C. Other Program Funding Summary: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303158A - Joint Command and Control - Army

PROJECT

714

D. Acquisition Strategy: Formal analysis was initiated to refine the JC2 Capability concept. The Assistant Secretary of Defense (ASD) approved JC2 Capability for entry into the Concept Refinement phase. The ASD directed the DASD (C3, Space, and IT Programs) to initiate and lead the completion of a successful JC2 Capability Analysis of Alternatives (AoA) conducted in accordance with the approved guidance.

The AoA will be completed in two parts: Part I is the Capabilities Refinement Analysis, and Part II, the Cost Effectiveness Analysis. During Part I, the capabilities will be refined to frame alternative implementations for Part II. Part II will assess the cost effectiveness of each alternative to recommend a preferred alternative in support of Milestone A. The cost effectiveness analysis will additionally satisfy the requirement to complete an Economic Analysis at Milestone A.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303158A - Joint Command and Control - Army

PROJECT
714

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303158A - Joint Command and Control - Army

PROJECT
714

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management			0	0		1696	1Q	1730	1Q	0	3426	0
Subtotal:			0	0		1696		1730		0	3426	0
Project Total Cost:			0	0		1696		1730		0	3426	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	67931	53592	139610	113223	51717	18332	33526	31163	0	594656
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	20206	22527	20191	13858	8896	9098	8728	8988	0	160993
11A ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	17242	20008	9688	1221	1222	1222	16286	13425	0	98201
11B TSP DEVELOPMENT (JMIP)	5650	8822	12423	7239	0	0	0	0	0	34134
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2210	2235	2351	2401	2228	2325	2443	2496	0	20803
D09 EXTENDED RANGE UAV (JMIP)	22623	0	94957	88504	39371	5687	6069	6254	0	280525

A. Mission Description and Budget Item Justification: The Tactical Unmanned Aerial Vehicle (TUAV) provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment (including communications equipment, launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional (MSM). Each division is supported by a Mobile Maintenance Facility (MMF). Near term RDT&E includes C4I interoperability and testing, BIT/BITE integration and testing, and initiation of a Small UAV Program. The Shadow UAV system has proven itself under combat conditions while deployed in support of OIF. Continued fielding and war time lessons learned have identified critical areas for improvement. These areas include enhanced C4I, survivability enhancement (noise and signature reduction), Automatic landing system enhancements, software optimization including increased Joint Technical Architecture - Army (JTA-A) compliance, and reduction of Total Ownership Cost through design enhancements. Future initiatives will focus on the transition of technologies that directly support the Army's Future Force, such as counter camouflage, and other specialty payloads as appropriate. The Advanced Payload Development & Support efforts will establish the infrastructure to evaluate the maturity of the technology efforts and transition an employable TUAV capability. Development and fielding of the TRADOC System Manager (TSM) UAV's top 5 priorities include Synthetic Aperture Radar/Moving Target Indicator, Communication Relay Payload, Laser Designation, and Objective EO/IR. The Joint Technology Center/System Integration Lab (JTC/SIL) is a joint integration center that develops the Multiple Unified Simulation Environment (MUSE), which provides simulations of tactical UAVs and strategic Intelligence, Surveillance and Reconnaissance (ISR) assets. The simulation is used with a broad range of joint systems, including the Army Tactical Exploitation Station, the Navy Joint Fires Network, and the Air Force ISR-Manager and Distributed Common Ground Station. The MUSE provides for the development of real-time interoperable hardware and operator-in-the-loop simulations of multiple intelligence systems, and is routinely employed in warfighter exercises throughout the world.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	45627	30113	47627
Current Budget (FY 2006/2007 PB)	53592	139610	113223
Total Adjustments	7965	109497	65596
Net of Program/Database Changes			
Congressional Program Reductions	-785		
Congressional Rescissions			
Congressional Increases	8750		
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		109497	65596

FY 06: \$94.957M was added for ER/MP program (Project D09), 3.151K was decreased for project 114.
 FY 07: \$59.927M was added for ER/MP program for project D09, \$239K was increased on project 114.

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

PROJECT

0305204A

Schedule Detail: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
114

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	20206	22527	20191	13858	8896	9098	8728	8988	0	160993

A. Mission Description and Budget Item Justification: The Tactical Unmanned Aerial Vehicle (TUAV), provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment, (including communications equipment, and launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional. Each divisional is supported by a Mobile Maintenance Facility. RDT&E activities include Army System Acquisition Review Council (ASARC) approved path forward to include C4I interoperability and test, and BIT/BITE.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Program Management Support	1388	2009	1800	1100
Development Testing / Risk Reduction Testing / ST&E	690	600	0	0
Target Location Error (TLE) / Digital Data Link development efforts, Tactical Common Data Link (TCDL) and Joint Tactical Radio System (JTRS) / Laser Designator	4700	5350	9000	0
C4I Maintenance / Improvements (ABCS 4.3, 6.2, ...)	1000	1000	1000	1000
OIF Reliability Upgrade	4100	0	0	0
OIF Improvements	928	2000	3000	3000
Airframe Optimization	5300	0	0	0
System Automation Improvement	0	0	1000	0
TLE Inertial Measurement Unit (IMU)	0	0	0	5000
Small Platform Modern Communications Intelligence Project 11B)	0	6650	0	0
I-GNAT	0	2100	0	0
OIF Reliability Upgrade	2100	0	0	0
OIF Improvements	0	2818	4391	3758
Totals	20206	22527	20191	13858

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
114

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
TUAV Procurement (BA0330)	121616	131471	26000	36169	42774	101356	129056	27611	Continuing	Continuing
Initial Spares - TUAV (BS9738)	14463	9783	0	0	0	0	0	0	Continuing	Continuing
TUAV - Extended Range/ Multi-purpose (B00305)	0	0	0	32890	100380	155839	163742	167013	Continuing	Continuing
Small UAV (SUAV) - (B00303)	0	0	20000	20492	20518	20539	10794	0	0	92343
RAVEN - (M80101)	109868	13458	0	0	0	0	0	0	0	123326
Extended Range / Multi-purpose - Weapons Capability Modifications (B10307)	0	0	0	14959	14978	14993	15008	15024	0	74962

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 on 21 December 1999, and a TUAV LRIP contract was awarded to the AAI Corporation on 27 December 1999. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded on 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 on 25 September 2002 and award of a full rate production contract on 27 December 2002. Continued development of the selected TUAV system will be accomplished through a series of upgrades to incorporate improvements such as extended range and endurance, increased payload weight space and power capability, Tactical Common Data Link and advanced sensor payloads as they mature and are operationally proven.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TUAV LRIP Program	Comp / FPIF	AAI Corporation, MD	63965	0		0		0		0	63965	63676
b . C4I Maintenance / Improvements	MIPR / PWD	Various	1000	1000	1-3Q	1000	1-3Q	1000	1-3Q	0	4000	0
c . TAFT System Support	CPFF	AAI Corporation, MD	3375	0		0		0		0	3375	0
d . Ground Control Station and Trailers	CPFF	AAI Corporation, MD & Northrop Grumman, CA	11808	0		0		0		0	11808	0
e . I-GNAT	CPFF	General Atomics	9709	2100	2Q	0		0		0	11809	0
f . Government Furnished Equipment	MIPR	Various	2036	0		0		0		0	2036	2036
g . SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500	0		0		0		0	1500	1500
h . Tactical Control System	PWD	AMCOM RDEC Redstone, AL	700	0		0		0		0	700	700
i . Advanced Payload Development/Modification/Integration	MIPR	PM UAV Payloads, Huntsville, AL	4118	0		0		0		0	4118	4118
j . Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2910	0		0		0		0	2910	2910

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
114

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
k . Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	3044	0		0		0		Continue	Continue	Continue
l . Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200	0		0		0		0	200	200
m . TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275	0		0		0		0	7275	7275
n . Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600	0		0		0		0	10600	10600
o . TUAV Source Selection/System Capabilities Demo	MIPR/PWD	Various	7200	0		0		0		0	7200	7200
p . Target Location Error (TLE) / Digital Data Link, TCDL/JTRS / Laser Designator	CPFF	AAI Corporation, MD	15042	5350	2-3Q	9000	1-2Q	0		0	29392	0
q . Army Apache/UAV Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350	0		0		0		0	350	350

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
r . Corrective Actions/Engineering Support	CPFF / PWD	AAI Corporation, MD	10375	0		0		0		0	10375	7714
s . Hunter UAV non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140	0		0		0		0	4140	4140
t . Hardware cost for GCS's (2) to be integrated into the selected AV's for the ER req.	CPFF	Northrop Grumman, CA	2000	0		0		0		0	2000	0
u . OIF Reliability Upgrade	CPFF / PWD	AAI Corporation, MD	4100	0		0		0		0	4100	0
v . OIF Reliability Upgrade	CPFF / PWD	AAI Corporation, MD	2100	0		0		0		0	2100	0
w . OIF Improvements	CPFF / PWD	AAI Corporation, MD	928	2000	1-2Q	3000	1-2Q	3000	1-2Q	0	8928	0
x . OIF Improvements	CPFF / PWD	AAI Corporation, MD	0	2818	1-2Q	4391	1-2Q	3758	1-2Q	0	10967	0
y . Airframe Optimization	CPFF / PWD	AAI Corporation, MD	5300	0		0		0		0	5300	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
z . System Automation Improvement	CPFF / PWD	AAI Corporation, MD	0	0		1000	1-2Q	0		0	1000	0
aa. TLE Inertial Measurement Unit (IMU)	CPFF / PWD	AAI Corporation, MD	0	0		0		5000	1-3Q	0	5000	0
bb. Small Platform Modern Communications Intelligence	Unknown	TSP	0	6650	2Q	0		0		0	6650	0
Subtotal:			173775	19918		18391		12758		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering Support	CPFF	Various	8000	601	1-2Q	750	1Q	400	1Q	Continue	9751	Continue
b . Government Engineering Support	PWD	AMCOM Redstone, AL	4904	865	1Q	550	1Q	350	1Q	Continue	6669	Continue
c . Contractor Engineering Support - Extended Range	CPFF	Various	2124	0		0		0		0	2124	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
d . Government Engineering Support - Extended Range	PWD	AMCOM Redstone, AL	1476	0		0		0		0	1476	0
Subtotal:			16504	1466		1300		750		Continue	20020	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction Testing/ST&E	MIPR	Various	14221	600	1-2Q	0		0		0	14821	13531
b . Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E	MIPR	Various	4354	0		0		0		Continue	4354	Continue
c . C4I Testing	MIPR	Various	1980	0		0		0		0	1980	1980
d . OPTEMPO Demo	MIPR	Various	1000	0		0		0		0	1000	1000
e . Data Acquisition System (DAS) Instrumentation Van	MIPR	Redstone Technical Test Center, AL	810	0		0		0		0	810	810
f . IOT&E Preparation and Support/Travel	MIPR	ATEC/PM/OGA Ft. Hood, TX	750	0		0		0		0	750	750

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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0305204A - Tactical Unmanned Aerial Vehicles

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III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			23115	600		0		0		Continue	23715	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	MIPR	PM UAVS Redstone, AL	7323	543	1-4Q	500	1-4Q	350	1-4Q	Continue	8716	Continue
Subtotal:			7323	543		500		350		Continue	8716	Continue

Project Total Cost:			220717	22527		20191		13858		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
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Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Production (Sys/Att. AV's)	[Red]																															
OIF	[Red]																															
C4I Maintenance/Improvements	[Red]																															
Development Testing	[Red]																															
Total Ownership Cost Reduction Initiatives	[Red]																															
P3I	[Red]																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
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<u>Schedule Detail</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
OPTEMPO Demonstration								
Special In-Process Review / LRIP II/ III Decision								
IOT&E Preparation and IOT&E								
Field IOT&E LRIP System to IOT&E User								
Milestone III / Production Decision								
Award Full Rate Production								
C4I Maintenance/ Improvements (ABCS 4.3, 6.2,)	1-4Q							
Development Testing / Risk Reduction Testing / ST&E	1-3Q	1-3Q	1-3Q	1-3Q	1-2Q	1-2Q	1-2Q	1-2Q
TLE / TCDL / JTRS / Laser Designator	2-3Q	1-3Q	1-3Q	1-3Q				
Airframe Optimization	2Q							
System Automation Improvement			1-2Q	1-2Q	1-2Q	1-2Q	1-2Q	1-2Q
Total Ownership Cost Reduction Initiative					1-3Q	1-3Q	1-3Q	1-3Q
P3I					1-2Q	1-2Q	1-2Q	1-2Q
OIF Reliability Upgrade	2Q							
OIF Reliability Upgrade	2Q							
OIF Improvements	1-2Q	1-2Q	1-2Q	1-2Q				
OIF Improvements		1-3Q	1-3Q	1-3Q				
Airframe Optimization	1-3Q							
I-GNAT		2Q						
System Automation Improvement			1-2Q					
TLE Inertial Measurement Unit (IMU)				1-2Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles				PROJECT 11A		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
11A ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	17242	20008	9688	1221	1222	1222	16286	13425	0	98201

A. Mission Description and Budget Item Justification: This project supports the Army's transformation by developing payloads for the Unit of Action (UA) Unmanned Air Vehicles (UAV) in accordance with HQDA and 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) and is a principal payload for the Extended Range/Multi-Purpose (ER/MP) UAV. The ER/MP Electro Optical Infra Red w/Laser Designator (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. Future initiatives will continue to focus on the transition of technologies directly supporting emerging UAV requirements and the Army's Future Force. The Light Detection and Ranging (LIDAR) payload provides high-resolution elevation data for detailed mapping. Funding provides for up to four LIDAR prototype payloads to be downsized for demonstration on the Hunter UAV.

FY2006/2007 funding continues the development of EO/IR/LD and SAR/GMTI systems integration.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
SAR/GMTI Development and Integration - includes Development Test.	15419	8473	2552	610
EO/IR/LD development.	0	11535	7136	611
LIDAR sensor package development efforts	1823	0	0	0
Totals	17242	20008	9688	1221

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	0	0	0	36093	38833	20191	25699	33958	129000	283774

C. Acquisition Strategy: 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 FCS for integration and testing and participation in FCS Limited User Test (LUT). Additional capabilities will be added via spiral development depending on need and technology maturity. An additional six (6) units will be procured under the existing contract to support ER/MP system integration and test.

The SDD contract for the ER/MP EO/IR/LD will be competitively awarded in 3rd quarter FY05 for up to 10 test articles. Upon completion of development 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 IOT&E.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SAR/GMTI System Development & Demonstration	COMP/CPI F	General Atomics, San Diego, CA	22519	6000	2Q	0		0		0	28519	22596
b . EO/IR/LD SDD Development	COMP/FFP/CPFF	TBS	0	10000	3Q	5718	1-2Q	0		0	15718	15718
c . LIDAR sensor package development efforts			1823	0		0		0		0	1823	0
Subtotal:			24342	16000		5718		0		0	46060	38314

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	MIPR	Various	5097	2592	1-4Q	1162	1-4Q	771	1-4Q	Continue	9622	Continue
Subtotal:			5097	2592		1162		771		Continue	9622	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SAR/GMTI Payload Test Support	MIPR	DTC, Aberdeen Proving Grounds, MD	70	600	1-4Q	0		0		Continue	670	670
b . SAR/GMTI Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	0	341	1-4Q	1758	1-2Q	0		0	2099	2098
c . EO/IR/LD Developmental Testing	MIPR	DTC, Aberdeen Proving Grounds, MD	0	0		600	2-3Q	0		0	600	600
Subtotal:			70	941		2358		0		Continue	3369	3368

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	In House	PM RUS, Ft. Monmouth, NJ	927	475	1-4Q	450	1-4Q	450	1-4Q	Continue	2302	Continue
Subtotal:			927	475		450		450		Continue	2302	Continue

Project Total Cost:			30436	20008		9688		1221		Continue	61353	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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) SAR/GMTI MS B	▲1																															
SAR/GMTI SDD	█																															
SAR/GMTI DT																																
SAR/GMTI OTE																																
UAV Systems Integration & Test Support for SAR/GMTI																																
(2) SAR/GMTI MS C																																
(3) Award SAR/GMTI FRP																																
(4) ER/MP EO/IR/LD Acquisition Strategy Review																																
(5) ER/MP EO/IR/LD MS B																																
EO/IR/LD SDD																																
(6) ER/MP EO/IR/LD SDD Contract Award																																
(7) EO/IR/LD MS C																																

Schedule Detail (R4a Exhibit)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestone B for SAR/GMTI	1Q							
SAR/GMTI System Development and Demonstration (SDD) Contract	1-4Q	1-4Q	1-4Q					
SAR/GMTI DT		3-4Q	1Q					
SAR/GMTI OTE			2Q					
UAV Systems Integration & Test Support			2-4Q	1-4Q	1Q			
MS C for SAR/GMTI			4Q					
Award SAR/GMTI FRP				1Q				
ER/MP EO/IR/LD Acquisition Strategy Review		1Q						
ER/MP EO/IR/LD MS B		2Q						
ER/MP EO/IR/LD SDD		2-4Q	1-4Q	1-2Q				
ER/MP EO/IR/LD SDD Contract Award		3Q						
ER/MP EO/IR/LD MS C				3Q				

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7 - Operational system development

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COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
11B TSP DEVELOPMENT (JMIP)	5650	8822	12423	7239	0	0	0	0	0	34134

A. Mission Description and Budget Item Justification: Tactical SIGINT Payload (TSP) is a UAV mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, a key Future Combat System (FCS) component, is capable of providing the Unit of Action (UA) 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 UA 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 UA applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the UA mission profile. TSP will provide near real time (NRT) actionable intelligence that can 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 Future Combat Systems and contributing to the Joint Intelligence, Surveillance and Reconnaissance (ISR) net.

FY06 funding supports a flight demonstration, and full environmental testing of one prototype.

FY07 funding supports delivery of four fully tested prototypes to FCS.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
TSP SDD Contract Planning and Solicitation	500	0	0	0
SDD Phase	4950	8622	12223	7039
Modeling and Simulation	200	200	200	200
Totals	5650	8822	12423	7239

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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Project 030588G Defense Cryptologic Program Funds - TSP	1497	1991	3963	4346	7382	7376	4000	4000	0	34555
WTCV G86100 Future Combat Systems	0	0	0	752324	3187371	3153325	0	0	Continuing	Continuing

C. Acquisition Strategy: A MS B was completed in June 04 for entry into the System Development and Demonstration (SDD) phase. The SDD contract was awarded under a full and open competitive solicitation on 30 June 2004. Funding and award of follow-on procurement will be exercised by Future Combat Systems (FCS).

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TSP SDD Contract	C/CPAF	BAE Systems, Nashua, NH	2180	5100	1Q	7190	1Q	2674	1Q	0	17144	0
b . Modeling and Simulation	MIPR	TBD	200	200	1Q	200	1Q	200	1Q	0	800	0
Subtotal:			2380	5300		7390		2874		0	17944	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	FFP	MITRE, McLean, VA	423	260	1Q	260	1Q	260	1Q	0	1203	0
b . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	720	125	1Q	200	1Q	350	1Q	0	1395	0
c . Engineering Support	FFP	CACI, Eatontown, NJ	615	865	1Q	963	1Q	1100	1Q	0	3543	0
d . Engineering Support	FFP	Various	280	160	1Q	200	1Q	365	1Q	0	1005	0
e . SDD Engineering Support	MIPR	Various, Ft Monmouth, NJ	500	697	1Q	735	1Q	825	1Q	0	2757	0
Subtotal:			2538	2107		2358		2900		0	9903	0

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	TBD	0	100	2Q	1275	1Q	315	1Q	0	1690	0
b . Continuous Evaluation	MIPR	ATEC, Ft Belvoir, VA	100	100	2Q	100	2Q	100	2Q	0	400	0
c . Test Platform for Flight Demo	TBD	BAE Systems, Nashua, NH	100	725	2Q	900	2Q	575	2Q	0	2300	0
Subtotal:			200	925		2275		990		0	4390	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	In House support	PM, Signals Warfare, Fort Monmouth, NJ	342	400	1-4Q	400	1-4Q	475	1-4Q	0	1617	0
b . Program Support	C/T&M	Various	190	90	1Q	0		0		0	280	0
Subtotal:			532	490		400		475		0	1897	0

Project Total Cost:			5650	8822		12423		7239		0	34134	0
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
TSP System Development and Demonstration																																
(1) MS B																																
SDD																																
(2) Contract Award, (3) Flight Demo, (4) Delivery - 1 Prototype, (5) Delivery - 2 Prototypes, (6) Delivery - 1 Prototype																																

▲ 1 MS B

▲ 2 Award

▲ 3 Flight Demo

▲ 4 ▲ 5 ▲ 6

SDD Contract

Schedule Detail (R4a Exhibit)

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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
TSP Milestone B	3Q							
TSP SDD Contract	3-4Q	1-4Q	1-4Q	1-4Q				
Flight Demo			1Q					
Prototype Deliveries				1-3Q				

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PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
123

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2210	2235	2351	2401	2228	2325	2443	2496	0	20803

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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Implement Tactical Common Datalink Model	0	0	100	0
Incorporate new technology sensors and platforms into the MUSE	200	150	0	0
Develop and upgrade Terrain and Target databases	234	230	80	80
Implement Advanced Sensor / Payload Simulations	190	0	50	75
Initial VTUAV/UCARS Vehicle models	165	0	0	0
Initial ATARS and TARPS simulation model	235	0	0	0
Implement / Integration Weapons Simulation for Weaponized UAV	0	0	75	50
Incorporate STANAG 4586 Datalike Interface Standard	0	0	82	29
Upgrade HLA Certification and DITSCAP	120	214	0	0
Evaluate and integrate New Visualization Technologies into MUSE	0	0	75	75
Technical support of MUSE integration with IEWTPT	0	0	40	40
Enhance VTUAV Models	0	0	50	50
Provide MUSE Configuration Management and Help Desk Services	240	240	250	250
MUSE Equipment	277	335	328	348
JTC/SIL Management	342	236	341	394
Initial development of Multi-Spectral and Hyper-Spectral simulations	0	245	0	0

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Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
Prototype FIA interfaces and capabilities	0	120	0	0
Imagery generation upgrade conversion	0	160	0	0
Enhance IR abd SAR model sets	0	90	100	100
Update interfaces to DoD models	0	215	80	80
Integrate UAV Survivability Models and Attributes	0	0	0	80
Enhance Fixed Wing UAV Models	0	0	50	75
Update MUSE HLA and DITSCAP	0	0	100	100
Enhance of Fixed Target Models	0	0	75	75
Common UAV Trainer Enhancements	0	0	80	80
Implement Tailored Auto Track and Auto Search Models	0	0	0	75
Incorporate Effects of Digital Payload Imagery	0	0	80	30
Continue C4I Enhancements	0	0	90	90
Continue OneSAF Vignette development	0	0	75	75
Continue Usability Enhancements	0	0	100	100
Enhance Small UAV Models	0	0	50	50
Link Fixed Target Database with DIA MIDB	207	0	0	0
Totals	2210	2235	2351	2401

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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
PE 0305204N Navy	1700	1700	1700	1700	0	0			0	6800
PE 0305205F Air Force	2000	2000	2000	2000	0	0			0	8000

C. Acquisition Strategy: Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support and contractor support using a variety of existing RDEC contract vehicles and the OMNIBUS 2000 contract.

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Initiate MTI/FTI Sensor Sim Develop/Upgrade SAR	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	143	0		0		0		0	143	143
b . MUSE Remote Support Capability	SS/CPFF	GDIS/Arlington, VA	415	0		0		0		0	415	415
c . Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	GDIS/Arlington, VA	235	0		0		0		0	235	235
d . Upgrade HLA Certification and DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	479	214	1Q	100	1Q	100	1Q	318	1211	677
e . MUSE Equipment	C/FFP	Various	1775	146	1Q	328	1Q	348	1Q	1611	4208	3278
f . MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	GDIS/Arlington, VA	237	0		0		0		0	237	237
g . Develop / Integrate and Implement TCDL into MUSE in Support of TUAV ORD	SS/CPFF	GDIS/Arlington, VA	150	0		100	1Q	0		0	250	150
h . Develop & Upgrade Terrain & Target Databases	SS/CPFF	Quality Research Institute/HSV, AL	809	230	1Q	80	1Q	80	1Q	768	1967	1381

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . Incorporate New Technology Sensors & Platforms into the MUSE	SS/CPFF	GDIS/Arlington, VA	200	75	1Q	0		0		1324	1599	1424
j . Integrate Weapon Employment Capabilities into MUSE	C/FFP	TBD	124	0		0		0		596	720	721
k . Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	TBD	105	0		0		0		530	635	635
l . Link Fixed Target Database with DIA MIDB	SS/CPFF	TBD	245	0		50	1Q	75	1Q	0	370	0
m . Initial VTUAV/UCARS Vehicle models	SS/CPFF	TBD	165	0		50	1Q	50	1Q	0	265	0
n . Initial ATARS & TARPS Simulation model	SS/CPFF	SAIC/HSV, AL.	235	0		0		0		0	235	0
o . Initial effects-based fixed target behavior model	SS/CPFF	SAIC/HSV, AL.	190	0		0		0		0	190	0
p . Initial development of Multi-spectral & Hyper-spectral simulation	SS/CPFF	GDIS/Arlington, VA	0	206	1Q	0		0		0	206	0

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
q . Prototype FIA interfaces & capabilities			0	120	1Q	0		0		0	120	0
r . Imagery generation upgrade conversion	SS/CPFF	GDIS/Arlington, VA	0	160	1Q	0		0		0	160	0
s . Enhance IR & SAR model sets	SS/CPFF	GDIS/Arlington, VA	0	90	1Q	0		0		0	90	0
t . Implement Advanced Sensor / Payload	SS/CPFF	GDIS/Arlington, VA	0	0		50	1Q	75	1Q	0	125	0
u . Implement / Integration Weapons Simulation for Weaponized UAV	SS/CPFF	GDIS/Arlington, VA	0	0		75	1Q	50	1Q	0	125	0
v . Incorporate STANAG 4586 Datalink Interface Standard	SS/CPFF	GDIS/Arlington, VA	0	0		82	1Q	29	1Q	0	111	0
w . Enhance Small UAV / IR / SAR & Fixed Target Models	SS/CPFF	GDIS/Arlington, VA	0	0		225	1Q	225	1Q	0	450	0
x . Integrate UAV Survivability Models and Attributes	SS/CPFF	GDIS/Arlington, VA	0	0		0		80	1Q	0	80	0

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
y . Evaluate and Integrate new Visualization Technology / System	SS/CPFF	GDIS/Arlington, VA	0	0		75	1Q	75	1Q	0	150	0
z . Common UAV Trainer Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0		80	1Q	80	1Q	0	160	0
aa. Implement Tailored Auto Track and Auto Search Models	SS/CPFF	GDIS/Arlington, VA	0	0		0		75	1Q	0	75	0
bb. Incorporate Effects of Digital Payload Imagery	SS/CPFF	GDIS/Arlington, VA	0	0		80	1Q	30	1Q	0	110	0
cc. OneSAF Vignette development	SS/CPFF	GDIS/Arlington, VA	0	0		75	1Q	75	1Q	0	150	0
dd. Usability Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0		100	1Q	100	1Q	0	200	0
Subtotal:			5507	1241		1550		1547		5147	14992	9296

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	75	0		0		0		0	75	75
b . Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	175	0		40	1Q	40	1Q	132	387	307
c . Initiate MUSE TUAV Flight Performance Model Verification & Validation Process	C/CPFF	Dynetics/Huntsville, AL	465	0		0		0		530	995	995
d . Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	940	222	1Q	250	1Q	250	1Q	795	2457	1495
e . JTC/SIL Management	C/CPFF	TBD	200	80	1-3Q	0		0		238	518	358
f . MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	595	166	1Q	0		0		424	1185	842
g . Incorporate New Technology Sensors & Platforms into the MUSE	C/CPFF	SAIC/Huntsville, AL	200	75	1Q	0		0		530	805	630
h . Update interfaces to DoD models	C/CPFF	GDIS/Arlington, VA	0	215	1Q	80	1Q	80	1Q	0	375	0

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			2650	758		370		370		2649	6797	4702

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Product Evaluation	TBD	TBD	0	0		0		0		132	132	132
b . C4I Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0		90	1Q	90	1Q	0	180	0
Subtotal:			0	0		90		90		132	312	132

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	868	236	1-4Q	341	1-4Q	394	1-4Q	1324	3163	1999
Subtotal:			868	236		341		394		1324	3163	1999
Project Total Cost:			9025	2235		2351		2401		9252	25264	16129

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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
JTC/SIL MUSE Enhancement and Management	1-4Q							
Implement Tactical Common Datalink Model			1-4Q					
Develop and upgrade Terrain and Target databases	1-4Q							
Evaluate and Integrate New Visualization Technologies into MUSE								
MUSE Equipment	1-4Q							
Initial development of Multi-Spectral and Hyper-Spectral Simulations		1-4Q						
Integrate UAV Survivability Models and Attributes				1-4Q				
Common UAV Trainer Enhancements			1-4Q	1-4Q				
Enhance Small UAV Models			1-4Q	1-4Q				
Update interfaces to DoD Models		1-4Q	1-4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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PROJECT
D09

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D09 EXTENDED RANGE UAV (JMIP)	22623	0	94957	88504	39371	5687	6069	6254	0	280525

A. Mission Description and Budget Item Justification: The U.S. Army has a requirement for UAV systems that will provide near real time reconnaissance, surveillance, and target acquisition information to Army maneuver commanders. The Extended Range/Multipurpose (ER/MP) program was initiated to fulfill ORD requirements for a Division/Corps/Unit of Employment Medium Altitude Endurance UAV. ER/MP will utilize the common ground equipment with an extended range air vehicle.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Program Management	1730	0	2732	3433
Government Furnished Equipment	0	0	3141	5353
Development Engineering	0	0	32909	27917
Prototype Manufacturing	0	0	54634	42227
System Test & Evaluation	0	0	1541	9574
Target Location Error / TUAV Enhancements	2350	0	0	0
Acquisition Simulation & Demonstration (SMART)	1000	0	0	0
Long Lead Items for One System Integration & Testing	7633	0	0	0
Tactical Common Data Link Initial Integration	4113	0	0	0
Source Selection	2146	0	0	0
One System Initial Integration with Prime Air Vehicle Vendor	3651	0	0	0
Totals	22623	0	94957	88504

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

C. Acquisition Strategy: The ERMP ORD was approved by the AROC on 16 December 2003.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

PROJECT

D09

Development/Integration of an extended range air vehicle will include a two phased approach. Phase I involves a paper downselect to two vendors. Phase II involves a competition and downselect with a flyoff to one qualified airframe vendor. This vendor will be integrated into the Command Ground Control Equipment. Initial activities would include Requirements Analysis and preparation of a Request for Proposal. Long lead items for the one system integration and testing will be ordered.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Target Location Error / OIF TUAV Enhancements	TBD	AAI, MD	2350	0		0		0		0	2350	Continue
b . Acquisition Simulation & Demonstration	TBD	Camber, Huntsville, AL	1000	0		0		0		0	1000	0
c . Long Lead Items for One System Integration & Test	TBD	Various Contractors	7633	0		0		0		0	7633	0
d . Tactical Common Data Link Initial Integration	TBD	Various Contractors	4113	0		0		0		0	4113	0
e . One System Initial Integration with Prime AV Vendor	TBD	Various Contractors	3651	0		0		0		0	3651	0
f . Source Selection	TBD	Other Government Agencies	2146	0		0		0		0	2146	0
g . Development Engineering			0	0		32909	1-2Q	27917	1-2Q	0	60826	0
h . Prototype Manufacturing			0	0		54634	1-2Q	42227	1-2Q	0	96861	0
i . Government Furnished Equipment			0	0		3141	1-3Q	5353	2-3Q	0	8494	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			20893	0		90684		75497		0	187074	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering Support	MIPR / PWD	Various Contractors	1000	0		1236	1-2Q	1527	1-2Q	0	3763	0
b . Government Engineering Support	MIPR / PWD	Other Government Organizations	330	0		1000	1-2Q	1400	1-2Q	0	2730	0
Subtotal:			1330	0		2236		2927		0	6493	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Test and Evaluation		TBD	0	0		1541	2-3Q	9574	2-3Q	0	11115	0
Subtotal:			0	0		1541		9574		0	11115	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program management	MIPR / PWD	PM UAV, Redstone Arsenal, AL	400	0		496	1-4Q	506	1-4Q	0	1402	0
Subtotal:			400	0		496		506		0	1402	0

Project Total Cost:			22623	0		94957		88504		0	206084	Continue
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Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Paper Downselect to two Venders		1-2Q						
Downselect to one Vender		2Q	1-4Q	1-4Q				
P3I				1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Government Furnished Equipment			1-3Q	1-3Q	1-3Q			
Development Engineering			1-3Q	1-3Q	1-3Q	1-3Q	1-3Q	1-3Q
Prototype Manufacturing			1-3Q	1-3Q				
System Test & Evaluation			1-4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development				PROJECT K98		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
K98 MASINT SENSOR INTEGRATION (JMIP)	4704	8111	5398	5599	5320	5544	6005	6103	0	58164

A. Mission Description and Budget Item Justification: This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multidiscipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), and Measurement and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed. Additionally, efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor. The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) is the next generation airborne day/night hyperspectral reconnaissance sensor for the detection and identification of camouflaged and concealed targets in all terrain environments. Design improvements will be implemented and flight testing conducted to assess system performance.

FY2006/2007 continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continues spiral development and integration of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities for the ACS program	4704	5128	5398	5599
Continue development and test efforts for HyLITE	0	2983	0	0
Totals	4704	8111	5398	5599

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305206A - Airborne Reconnaissance Adv
 Development**

PROJECT
K98

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	5128	5412	5502
Current Budget (FY 2006/2007 PB)	8111	5398	5599
Total Adjustments	2983	-14	97
Net of Program/Database Changes			
Congressional Program Reductions	-117		
Congressional Rescissions			
Congressional Increases	3100		
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		-14	97

FY 2005 Congressional increase for HyLITE tactical hyperspectral sensor.

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
0203744A/028 ACS	102755	121879	164646	239439	167491	56578	64782	21954	Continue	Continue
A02005 Aerial Common Sensor	0	0	0	0	0	403445	300096	403358	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305206A - Airborne Reconnaissance Adv
Development**

PROJECT
K98

D. Acquisition Strategy: The ACS Technology Demonstration (TD) phase completed in 3QFY03. The System Development and Demonstration (SDD) phase, was initiated 4QFY04 with a competitively awarded Cost-Plus-Award-Fee contract. This effort will include the development of MTI/SAR/MSI/HSI and multi-sensor technologies identified and found critical to the Aerial Common Sensor (ACS) program based upon the ACS Concept Exploration (CE) and TD phase.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305206A - Airborne Reconnaissance Adv
Development

PROJECT
K98

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	Lockheed Martin, Littleton, CO	4246	4716	1Q	4965	1Q	5159	1Q	Continue	19086	Continue
b . HyLITE Development/Test/Demo	C/CPFF	BAE, NY	0	2583	2Q	0		0		0	2583	0
Subtotal:			4246	7299		4965		5159		Continue	21669	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305206A - Airborne Reconnaissance Adv
Development**

PROJECT
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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Integration and Demonstration of MTI/SAR/MSI/HSI/EO/IR technologies	MIPR	NVESD, Ft Belvoir, VA	429	250	1-2Q	250	1-2Q	250	1-2Q	Continue	1179	Continue
b . HyLITE Test Support	Gov't	NVESD, Ft Belvoir, VA	0	200	3Q	0		0		0	200	0
Subtotal:			429	450		250		250		Continue	1379	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CRDEC, I2WD	938	162	1Q	183	1Q	190	1Q	Continue	1473	Continue
b . HyLITE Matrix Support	MIPR	NVESD, FT Belvoir, VA	0	144	2Q	0		0		0	144	0
c . HyLITE Program Mgt	In-House	PM Night Vision, Ft Belvoir, VA	0	56	2-4Q	0		0		0	56	0
Subtotal:			938	362		183		190		Continue	1673	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

**0305206A - Airborne Reconnaissance Adv
Development**

PROJECT

K98

Project Total Cost:

5613

8111

5398

5599

Continue 24721

Continue

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305206A - Airborne Reconnaissance Adv
 Development**

PROJECT
K98

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
HyLITE Test and Demonstration		2-4Q	1Q					
ACS MTI/SAR/MSI/HSI/EO/IR technology demonstration and integration	4Q	1-4Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	36995	53911	91587	118891	82182	74251	17614	10168	0	529111
956 DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	13515	9644	9901	10625	11204	11593	2052	2006	0	115345
D06 DCGS-A FUSION INTEGRATION (JMIP)	1310	8966	17201	24582	24726	22969	4410	1088	0	105252
D07 DCGS-A COMMON MODULES (JMIP)	21147	27786	56803	75485	34649	28081	6490	4443	0	254884
D08 DCGS-A SENSOR INTEGRATION (JMIP)	1023	6877	7037	7539	10942	10950	4008	1979	0	50355
D15 MUSE & TES TADSS (TIARA)	0	638	645	660	661	658	654	652	0	3275

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) 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, 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.

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 source sensor fusion, migration of Current Force all-source production capability and automated fusion. Project D07 is the primary System Development and Demonstration (SDD) project, providing design, development, integration and test of the DCGS-A system of systems at all echelons. D07 also provides a common set of ISR analysis tools and a Federated System Integration Lab (SIL). D08 provides sensor integration to include sensor control, tasking and interoperability.

DCGS-A includes hardware for multiple configurations (Fixed, Mobile, and Embedded) and common software that is interoperable with sensors, other Battlefield Operating Systems (BOS), and the DoD Distributed Common Ground/Surface System (DCG/SS) Family of Systems (FoS). The DCGS-A hardware and software are scaleable and tailored by echelon and to the requirements of each mission, task, and purpose. Within the Unit of Action (UA), DCGS-A provides the ISR capability to the Brigade Intelligence and Communications Company (BICC) as well as an embedded software application on the Future

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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0305208A - Distributed Common Ground/Surface Systems (JMIP)

Combat System (FCS) FoS and other select platforms. At the Unit of Employment (UE) and above, 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: All Source Analysis System (ASAS), CI/HUMINT Single Source Workstation, Tactical Exploitation System (TES), Guardrail Information Node (GRIFN), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), Prophet Control, and Common Ground Station (CGS). DCGS-A will also contain Digital Topographic Support System (DTSS) and Integrated Meteorological System (IMETS) like capabilities, sensor control and processing capabilities of select DCGS baseline and Army organic UAVs and Enhanced Trackwolf processing capabilities. DCGS-A will migrate these capabilities into an integrated system of systems that is modular and scaleable, while reducing overall footprint. It is a key component of Transformation and a top Army priority.

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	43254	87329	111247
Current Budget (FY 2006/2007 PB)	53911	91587	118891
Total Adjustments	10657	4258	7644
Net of Program/Database Changes			
Congressional Program Reductions	-993		
Congressional Rescissions			
Congressional Increases	11650		
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		4258	7644

FY2006/FY2007 adjustments to Budget Years were funds realigned from the IMETS and DTSS program for execution within the DCGS-A program.

FY2005 Congressional Increases:

\$1.4M approved out of requested \$11.5M for ASAS Lite to support joint requirements, higher echelon interoperability and additional data feeds to

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0305208A - Distributed Common Ground/Surface Systems (JMIP)

provide advanced predictive fusion in support of DCGS-A. (Project D06 - Austin Information Systems)

+6.05M for Intelligence Data Exchange for Execution and Planning: I-DEEP will allow planners and operators to share intelligence data across systems and echelons by facilitating quick and intuitive access to large quantities of intelligence for time critical planning, situational awareness, force protection, and homeland defense. (Project 956 - Battle Lab)

+1.7M for Joint Visualization System (JVS): (JVS) enables operators/analysts to access needed information from large quantities of distributed, static, and dynamic intelligence by employing a service based architecture (SBA) solution set. JVS integrates commercialized joint mapping tool kit (C/JMTK) technology with the prototype DITSCAP and common operating environment (COE)-compliant Distributed Data Visualization and System (DDVM) capability developed at the Fort Huachuca Battle Lab. (Project 956 - Battle Lab)

\$2.5M for Automatic Target Cueing System: Enables Image processing, Multisource analysis, and Geospatial Information System (IMaG) integrated into one system. IMaG is a breakthrough image programming language environment focused on target/feature detection, extraction, and cueing for recognition and geolocating for broad area search for time sensitive targets with appropriate sensors/sources. Using plain English, IMaG captures, composes, compiles, tests, modifies, preserves, and reuses the knowledge and experience of the experts on the fly. This rule set can then be applied to new imagery of a large geographic region of the same sensor and resolution, and similar climate and environment, independently or in support of a less experienced image analyst (IA). (Project D08 - Susquehanna Resources and Environment, Inc.)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
956

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
956 DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	13515	9644	9901	10625	11204	11593	2052	2006	0	115345

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 his 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.

FY06/07 funds design, development and test of the DCGS-A enterprise level architecture.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Asymmetric Warfare Intelligence Analysis Advanced Tool Set (AW-IAATS)	1500	0	0	0
Distributed Data Visualization and Management	2800	0	0	0
National Defense Imagery Processing (NDIP) Program	1200	0	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)	PROJECT 956
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<u>Accomplishments/Planned Program (continued)</u>	FY 2004	FY 2005	FY 2006	FY 2007
Joint interoperability test and evaluation.	0	1099	1200	1500
Design and development of DCGS-A enterprise level net-centric architecture in support of ACS and other Future Force systems.	0	8545	8701	9125
SAIP prototype single vehicle development, fielding, integration, and evaluation. Starting in FY03 shared funding with PE 0604766, Project D957.	1000	0	0	0
DTES Production, Interoperability and Upgrade Spirals. Starting in FY03 DTES costs shared with PE, 0604766, Project D957, and SSNs BZ7316 and BZ7317. FY04 and beyond funded by BZ7316 and this Project.	69	0	0	0
Field Motivated Fixes, Baseline Builds, and Configuration Control Boards. FYs 03 and 04 funding supplemented within 0305208, D957. FY 05 supplemented with BZ7316. FY 06 and beyond covered by this PE only.	2000	0	0	0
TES Forward or MAIN Systems' upgrades and interoperability builds.	4006	0	0	0
Ensure data link interoperability across Services and other programs.	940	0	0	0
Totals	13515	9644	9901	10625

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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BZ7317 Tactical Exploitation System (TIARA)	0	14094	0	0	0	0	0	0	0	14094
APA AZ2000 Guardrail Mods (TIARA) (DCGS-A GRIFN MDEP FPDP Only)	3152	2195	0	0	0	0	0	0	0	5347
PE 0604766A Tactical Exploitation System (TES) / DCGS-A 957	26022	21821	0	0	0	0	0	0	0	47843
PE 0604770 Army Common Ground Station (CGS) (202)	4656	0	0	0	0	0	0	0	0	4656
BA1080, Army Common Ground Station (CGS)	8200	0	0	0	0	0	0	0	0	8200
PE 0604321 CI/HUMINT Software Products (B41) (TIARA)	2103	928	933	3172	1603	1666	2916	3115	Continuing	Continuing
BK5275 CI HUMINT Info Management System	14543	2924	730	6549	4996	5786	10005	12166	Continuing	Continuing

C. Acquisition Strategy: DCGS-A will be executed via an evolutionary acquisition approach, providing incremental development throughout the System Development and Demonstration (SDD) phase. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
956

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Integration and Test for Spirals 1-3	CPAF	Northrup Grumman, Linthicum, MD	7700	0		0		0		0	7700	0
b . SETA Support, Visualization/Data Sharing Studies, Analysis and M&S	T&M	Booz-Allen, Eatontown, NJ	5523	3088	1Q	0		0		0	8611	0
c . TES DCGS-A Interoperability	CPFF	Northrup Grumman, Linthicum, MD	33639	0		0		0		0	33639	0
d . DCGS-A Product Selection and Integration	CP	Various	0	4607	2Q	6015	1Q	6278	1Q	0	16900	Continue
e . AWIAATS	MIPR	Battlelabs, Ft. Huachuca	1500	0		0		0		0	1500	0
f . Distributed Data Vis	MIPR	Battlelabs, Ft. Huachuca	2800	0		0		0		0	2800	0
g . NDIP	MIPR	Battlelabs, Ft. Huachuca	1200	0		0		0		0	1200	0
Subtotal:			52362	7695		6015		6278		0	72350	Continue

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February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Objective Doctrine/TTP Development To Support a Milestone B for ODCGS-A	MIPR	Ft. Huachuca, AZ	5623	0		0		0		0	5623	0
b . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	3774	600	1Q	600	1Q	600	1Q	Continue	5574	Continue
Subtotal:			9397	600		600		600		Continue	11197	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint Interoperability Test and Evaluation	MIPR	INSCOM	1938	1099	1-2Q	1200	1-2Q	1500	1-2Q	0	5737	0
b . Test support for DCGS-A development	MIPR	TBD	0	0		1836	1Q	1997	1Q	0	3833	0
Subtotal:			1938	1099		3036		3497		0	9570	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In-House	PM, DCGS-A	4682	250	1Q	250	1Q	250	1Q	Continue	5432	Continue
Subtotal:			4682	250		250		250		Continue	5432	Continue
Project Total Cost:			68379	9644		9901		10625		Continue	98549	Continue

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
956

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Spirals 2 & 3 (Mobile Configurations)	[Red Bar]				Spirals 2 & 3 (Mobile Configurations)																											
Spiral 1 Fixed					[Red Bar]				Spiral 1 Fixed Sites																							
(1) System Integration Lab (SIL) Standup	[Red Bar]								▲ 1 SIL Standup																							
Spiral 4 SW/DIB Integration					[Red Bar]				Spiral 4 SW/DIB Integration																							
(2) Milestone B	[Red Bar]								▲ 2 Milestone B																							
Spiral 5 SDD					[Red Bar]				Spiral 5 SDD																							
DCGS-A Participation in FCS UA Exp	[Red Bar]								FCS UA Exp																							
DT / LUT					[Red Bar]				DT / LUT																							
(3) Milestone C LRIP (Spiral 4 SW)	[Red Bar]								▲ 3 MS C LRIP (Spiral 4 SW)																							
DT 2					[Red Bar]				DT 2																							
IOT&E	[Red Bar]								IOT&E																							
(4) FRP Decision					[Red Bar]				▲ 4 FRP (Spiral 5 Configuration)																							
(5) Initial Operational Capability	[Red Bar]								▲ 5 IOC																							
P3I					[Red Bar]																								P3I			

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Spirals 2 & 3 Mobile	1-4Q	1-2Q						
Spiral 1 Fixed	1-4Q	1-4Q						
System Integration Lab (SIL) Standup		2Q						
Spiral 4 SW/DIB Integration		2-4Q	1-4Q					
Milestone B			2Q					
Spiral 5 SDD			2-4Q	1-4Q	1-4Q			
DCGS-A Participation in FCS UA Exp			1-3Q					
DT/ LUT			3Q					
Milestone C LRIP			4Q					
DT 2					3Q			
IOT&E					4Q			
Full Rate Production Decision						1Q		
Initial Operational Capability						2Q		
Pre Planned Product Improvement (P3I)							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D06

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D06 DCGS-A FUSION INTEGRATION (JMIP)	1310	8966	17201	24582	24726	22969	4410	1088	0	105252

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 of employment/action across a broad spectrum of both traditional and non-traditional (e.g., SASO, SSC, NEO) operations, and improved interoperable with Joint, Allied, and Coalition forces.

FY06/07 funds the development and integration of traditional and non-traditional multi-intelligence sensor fusion products and technologies into the DCGS-A baseline to produce a fully automated fusion capability.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common
 Ground/Surface Systems (JMIP)**

PROJECT
D06

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Enhance interface between sensor fusion process and SIGINT single sources for design and prototype development.	200	1750	3500	5500
Enhance interface between sensor fusion process and CI/HUMINT single source for design and prototype development.	200	1000	1500	3500
Enhance sensor fusion processing of MASINT for design and prototype development.	200	1250	1500	3500
Enhance controlled interface technology for improved product distribution at multiple security levels.	277	1000	2000	3283
Studies, analysis, and prototyping for porting sensor fusion mission applications to FCS environment.	248	1156	1500	1899
Transition of sensor fusion processes and Current Force systems capabilities to DCGS-A.	185	2810	7201	6900
Totals	1310	8966	17201	24582

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
PE 654321, ASAS Evolutionary Acquisition	17856	4094	6891	3358	3363	3367	3371	3376	0	45676

C. Acquisition Strategy: DCGS-A will be executed via an evolutionary acquisition approach, providing incremental development throughout the System Development and Demonstration (SDD) phase. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
Systems (JMIP)**

PROJECT
D06

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prototype Development and Transition of Current Force systems	Competitive CPFF	Austin Information Systems, Austin TX	910	0		0		0		0	910	Continue
b . Development and Integration of Sensor Fusion Products and Technologies	TBD	TBD	0	7848	1Q	14851	2-3Q	21882	1Q	44000	88581	0
Subtotal:			910	7848		14851		21882		44000	89491	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM/RDCOM, Ft. Monmouth, NJ	100	168	1Q	800	1Q	900	1Q	Continue	1968	Continue
b . SETA Support	Competitive T&M	Sytex, Vienna, VA	150	0		0		0		0	150	0
Subtotal:			250	168		800		900		Continue	2118	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D06

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prototype Test & Evaluation	MIPR	ATEC/EPG	0	500	1Q	1000	1Q	1000	1Q	Continue	2500	Continue
Subtotal:			0	500		1000		1000		Continue	2500	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Govt In House		PM I&E/DCGS-A	150	450		550		800		Continue	1950	Continue
Subtotal:			150	450		550		800		Continue	1950	Continue

Project Total Cost:			1310	8966		17201		24582		Continue	96059	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface
Systems (JMIP)

PROJECT
D06

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Spirals 2 & 3 (Mobile Configurations)	[Red Bar]				Spirals 2 & 3 (Mobile Configurations)																											
Spiral 1 Fixed									Spiral 1 Fixed Sites																							
(1) System Integration Lab (SIL) Standup					▲ 1 SIL Standup																											
Spiral 4 SW/DIB Integration					Spiral 4 SW/DIB Integration																											
(2) Milestone B					▲ 2 Milestone B																											
Spiral 5 SDD									Spiral 5 SDD																							
DCGS-A Participation in FCS UA Exp									FCS UA Exp																							
DT / LUT									DT / LUT																							
(3) Milestone C LRIP (Spiral 4 SW)									▲ 3 MS C LRIP (Spiral 4 SW)																							
DT 2													DT 2																			
IOT&E																	IOT&E															
(4) FRP Decision																					▲ 4 FRP (Spiral 5 Configuration)											
(5) Initial Operational Capability																					▲ 5 IOC											
P3I																									P3I							

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February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
D06

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Spirals 2 & 3 Mobile	1-4Q	1-2Q						
Spiral 1 Fixed	1-4Q	1-4Q						
System Integration Lab (SIL) Standup		2Q						
Spiral 4 SW/DIB Integration		2-4Q	1-4Q					
Milestone B			2Q					
Spiral 5 SDD			2-4Q	1-4Q	1-4Q			
DCGS-A Participation in FCS UA Exp			1-3Q					
DT / LUT			3Q					
Milestone C LRIP			4Q					
DT 2					3Q			
IOT&E					4Q			
Full Rate Production Decision						1Q		
Initial Operational Capability						2Q		
Pre Planned Product Improvement (P3I)							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D07

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D07 DCGS-A COMMON MODULES (JMIP)	21147	27786	56803	75485	34649	28081	6490	4443	0	254884

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 at the UA 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 prototypes 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 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.

FY 06/07 funds DCGS-A System Development and Demonstration (SDD), integration of DCGS-A Mobile prototypes, common module multi-function hardware, and the initial DCGS-A software configuration baseline for Operational Test. A System Integration Lab (SIL) will evaluate and integrate candidate software applications and implement the DoD mandated 10.2 DCGS Integration Backbone (DIB) for integration of Joint common components and interoperability amongst the Services.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)	PROJECT D07
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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
System integration and test support for Spirals 1, 2 & 3.	3700	0	0	0
SIL design and planning/implementation for 10.2 DIB.	0	5000	5000	1500
Embedded DCGS-A scalability study and FCS support.	2500	2500	2500	2500
Evaluate, integrate and test existing and new software applications and components for incorporation into the DCGS-A baseline.	5347	13086	49303	71485
FIA/Migration of TES-M to DCGS-A Fixed Site.	9600	7200	0	0
Totals	21147	27786	56803	75485

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
RDTE (PE 35208, Proj 956) DCGS-A JMIP	13654	9751	10236	10747	11213	11716	2116	2120	Continuing	Continuing
RDTE (PE 35208, Proj D08) DCGS-A JMIP	1034	6995	7090	7452	10803	10829	4000	2000	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	1323	7719	17332	24299	24410	22717	4400	1100	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	2667	9575	43543	67841	92012	96080	150252	161346	Continuing	Continuing

C. Acquisition Strategy: DCGS-A will be executed via an evolutionary acquisition approach, providing incremental development throughout the System Development and Demonstration (SDD) phase. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

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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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Embedded DCGS-A scalability study and FCS support	Competitive CPIF/CPAF	Boeing Corp, CA	3500	2500	2Q	2500	2Q	2500	2Q	Continue	11000	Continue
b . System integration and test support for Spirals 1, 2 & 3	Sole Source CPIF/CPAF	Northrup Grumman, Linthicum, MD	3700	0		0		0		Continue	3700	Continue
c . Evaluate, integrate and test existing and new software applications and components into DCGS-A SOA.	Multiple FFP/CPFF	TBD	3767	6794	3Q	41003	1Q	63685	1Q	0	115249	0
d . SIL design and planning/implementation for 10.2 DIB	Sole Source	CERDEC, Ft. Monmouth	0	5000	2Q	5000	1Q	1500	1Q	Continue	11500	Continue
e . FIA/TES-M Migration to Fixed Site	Sole Source	ASPO/Northrop Grumman	9600	7200	2Q	0		0		0	16800	0
Subtotal:			20567	21494		48503		67685		Continue	158249	Continue

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February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
D07

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	RDCOM/CECOM, Ft. Monmouth, NJ	532	592	1Q	1000	1Q	1000	1Q	Continue	3124	Continue
Subtotal:			532	592		1000		1000		Continue	3124	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test support	MIPR	A TEC	0	4700	2Q	4500	2Q	4000	2Q	0	13200	0
Subtotal:			0	4700		4500		4000		0	13200	0

ARMY RDT&E COST ANALYSIS(R3)

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7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
D07

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In House	PM DCGS-A	1048	1000	1Q	2800	1Q	2800	1Q	Continue	7648	Continue
Subtotal:			1048	1000		2800		2800		Continue	7648	Continue

Project Total Cost:			22147	27786		56803		75485		Continue	182221	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface
Systems (JMIP)

PROJECT
D07

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Spirals 2 & 3 (Mobile Configurations)	[Red Bar]				Spirals 2 & 3 (Mobile Configurations)																											
Spiral 1 Fixed					[Red Bar]				Spiral 1 Fixed Sites																							
(1) System Integration Lab (SIL) Standup	[Red Bar]								▲ 1 SIL Standup																							
Spiral 4 SW/DIB Integration					[Red Bar]				Spiral 4 SW/DIB Integration																							
(2) Milestone B	[Red Bar]								▲ 2 Milestone B																							
Spiral 5 SDD					[Red Bar]				Spiral 5 SDD																							
DCGS-A Participation in FCS UA Exp	[Red Bar]								FCS UA Exp																							
DT / LUT					[Red Bar]				DT / LUT																							
(3) Milestone C LRIP (Spiral 4 SW)	[Red Bar]								▲ 3 MS C LRIP (Spiral 4 SW)																							
DT 2					[Red Bar]				DT 2																							
IOT&E	[Red Bar]								IOT&E																							
(4) FRP Decision					[Red Bar]				▲ 4 FRP (Spiral 5 Configuration)																							
(5) Initial Operational Capability	[Red Bar]								▲ 5 IOC																							
P3I					[Red Bar]																				P3I							

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
D07

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Spirals 2 & 3 Mobile	1-4Q	1-2Q						
Spiral 1 Fixed	1-4Q	1-4Q						
System Integration Lab (SIL) Standup		2Q						
Spiral 4 SW/DIB Integration		2-4Q	1-4Q					
Milestone B			2Q					
Spiral 5 SDD			2-4Q	1-4Q	1-4Q			
DCGS-A Participation in FCS UA Exp			3Q					
DT / LUT			3Q					
Milestone C LRIP			4Q					
DT 2					3Q			
IOT&E					4Q			
Full Rate Production Decision						1Q		
Initial Operational Capability						2Q		
Pre Planned Product Improvement (P3I)							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D08

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D08 DCGS-A SENSOR INTEGRATION (JMIP)	1023	6877	7037	7539	10942	10950	4008	1979	0	50355

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.

FY 06/07 funds transition, test and integration of new and Current Force sensors into the DCGS-A system design and architecture.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Integrate Current Force Multi-INT sensor (HUMINT, IMINT, SIGINT, MASINT) modules into the DCGS-A network.	0	3069	3140	3300
Integrate Future Force Multi-Int sensor modules into the DCGS-A network.	0	926	950	3152
Integrate common data link solution into DCGS-A mobile prototypes.	1023	2882	2947	1087
Totals	1023	6877	7037	7539

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common
 Ground/Surface Systems (JMIP)**

PROJECT
D08

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
RDTE (PE 35208, Proj 956) DCGS-A JMIP	13654	9751	10236	10747	11213	11716	2116	2120	Continuing	Continuing
RDTE (PE 35208, Proj D07) DCGS-A JMIP	21364	18140	57239	74616	34208	27773	6476	4489	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	1323	7719	17332	24299	24410	22717	4400	1100	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	2667	9575	43543	67841	92012	96080	150252	161346	Continuing	Continuing
AZ2000 GRCS Mods (DCGS-A GRIFIN only)	3152	2195	0	0	0	0	0	0	0	5347

C. Acquisition Strategy: DCGS-A will be executed via an evolutionary acquisition approach, providing incremental development throughout the System Development and Demonstration (SDD) phase. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D08

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Develop and Integrate DCGS-A Multi-INT Sensor Modules	Competitive CPIF/CPAF	TBD	0	3275	1Q	3600	1Q	3650	1Q	Continue	10525	Continue
b . Develop and Integrate components for sensor data distribution in DCGS-A	Competitive CPIF/CPAF	TBD	0	3052	1Q	2887	1Q	3339	1Q	Continue	9278	Continue
Subtotal:			0	6327		6487		6989		Continue	19803	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM	75	150	1Q	150	1Q	150	1Q	Continue	525	Continue
Subtotal:			75	150		150		150		Continue	525	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D08

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Integration and test of Current Force sensor modules into DCGS-A Spirals.	Competitive CPIF/CPAF	Northrop Grumman, Linthicum, MD	833	0		0		0		0	833	0
Subtotal:			833	0		0		0		0	833	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	In House	PM DCGS-A	115	400	1Q	400	1Q	400	1Q	Continue	1315	Continue
Subtotal:			115	400		400		400		Continue	1315	Continue

Project Total Cost:			1023	6877		7037		7539		Continue	22476	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D08

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Spirals 2 & 3 (Mobile Configurations)	[Red Bar]				Spirals 2 & 3 (Mobile Configurations)																											
Spiral 1 Fixed					[Red Bar]				Spiral 1 Fixed Sites																							
(1) System Integration Lab (SIL) Standup	[Red Bar]								▲ 1 SIL Standup																							
Spiral 4 SW/DIB Integration					[Red Bar]				Spiral 4 SW/DIB Integration																							
(2) Milestone B	[Red Bar]								▲ 2 Milestone B																							
Spiral 5 SDD					[Red Bar]				Spiral 5 SDD																							
DCGS-A Participation in FCS UA Exp	[Red Bar]								FCS UA Exp																							
DT / LUT					[Red Bar]				DT / LUT																							
(3) Milestone C LRIP (Spiral 4 SW)	[Red Bar]								▲ 3 MS C LRIP (Spiral 4 SW)																							
DT 2					[Red Bar]				DT 2																							
IOT&E	[Red Bar]								IOT&E																							
(4) FRP Decision					[Red Bar]				▲ 4 FRP (Spiral 5 Configuration)																							
(5) Initial Operational Capability	[Red Bar]								▲ 5 IOC																							
P3I					[Red Bar]																								P3I			

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0305208A - Distributed Common Ground/Surface
 Systems (JMIP)**

PROJECT
D08

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Spirals 2 & 3 Mobile	1-4Q	1-2Q						
Spiral 1 UE Fixed	1-4Q	1-4Q						
System Integration Lab (SIL) Standup		2Q						
Spiral 4 SW/DIB Integration		2-4Q	1-4Q					
Milestone B			2Q					
Spiral 5 SDD			2-4Q	1-4Q	1-4Q			
DCGS-A Participation in FCS UA Exp			1-3Q					
DT/ LUT			3Q					
Milestone C LRIP			4Q					
DT 2					3Q			
IOT&E					4Q			
Full Rate Production Decision						1Q		
Initial Operational Capability						2Q		
Pre Planned Product Improvement (P3I)							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program					PROJECT C92	
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
C92 AVIONICS COMPONENT ANALYSIS	0	955	994	1016	1017	1016	0	0	0	4998

A. Mission Description and Budget Item Justification: The Avionics Component Improvement Program (AvCIP) is a Joint Services initiative to combat parts obsolescence and accelerate technology infusion into avionics programs.

Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Determine critical avionics (communications, navigation, surveillance, sensors, combat identification, mission planning, and interoperability) deficiencies, prioritize and conduct initial technology improvements effort.	0	600	600	610
Identify software techniques and opportunities associated with open system architectures targeted to reduce initial and recurring avionics integration costs.	0	305	347	355
Continue Program Management Support	0	50	47	51
Totals	0	955	994	1016

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0702239A - Avionics Component Improvement Program

PROJECT
C92

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	997	997	998
Current Budget (FY 2006/2007 PB)	955	994	1016
Total Adjustments	-42	-3	18
Net of Program/Database Changes			
Congressional Program Reductions	-15		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-27		
Adjustments to Budget Years		-3	18

C. Other Program Funding Summary: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0702239A - Avionics Component Improvement Program

PROJECT

C92

D. Acquisition Strategy: The Acquisition Strategy is to identify emerging avionics performance and obsolescence problems. This initiative will reduce solution cycle time, reduce costs and program disruption, promote Interoperability and achieve commonality efficiencies.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

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 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Determine critical avionics deficiencies and initiate technology improvement efforts.	Various	AMCOM	0	600	1-3Q	600	1-3Q	610	1-3Q	Continue	Continue	Continue
b . Identify SW techniques and opportunities associated w/open system architectures in reduction of cost	Various	AMCOM	0	305	1-3Q	347	1-3Q	355	1-3Q	Continue	Continue	Continue
Subtotal:			0	905		947		965		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0702239A - Avionics Component Improvement Program

PROJECT
C92

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Spt (AVCIP)	MIPR	AMCOM, AL/PM AME, AL	0	50	1-4Q	47	1-4Q	51	1-4Q	Continue	Continue	Continue
Subtotal:			0	50		47		51		Continue	Continue	Continue

Project Total Cost:			0	955		994		1016		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0702239A - Avionics Component Improvement Program

PROJECT
C92

Event Name	FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12			
	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
Critical Avionics Improvement Effort	Avionics Improvements																															
Software Techniques Associated with Open System Architectures	Software Techniques																															
Provide PM Admin Support	PM Admin Support																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0702239A - Avionics Component Improvement Program

PROJECT
C92

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Determine critical avionics deficiencies and initiate technology improvement efforts.		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Identify SW techniques and opportunities associated w/open system architectures in reduction of cost		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Continue Program Management Support		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness Activities

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	80213	88120	68505	73273	75804	76867	77536	78099	0	658382
E25 MFG SCIENCE & TECH	59882	64489	68505	73273	75804	76867	77536	78099	0	637824
EA2 MANTECH INITIATIVES (CA)	20331	23631	0	0	0	0	0	0	0	20558

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 improve readiness and reduce total ownership costs for current and future weapons systems by providing essential manufacturing technologies that will enable affordable production and sustainment of components, subsystems and systems. The ManTech program assists the Army in meeting Future Combat Systems (FCS) and Future Force timelines and goals by reducing manufacturing risks and costs associated with transition of technologies and by transferring new/improved manufacturing technologies to the industrial base. This program element comprises three projects. The Manufacturing Science and Technologies (E25) project includes efforts selected for funding that have potential for high payoff across the spectrum of Army systems as well as significant impact on national manufacturing issues. Currently, the main focus of this project is on reducing manufacturing costs and risks of FCS enabling technologies. Major investment areas include Aviation Systems, Fire Support Systems, Armor and Armaments, Sensors, Electronics/Power Systems and Precision Munitions. Work in this program is related to and fully coordinated with on-going Army S&T efforts such as the Low Cost High G MEMS IMU in PE 0602303A/214 and the Flexible Display Initiative in PE 0602705A/H94. The Army Venture Capital (EA1) initiative is an opportunity provided by Congress to engage small innovative companies that normally do not do business with the Army. The ManTech Initiatives Congressional Adds (CA) (EA2) project funds Congressional special interest items. This PE contains no duplication with any effort within the Military Departments. 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). The Assistant Secretary of the Army for Acquisition, Logistics and Technology through the U.S. Army Material Command and the U.S. Army Research, Development and Engineering Command manages this PE, and the Army laboratories and Research, Development and Engineering Centers execute efforts.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness Activities

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	67236	76945	80149
Current Budget (FY 2006/2007 PB)	88120	68505	73273
Total Adjustments	20884	-8440	-6876
Net of Program/Database Changes			
Congressional Program Reductions	-1313		
Congressional Rescissions			
Congressional Increases	24650		
Reprogrammings			
SBIR/STTR Transfer	-2453		
Adjustments to Budget Years		-8440	-6876

Change Summary Explanation:

\$10,017 was reprogrammed end of FY04 in Project EA1 for Venture Capital. This funding is not reflected in this R Form because of business rules inherent to the software.

Fourteen FY05 Congressional Adds totaling \$24650 were added to this PE.

FY05 Congressional Adds with no R-2A:

(\$1343) Free Form Low Cost Fabrication Using Titanium, Project EA2: The purpose of this one year Congressional add is to demonstrate a 3D printing process using titanium parts without the use of molds or casts. No additional funding is required to complete this project.

(\$1726) High Temperature Structural Ceramic Materials, Project EA2: The purpose of this one year Congressional add is to transition ceramic component manufacturing to enhance engine performance, increase power-to-weight ratios, decrease fuel consumption and increase the durability for aviation and ground systems. No additional funding is required to complete this project.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0708045A - End Item Industrial Preparedness Activities

(\$1726) Laser Engineered Net Shaping (LENS) Manufacturing Qualification, Project EA2: The purpose of this one year Congressional add is to mature high-powered laser beam processes to build three-dimensional layers of metal for repair parts. No additional funding is required to complete this project.

(\$959) Laser Peening, Project EA2: The purpose of this one year Congressional add is to utilize lasers to extend the life of helicopter components for engines and transmissions. No additional funding is required to complete this project.

(\$1438) Laser System Development for Turbine Engine Applications, Project EA2: The purpose of this one year Congressional add is to polish turbo fan blades using a laser to achieve unprecedented finish results. No additional funding is required to complete this project.

(\$1438) LEAN Munitions Program, Project EA2: The purpose of this one year Congressional add is have full-scale LEAN integration at ARDEC using a collaborative environment. No additional funding is required to complete this project.

(\$959) Manufacturing Metrology for Weapon Systems Production and Sustainment, Project EA2: The purpose of this one year Congressional add is to develop manufacturing software and equipment to aid in the process of calibrating machine tools. No additional funding is required to complete this project.

(\$1823) Manufacturing Systems Demonstration, Project EA2: The purpose of this one year Congressional add is develop advanced manufacturing methods to support depot operations and training of manufacturing engineers. No additional funding is required to complete this project.

(\$3260) National Center for Defense Manufacturing & Machining, Project EA2: The purpose of this one year Congressional add is to develop, mature and deploy to industry advanced processes in manufacturing and machining related to advanced material development. No additional funding is required to complete this project.

(\$2394) Packaging and Interconnection Technology, Project EA2: The purpose of this one year Congressional add is to develop precision opto-electronic packaging to industry through the use of liquid crystal polymer material. No additional funding is required to complete this project.

(\$2443) Reactive Armor Plasma (RAP) Processing, Project EA2: The purpose of this one year Congressional add is to mature the technology from a new form of polishing at the micron/nano level to achieve unprecedented optic finishes. A deterministic controller is being developed and assembly of a second-generation machine will begin. No additional funding is required to complete this project.

(\$959) Six Sigma Lean Enterprise, Project EA2: The purpose of this one year Congressional add is to demonstrate lean processes in a manufacturing environment to reduce weapon system costs. No additional funding is required to complete this project.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**February 2005**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0708045A - End Item Industrial Preparedness Activities

(\$959) Third Generation Dual Band Infrared Imagers, Project EA2: The purpose of this one year Congressional add is to develop long term reliability for the 3rd Generation Forward Looking Infra-red using advanced manufacturing methods. No additional funding is required to complete this project.

(\$2204) Virtual Parts Program, Project EA2: The purpose of this one year Congressional add is to develop data packages using laser scanning for the fabrication and manufacturing of replacement parts. No additional funding is required to complete this project.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness
Activities

PROJECT
E25

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Cost
	Actual	Estimate								
E25 MFG SCIENCE & TECH	59882	64489	68505	73273	75804	76867	77536	78099	0	637824

A. Mission Description and Budget Item Justification: The major thrust of the Army Manufacturing Technology (ManTech) project is to reduce costs and risks of manufacturing FCS technologies. This project provides essential manufacturing technologies that will enable the affordable production and sustainment of future weapon systems for the Future Force and the affordable transition of new technologies as enhancements to current systems. Objectives include development of advanced manufacturing processes, equipment, systems and enhancement in quality while achieving a reduction in cost and transferring improved manufacturing technologies to the industrial base. The ManTech program assists the Army in meeting FCS and Future Force timelines, performance, sustainability and reliability goals, by reducing manufacturing risks and costs of new technologies into weapons systems. Projects selected for funding under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. Other factors considered in selection of efforts include cost share with both industry and the acquisition program managers and return on investment. Major programs identified are Manufacturing Technology Objectives (MTOs). The major investment areas are Aviation Systems, Fire Support Systems, Armor and Armaments, Sensors, Electronics/Power Systems and Precision Munitions. Each MTO addresses affordability and reliability in the manufacturing processes. The Low Cost Light Weight Structures (LCLWS) MTO matures processes for lightweight aviation composite structures. The Affordable Drive Train Housing (ADTH) MTO develops advanced manufacturing processes and technologies using composites, metals, and coatings (magnesium corrosion protection) to reduce weight and increase performance of helicopter and Unmanned Aviation Vehicle drive train housings. The Large Caliber Cannon Life Extension (LCCLE) MTO provides manufacturing processes to deposit high performance bore coatings on large caliber cannons to extend the service life and reduce logistic burdens. The Armor MTO provides integrated manufacturing processes for lightweight armor structures. The Durable Gun Barrel (DGB) MTO matures manufacturing processes for ultra high strength steel, composite over-wrap and explosive cladding applications for Army gun barrels. The Titanium MTO provides material and manufacturing processes for titanium used in M777 Howitzer and Future Combat System. The Military Lasers MTO matures manufacturing processes to increase efficiency of diodes for military lasers. The Dual Band Focal Plane Array Manufacturing (DBFM) MTO provides manufacturing processes to provide detector/dewar assemblies for focal plane arrays (FPAs). The Uncooled Focal Plane Array Producibility (UFPA) MTO improves the producibility of high-resolution uncooled infrared sensor technology. The ManTech portion of the Flexible Display Initiative (FDI) provides the flexible display manufacturing technologies required to enable the production of lightweight, rugged (bi-stable and high efficiency) flexible displays. The Silicon Carbide Switches (SiCS) MTO matures the fabrication processes for compact SiCS power devices for Army systems. The Power Storage Systems (PSS) consists of two MTOs: the High Energy Density (HED) Capacitor MTO that matures pulse power manufacturing processes for advanced protection systems and weapons; and the Very High Power (VHP) Batteries MTO that matures manufacturing processes for compact energy/storage systems. The Software Defined Radio (SDR) MTO matures manufacturing processes to provide the Joint Tactical Radio System embedded SDR commodities and full rate production capability. The Phase Shifters for Phased Arrays (PSPA) MTO provides manufacturing processes for On-The-Move line of sight and beyond line of sight communications and missile seeker applications. The Low Cost High-G Micro-Electro-Mechanical Systems (MEMS) Inertial Measurement Units (IMU) MTO provides the manufacturing processes for a prototype IMU that will survive launch accelerations at the required accuracy and a deeply integrated guidance and navigation unit.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness Activities

PROJECT
E25

The MEMS Safe and Arm (S&A) MTO matures MEMS wafer-based manufacturing processes; and provides, miniature, high-G “inertial mechanical logic” to control position of explosive charge for S&A applications. This project contains no duplication with any effort within the Military Departments. The cited work is consistent with the Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP).

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Aviation Systems – The LCLWS MTO: In FY04, performed a trade study to show the impact of a common tail cone design for Blackhawk variants. Conducted baseline configuration design of a UH-60 Blackhawk tail cone for incorporation of Common Missile Warning Systems and Joint Tactical Radio System. Completed a detailed design analysis of existing Chinook pylon and pylon latch. In FY05, design and manufacture tooling for fabricating composite tail cones/pylons. Fabricate and evaluate composite tail cone articles and forward pylon. In FY06, will evaluate second tail cone, integrate tail cone onto test aircraft and conduct ground testing. In FY07, will complete testing and evaluation of tail cone, and complete flight qualification. The ADTH MTO: In FY04, assessed various coatings, gathered specific magnesium corrosion data and evaluated paint removal methods for magnesium drive train housings. In FY05, analyze and evaluate repair procedures and coating schemes for magnesium housings. Complete material properties characterization and tool design and for gearbox housings. In FY06, will finalize tooling design, and initiate manufacturing of the outer gearbox housing. In FY07, will complete gearbox-housing manufacturing; perform system integration, conduct testing and evaluation of gearbox housing, and complete flight qualification.	5389	1935	1370	2038
Fire Support Systems – The LCCL MTO: In FY04, completed construction of a full scale pre-production cylindrical magnetron sputtering prototype for depositing tantalum on large caliber cannon barrels to increase wear resistance for the 120mm FCS Mounted Combat System (MCS) and M1 tank cannons. Supported the 120mm Line Of Sight and Beyond Line Of Sight Advanced Technology Demonstration by providing tantalum sputtered coated liners for live fire testing. In FY05, will deliver full scale 120mm XM36 FCS MCS gun barrel for live fire testing, complete post-firing of 120mm XM36 FCS MCS barrels and transition barrels into production.	1198	1935	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
**0708045A - End Item Industrial Preparedness
 Activities**

PROJECT
E25

Accomplishments/Planned Program (continued)

Armor and Armaments - The Armor MTO: In FY04, initiated durability trials for semi-continuous processed ceramic tiles. Produced composite pre-forms for ballistic evaluation and baseline composite processing technology. In FY05, will conduct ceramic processing trials and design composite armor pre-form manufacturing cells. Achieve reduced cycle time, cost, and mature processes to bond tiles to metal and dissimilar materials joining. In FY06, will demonstrate a prototype production line and scale up the low cost titanium plate process. Begin pre-form manufacturing cell construction and select multi-material armor integration processes. In FY07, will automate and streamline subassembly processes and produce solid-state titanium plates. Demonstrate integration of dissimilar material structures, optimize assembly to maximize carry through strength and develop a tile encapsulation process. The DGB MTO: In FY04, Matured advanced lightweight large caliber manufacturing processes on medium caliber gun barrel coating processes. Initiated fabrication of an automated winding-in-tension composite over-wrap prototype machine and start explosively bonded medium caliber coating on short section barrels. In FY05, will scale-up high strength steels, complete fabrication of composite prototypes and clad barrels. In FY06, will construct full-scale demonstration barrels utilizing advanced steel. The Titanium MTO: In FY04, Applied extruded shapes for FCS titanium hull frame components and implemented high productivity titanium welding. In FY05, will implement automated laser hybrid welding to reduce costs. In FY06, will validate the manufacturing, cost and weight goals.

FY 2004	FY 2005	FY 2006	FY 2007
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10180	14832	19866	24664
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness
Activities

PROJECT
E25

Accomplishments/Planned Program (continued)

Sensors - Military Lasers MTO: In FY04, completed fabrication of the 4 watt, 930 nanometer (nm) laser diodes and scaled up wafer fabrication for 807 nm laser diodes from 2" to 4". Tested baseline 807 nm laser diode arrays (LDA). In FY05, will improve uniformity of epitaxial growth on 4" wafers. Automate bar stacking and handling for coating processes and deliver final LDAs. DBFM MTO: In FY04, improved yield and reduced cost of large format, small pixel, dual band FPAs. (Achieved 65% yield on larger substrate using molecular beam epitaxy (MBE)) Reduced number of layers stitched from 50% to 20% for read-out integrated circuit (ROIC), and showed a 60% hybridization yield. In FY05, will increase MBE growth on substrate sizes of 50 cm2 to 55% yield, improve small pixel processing yield to 35%. In FY06, will increase MBE yield to 60%, small pixel to 60%, with an acceptance of 25%. Reduce cost to \$60k per dual band FPA. UFPA Producibility MTO: In FY04, matured bolometer fabrication, did wafer level testing and improved packaging design, processed ROICs, assembled automation, and implemented numerous integrated circuit processes. In FY05, will increase FPA yield to greater than 30% with a package yield of 90% for a unit cost less than \$5K. The ManTech portion of FDI: In FY04, began installing a 6" display processing line at the Army's Flexible Display Center. In FY05, will qualify the 6" display line and integrate flexible display technologies to produce 2.5" diagonal test displays. Begin installation of Generation II (GEN II) equipment. In FY06, will mature technology to enable 4" displays on flexible substrates, and continue GEN II qualification of manufacturing processes for 15" diagonal backplane display drivers. In FY07, will qualify the GEN II line for reflective and emissive displays; and integrate and fabricate flexible displays up to 7.5" diagonals from the 15" diagonal line.

FY 2004	FY 2005	FY 2006	FY 2007
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22156	23216	18496	9870
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness
Activities

PROJECT
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Accomplishments/Planned Program (continued)

Electronics/Power Systems - The SiCS MTO: In FY04, improved base material growth and automated wafer fabrication processes for larger, higher power diodes/switches and substrate material for advanced vehicle mobility, lethality and survivability systems. In FY05, will baseline 2nd and 3rd generation (gen) power diodes and switches and demo 1st gen SiCS diode production. In FY06, will mature mfrg processes for diodes and switches. In FY07, will baseline 4th and 5th gen switches and diodes. The PSS MTOs: In FY04, matured processes/ materials to enhance safety, reliability, energy density and production rate for reduced cost FCS batteries and high energy density capacitors coating, metalization, winding and end connection. In FY05, will mature mfrg processes for improved electrodes; evaluate cell construction automation and initiate process, packaging and design improvements. In FY06, will increase battery safety with improved electrode and electrolyte materials. In FY07, will design and implement improved cell processing, conduct design trials, assemble and test battery modules. The SDR MTO: In FY04, defined hardware dependencies, matured electronically tunable wideband filters, and miniaturized packaging techniques. In FY05, will complete engineering design analysis, define a common SDR core transceiver and mature power mgmt architecture. In FY06, complete mfrg process analysis and define qualification test methodology. In FY07, will prototype and mature mfrg sub-process for common SDR core transceiver. The PSPA MTO: In FY04 did an assessment of US Army requirements for ferroelectrics and MEMS phase shifters. In FY05, will initiate automated mfrg process improvements. In FY06, will improve automated processes to increase operational switch life, process yields, throughput and reliability. In FY07, will reduce packaging and assembly costs, eliminate stiction, and transition improved phase shifter design to WIN-T Block II.

FY 2004	FY 2005	FY 2006	FY 2007
10779	14832	21922	29592

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

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Accomplishments/Planned Program (continued)

Precision Munitions - The Low Cost High G MEMS IMU MTO: In FY04, matured manufacturing processes to produce sensor components meeting technical performance at increased yield. In FY05, will mature packaging and manufacturing processes to improve performance parameters, meet volume, cost and yield goals. In FY06, will produce smaller pre-production IMUs and begin testing. In FY07, will validate manufacturing processes for transition to production. The MEMS S&A MTO: In FY04 produced and evaluated prototype wafers, tested new explosive formulations and produced sample MEMS S&As for testing in the XM307 weapon. In FY05, will down-select fabrication and loading processes and test integrated MEMS S&As on the XM25 weapon. In FY06, will implement micro-fabrication processes, combined with explosive direct loading and test under XM29 and XM307 load conditions. In FY07, will 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.

FY 2004	FY 2005	FY 2006	FY 2007
10180	7739	6851	7109
Totals	59882	64489	68505
		73273	

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

C. Acquisition Strategy: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 1001018A - NATO Joint STARS					PROJECT C35		
COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost	
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
C35 NATO AGS - TIARA	493	587	569	677	666	687	740	739	0	5661	

A. Mission Description and Budget Item Justification: The United States is a major participant in a cooperative venture to select and procure a ground surveillance capability for North Atlantic Treaty Organization (NATO) forces. In May 1997, a Conference of National Armament Directors invited member nations to offer Alliance Ground Surveillance (AGS) solutions. Currently, work continues to establish a solution for a NATO AGS system. The Army will support US Government activities in providing a NATO AGS system, focusing on the ground station segment of any solution. Once NATO members agree upon an AGS solution, Army efforts will shift from defining an acceptable solution to the necessary development of data formats, interoperability, and ground station hardware and software requirements. The three Army imperatives with regard to participation in NATO AGS are interoperability, technology re-use, and technology feedback.

The Army will provide personnel and resources to the NATO Alliance Ground Surveillance Support Staff (AGS3), contributing to interoperability among allied nations and supporting US participation in pertinent exercises such as "Clean Hunter". Other primary support to NATO AGS will include the development of a Concept of Operations (CONOPS) and Tactics, Techniques, and Procedures (TTP). The Army will support both working level meetings and executive oversight groups such as the AGS3 Management Board, the AGS Steering Committee, and the Conference of National Armament Directors.

FY06/07 Funding supports the NATO AGS3 Air and Ground Segments.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue to support necessary meetings and conferences.	18	20	20	20
Develop Ground Station software to meet coalition operations requirements.	211	276	269	324
Conduct Developmental Tests and Demonstrations.	137	153	145	183
Support the NATO AGS3 in the preparation of acquisition documentation for development/procurement of NATO AGS Air and Ground Segments.	127	138	135	150
Totals	493	587	569	677

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7 - Operational system development

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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	595	591	688
Current Budget (FY 2006/2007 PB)	587	569	677
Total Adjustments	-8	-22	-11
Net of Program/Database Changes			
Congressional Program Reductions	-8		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		-22	-11

<u>C. Other Program Funding Summary</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA1080 Joint STARS (TIARA)	7000	0	0	0	0	0	0	0	0	7000
BS9724 Joint STARS Spares	293	0	0	0	0	0	0	0	0	293
64770/202 Joint Stars(TIARA)	4492	0	0	0	0	0	0	0	0	4492
0305208A Distributed Common Ground System (JMIP)	36995	53911	91587	118891	82182	74251	17614	10168	Continue	Continue
BZ7316 Distributed Common Ground System	3243	9383	43543	69511	94398	98667	154455	166032	Continue	Continue

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D. Acquisition Strategy: NATO AGS is currently in the Program Definition phase. The Army will support this activity with both requirements and acquisition personnel. The objective is to prepare for the eventual NATO procurement of an AGS capability. Based on extensive background knowledge obtained through the development of the Army's Common Ground Station (CGS), the Army intends to support the AGS effort with the expertise of individuals already involved with CGS. The Army intends to contract with the CGS manufacturer as necessary to support the development of an AGS ground segment, and to support exercises and demonstrations as they pertain to the US Government objectives and the Army AGS imperatives.