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

DESCRIPTIVE SUMMARIES OF THE



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

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

Persuasive in Peace, Invincible in War

VOLUME III

UNCLASSIFIED

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

**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 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 2005 through FY 2007.

2. Relationship of the FY 2007 Budget Submission to the FY 2006/2007 Budget Submitted to Congress. This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

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

<u>OLD</u> <u>PE/PROJECT</u>	<u>NEW PROJECT TITLE</u>	<u>NEW</u> <u>PE/PROJECT</u>
0305206A/K98	MASINT Sensor Integration (JMIP)	0203744A/028
0604805A/615 & 61A	Joint Tactical Radio System	0604280A/162

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

C. Establishment of New FY 2007 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 2007 are shown below.

<u>TITLE</u>	<u>PE/PROJECT</u>
In-House Lab Independent Research – Medical (CA)	0601101A/91J
Basic Research Initiatives – MRMC (CA)	0601102A/T61

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C. Establishment of New FY 2007 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 2007 are shown below. (Continued)

<u>TITLE</u>	<u>PE/PROJECT</u>
Medical University Research Initiatives (CA)	0601103A/D66
Tactical Space Research	0602120A/TS1
Computer and Software Technology (CA)	0602783A/Y11
Medical Technology Initiatives (CA)	0602787A/VB3
Medical Advanced Technology Initiatives (CA)	0603002A/MM2
Small Arms Advanced Technology Development (CA)	0603607A/62D
Environmental Quality Technology (EQT) Dem/Val (CA)	0603779A/EP1
Nuclear Arms Control Technology Sensor Engineering	0604870A/SE1
Utility Fixed Wing Cargo Aircraft	0203744A/D18

D. FY 2007 programs for which funding existed in the FY 2006/2007 President's Budget Submit (February 2005), but which are no longer funded in FY 2007.

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0604817A/482	Ground Combat Identification	Program Delayed
0605326A/308	Concepts Experimentation	Program Terminated

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

0203806A	0603005A/C66	0604328A
0203808A	0603009A	
0301359A	0603020A	
0602122A	0603322A	
0602786A/C60	0603710A/C65	

4. Performance Metrics. Performance metrics used in the preparation of this justification book may be found in the FY 2007 Army Performance Budget Justification Book, dated March 2006.

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Summary Recap of Budget Activities	FY 2005	Thousands of Dollars	
		FY 2006	FY 2007
Basic research	392,802	372,251	311,931
Applied Research	1,137,821	1,250,026	685,245
Advanced technology development	1,479,844	1,388,924	721,661
Advanced Component Development and Prototypes	871,241	507,353	441,086
System Development and Demonstration	4,370,672	5,061,368	6,239,030
Management support	1,196,969	1,138,936	1,163,638
Operational system development	1,126,709	1,307,189	1,292,968
Total RDT&E, Army	10,576,058	11,026,047	10,855,559

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					FY 2006	FY 2007
Basic research						
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	23,065	21,236	19,402
2	0601102A	01	DEFENSE RESEARCH SCIENCES	164,449	173,533	137,568
3	0601103A	01	UNIVERSITY RESEARCH SCIENCES (H)	82,959	76,984	68,545
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	100,021	100,498	86,416
5	0601105A	01	FORCE HEALTH PROTECTION	22,308	0	0
Total: Basic research				392,802	372,251	311,931
Applied Research						
6	0602105A	02	MATERIALS TECHNOLOGY	48,274	35,051	18,822
7	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	56,267	51,327	38,428
8	0602122A	02	TRACTOR HIP	6,403	7,693	8,466
9	0602211A	02	AVIATION TECHNOLOGY	47,536	39,424	32,804
10	0602270A	02	EW TECHNOLOGY	19,694	29,305	19,218
11	0602303A	02	MISSILE TECHNOLOGY	79,358	90,712	59,439
12	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	27,121	36,233	19,430
13	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	22,710	27,416	16,181
14	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	110,057	92,857	59,304
15	0602618A	02	BALLISTICS TECHNOLOGY	55,305	52,010	52,221
16	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	9,977	10,567	2,212
17	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	11,271	6,607	6,247
18	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	103,533	125,267	35,344
19	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	101,771	91,925	42,175
20	0602709A	02	NIGHT VISION TECHNOLOGY	26,393	31,664	23,907
21	0602712A	02	COUNTERMINE SYSTEMS	26,267	29,171	22,088
22	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	20,746	28,420	18,858
23	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	22,358	17,859	17,923
24	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	28,774	49,242	21,193
25	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	5,346	4,521	3,844
26	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	52,477	50,318	50,098
27	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	14,839	14,990	16,200
28	0602786A	02	LOGISTICS TECHNOLOGY	54,385	47,667	25,436
29	0602787A	02	MEDICAL TECHNOLOGY	186,959	279,780	75,407
Total: Applied Research				1,137,821	1,250,026	685,245
Advanced technology development						
30	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	78,821	77,434	45,666

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31	0603002A	03 MEDICAL ADVANCED TECHNOLOGY	300,328	300,784	50,757
32	0603003A	03 AVIATION ADVANCED TECHNOLOGY	92,788	106,577	64,654
33	0603004A	03 WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	84,538	101,841	74,717
34	0603005A	03 COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	284,720	242,013	109,952
35	0603006A	03 COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLO	9,540	12,880	10,851
36	0603007A	03 MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLO	8,390	10,235	6,794
37	0603008A	03 ELECTRONIC WARFARE ADVANCED TECHNOLOGY	58,185	60,515	44,022
38	0603009A	03 TRACTOR HIKE	7,720	8,652	9,324
39	0603015A	03 NEXT GENERATION TRAINING & SIMULATION SYSTEMS	26,888	27,927	18,296
40	0603020A	03 TRACTOR ROSE	4,527	4,885	5,183
41	0603100A	03 IED DEFEAT TECHNOLOGY DEVELOPMENT	30,000	5,500	0
42	0603103A	03 EXPLOSIVE DEMILITARIZATION TECHNOLOGY	18,397	21,041	10,376
43	0603105A	03 MILITARY HIV RESEARCH	13,545	13,644	7,042
44	0603125A	03 COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT FOR	30,427	10,159	7,497
45	0603238A	03 GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	10,280	11,939	12,995
46	0603270A	03 EW TECHNOLOGY	36,347	22,280	18,612
47	0603313A	03 MISSILE AND ROCKET ADVANCED TECHNOLOGY	136,319	114,018	42,127
48	0603322A	03 TRACTOR CAGE	12,770	15,186	19,192
49	0603606A	03 LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	37,246	30,092	25,554
50	0603607A	03 JOINT SERVICE SMALL ARMS PROGRAM	5,732	7,474	7,202
51	0603710A	03 NIGHT VISION ADVANCED TECHNOLOGY	102,002	101,690	44,307
52	0603728A	03 ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	16,919	15,777	14,089
53	0603734A	03 MILITARY ENGINEERING ADVANCED TECHNOLOGY	21,716	21,390	7,848
54	0603772A	03 ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	51,699	44,991	64,604
Total: Advanced technology development			1,479,844	1,388,924	721,661
Advanced Component Development and Prototypes					
55	0603024A	04 UNIQUE ITEM IDENTIFICATION (UID)	0	1,479	1,520
56	0603305A	04 ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	109,799	81,494	11,233
57	0603308A	04 ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	31,776	48,186	11,771
58	0603327A	04 AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	109,170	100,190	143,417
59	0603619A	04 LANDMINE WARFARE AND BARRIER - ADV DEV	11,141	0	8,439
60	0603627A	04 SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	6,943	5,651	10,714
61	0603639A	04 TANK AND MEDIUM CALIBER AMMUNITION	26,764	8,281	0
62	0603653A	04 ADVANCED TANK ARMAMENT SYSTEM (ATAS)	49,689	26,332	5,415
63	0603747A	04 SOLDIER SUPPORT AND SURVIVABILITY	19,482	3,344	2,778
64	0603766A	04 TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	15,211	18,637	20,077

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65	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	17,044	6,787	5,337
66	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	43,637	35,255	5,166
67	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	94,991	98,057	158,157
68	0603790A	04	NATO RESEARCH AND DEVELOPMENT	4,598	4,832	4,946
69	0603801A	04	AVIATION - ADV DEV	22,809	7,146	6,542
70	0603802A	04	WEAPONS AND MUNITIONS - ADV DEV	8,797	0	0
71	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	9,543	13,184	13,216
72	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	6,117	10,507	8,645
73	0603807A	04	MEDICAL SYSTEMS - ADV DEV	20,277	23,149	11,973
74	0603827A	04	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	0	12,119	10,605
75	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	4,292	2,723	1,135
76	0603856A	04	SCAMP BLOCK II	7,863	0	0
77	0603869A	04	MEADS CONCEPTS - DEM/VAL	251,298	0	0
Total: Advanced Component Development and Prototypes				871,241	507,353	441,086
System Development and Demonstration						
78	0604201A	05	AIRCRAFT AVIONICS	72,521	13,259	61,946
79	0604220A	05	ARMED, DEPLOYABLE OH-58D	43,315	91,860	132,781
80	0604270A	05	EW DEVELOPMENT	18,106	33,397	41,655
81	0604280A	05	JOINT TACTICAL RADIO SYSTEM	151,274	139,546	832,259
82	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	6,586	9,042	7,074
83	0604328A	05	TRACTOR CAGE	13,571	15,869	16,057
84	0604329A	05	COMMON MISSILE	112,376	25,630	0
85	0604601A	05	INFANTRY SUPPORT WEAPONS	33,697	53,257	31,748
86	0604604A	05	MEDIUM TACTICAL VEHICLES	12,540	18,518	1,925
87	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV	3,637	0	5,297
88	0604611A	05	JAVELIN	904	0	0
89	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	13,938	20,913	3,960
90	0604633A	05	AIR TRAFFIC CONTROL	2,011	4,444	4,527
91	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	9,581	7,393	0
92	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	2,098,130	2,745,716	3,310,477
93	0604646A	05	NON LINE OF SIGHT LAUNCH SYSTEM	119,767	231,209	322,880
94	0604647A	05	NON LINE OF SIGHT CANNON	286,853	146,271	112,237
95	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	34,107	28,980	38,821
96	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	107,912	3,334	3,017
97	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	42,784	60,219	121,553
98	0604716A	05	TERRAIN INFORMATION - ENG DEV	3,140	0	0

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99	0604726A	05 INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	2,442	0	0
100	0604741A	05 AIR DEFENSE COMMAND, CONTROL AND INTEL - ENG	72,052	41,512	21,757
101	0604742A	05 CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	41,052	39,993	40,006
102	0604746A	05 AUTOMATIC TEST EQUIPMENT DEVELOPMENT	9,074	2,221	8,136
103	0604760A	05 DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN	26,323	29,628	19,596
104	0604766A	05 TACTICAL EXPLOITATION SYSTEM/DCGS (TIARA)	21,496	0	0
105	0604768A	05 BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	1,748	0	0
106	0604778A	05 POSITIONING SYSTEMS DEVELOPMENT (SPACE)	1,961	0	0
107	0604780A	05 COMBINED ARMS TACTICAL TRAINER (CATT)	16,304	43,344	39,901
108	0604783A	05 JOINT NETWORK MANAGEMENT SYSTEM	10,244	5,019	5,187
109	0604801A	05 AVIATION - ENG DEV	3,236	1,380	0
110	0604802A	05 WEAPONS AND MUNITIONS - ENG DEV	150,030	104,029	130,581
111	0604804A	05 LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	86,918	14,150	40,301
112	0604805A	05 COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	217,686	318,947	10,783
113	0604807A	05 MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM	19,315	16,487	14,509
114	0604808A	05 LANDMINE WARFARE/BARRIER - ENG DEV	57,090	74,482	118,078
115	0604814A	05 ARTILLERY MUNITIONS - EMD	137,391	114,709	102,554
116	0604817A	05 COMBAT IDENTIFICATION	12,068	5,395	39
117	0604818A	05 ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWAR	64,585	66,026	69,172
118	0604819A	05 LOSAT	17,403	0	0
119	0604820A	05 RADAR DEVELOPMENT	5,848	5,008	2,527
120	0604822A	05 GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBs)	58,007	70,105	61,194
121	0604823A	05 FIREFINDER	10,332	45,405	70,151
122	0604827A	05 SOLDIER SYSTEMS - WARRIOR DEM/VAL	0	58,473	27,498
123	0604854A	05 ARTILLERY SYSTEMS - EMD	12,016	5,397	1,650
124	0604865A	05 PATRIOT PAC-3 THEATER MISSILE DEFENSE ACQ - EMD	60,408	0	0
125	0604869A	05 PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)	0	284,695	329,583
126	0604870A	05 NUCLEAR ARMS CONTROL MONITORING SENSOR NETWORK	0	0	7,428
127	0605013A	05 INFORMATION TECHNOLOGY DEVELOPMENT	68,893	66,106	70,185
	Total: System Development and Demonstration		4,370,672	5,061,368	6,239,030
	Management support				
128	0604256A	06 THREAT SIMULATOR DEVELOPMENT	32,292	28,878	21,180
129	0604258A	06 TARGET SYSTEMS DEVELOPMENT	14,882	11,784	10,928
130	0604759A	06 MAJOR T&E INVESTMENT	65,999	66,030	64,953
131	0605103A	06 RAND ARROYO CENTER	21,846	23,460	20,171
132	0605301A	06 ARMY KWAJALEIN ATOLL	139,339	153,317	178,891

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133	0605326A	06	CONCEPTS EXPERIMENTATION	20,866	38,496	21,626
134	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	261,896	0	0
135	0605601A	06	ARMY TEST RANGES AND FACILITIES	188,226	364,007	389,840
136	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	71,804	68,299	74,066
137	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	44,104	41,703	40,780
138	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	17,300	19,505	16,622
139	0605606A	06	AIRCRAFT CERTIFICATION	2,920	2,709	4,580
140	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	9,440	8,703	8,571
141	0605706A	06	MATERIEL SYSTEMS ANALYSIS	15,908	15,296	16,526
142	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	4,670	4,643	4,993
143	0605712A	06	SUPPORT OF OPERATIONAL TESTING	70,181	75,891	80,057
144	0605716A	06	ARMY EVALUATION CENTER	56,837	56,388	60,129
145	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	1,853	5,360	5,441
146	0605737A	06	DEFENSE FOREIGN LANGUAGE TRAINING	4,800	0	0
147	0605801A	06	PROGRAMWIDE ACTIVITIES	59,484	53,496	72,214
148	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	37,525	46,760	34,834
149	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS & SAFETY	38,042	37,530	18,726
150	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	4,334	3,957	4,418
151	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	12,386	12,724	14,092
152	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	35	0	0
Total: Management support				1,196,969	1,138,936	1,163,638
Operational system development						
153	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	105,395	113,652	74,506
154	0603820A	07	WEAPONS CAPABILITY MODIFICATIONS UAV	0	5,323	16,532
155	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	79,279	105,888	264,491
156	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	18,846	16,820	17,394
157	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	17,162	31,080	12,741
158	0203740A	07	MANEUVER CONTROL SYSTEM	31,050	40,813	37,976
159	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	297,917	336,884	301,739
160	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	7,117	2,036	860
161	0203758A	07	DIGITIZATION	24,055	13,152	13,373
162	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2)	43,668	19,913	26,375
163	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	32,067	15,957	10,770
164	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	0	18,414	19,706
165	0203806A	07	TRACTOR RUT	3,179	0	0
166	0203808A	07	TRACTOR CARD	8,640	6,700	7,242

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167	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	17,354	24,550	5,804
168	0208053A	07	JOINT TACTICAL GROUND SYSTEM	9,817	12,670	15,044
169	0208058A	07	JOINT HIGH SPEED VESSEL (JHSV)	0	3,215	20,397
170	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	14,391	11,130	3,170
171	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	28,531	26,323	23,828
172	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	90,310	68,264	55,272
173	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	51,759	57,822	41,336
174	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	18,394	13,452	12,200
175	0303158A	07	JOINT COMMAND AND CONTROL - ARMY	0	1,672	4,057
176	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	53,900	147,040	114,087
177	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	8,108	5,321	12
178	0305208A	07	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS (JMIP)	54,013	91,859	120,562
179	0702239A	07	AVIONICS COMPONENT IMPROVEMENT PROGRAM	954	980	1,031
180	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	100,349	111,788	68,075
181	0P0GMTOT	07	OTHER ARMY PROGRAMS	9,867	3,910	3,700
182	1001018A	07	NATO JOINT STARS	587	561	688
Total: Operational system development				1,126,709	1,307,189	1,292,968
Total: RDT&E, Army				10,576,058	11,026,047	10,855,559



PROGRAM

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PROGRAM ASSESSMENT

Defense Small Business Innovation Research/Technology Transfer

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

NOT PERFORMING

Results Not Demonstrated

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

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

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

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

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604256A - THREAT SIMULATOR DEVELOPMENT					PROJECT 976	
COST (In Thousands)	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)	32292	28878	21180	22162	21730	22469	17238

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution.	7692	6806	6048
Develop product enhancements for XM11S simulator threat system.	4500	2800	451
Develop Network Exploitation Test Tool (NETT) (formerly known as Information Assurance Test Tool (IATT)).	1478	3036	2526
Validate threat simulators/simulations to ensure they are available for operational test.	400	0	0
Develop Advanced Electronic Order of Battle (AEOB) upgrade and develop mobile threat emitter system interoperable with threat scenario outputs.	991	1393	2118
Conduct Threat Systems Management Office Operations efforts.	5877	6270	6427
Develop Threat Intelligence and Electronic Warfare Environment to simulate Electronic Warfare capabilities.	1697	1965	2428
Continue development of radio frequency (RF) Surface-to-Air Missile (SAM) radar prototype.	6800	1000	0
Develop simulations of threat camouflage, concealment, deception and obscurants (CCD&O) techniques (formerly known as threat deception techniques).	1057	1108	1182
Developed Army Threat Signals Intel Program.	1800	0	0
Establish a Threat Systems Management satellite office for Townsend Electronic Combat Training Range to conduct threat scenarios.	0	1400	0
Establish a Threat Systems Management Office Operating Center - West to conduct threat scenarios.	0	2100	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0604256A - THREAT SIMULATOR DEVELOPMENT	976	
Develop a Web Assured Response Protocol (WARP).	0	1000	0
Total	32292	28878	21180

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604256A - THREAT SIMULATOR DEVELOPMENT			PROJECT 976
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	29694	23796	21151	
Current BES/President's Budget (FY 2007)	32292	28878	21180	
Total Adjustments	2598	5082	29	
Congressional Program Reductions		-127		
Congressional Rescissions		-291		
Congressional Increases		5500		
Reprogrammings	2598			
SBIR/STTR Transfer				
Adjustments to Budget Years			29	
FY2006 - Congressional Plus-Up (\$5,500) - Townsend Electronic Combat Training Range (\$1,400); Operating Center - West (\$2,100); distributed RF/SAM (\$1,000); and Web Assured Response Protocol (WARP)(\$1,000).				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

COST (In Thousands)	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	14882	11784	10928	11137	11163	11479	9184
238 AERIAL TARGETS	10659	8239	7062	6413	6422	6604	5261
459 GROUND TARGETS	4223	3545	3866	4724	4741	4875	3923

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 2006

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	13370	10855	10542
Current BES/President's Budget (FY 2007)	14882	11784	10928
Total Adjustments	1512	929	386
Congressional Program Reductions		-52	
Congressional Rescissions		-119	
Congressional Increases		1100	
Reprogrammings	1512		
SBIR/STTR Transfer			
Adjustments to Budget Years			386

Change Summary Explanation:

FY 2005: Reprogramming used to fund the development of tactical-class threat-representative Unmanned Aerial Vehicle targets, virtual targets, and the maintenance of the Reliance Rotary Wing target program. These targets are critical in reducing program technical risk and facilitate the development and fielding of the Army Blue systems.

FY 2006: Congressional Plus Up (\$1,100) for Unmanned Aerial Vehicles.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT					PROJECT 238	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
238 AERIAL TARGETS	10659	8239	7062	6413	6422	6604	5261

A. Mission Description and Budget Item Justification: Aerial Targets support Army Transformation and the Global War on Terrorism by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; virtual targets; ancillary devices; and their control systems. These products are required to adequately stress weapon systems undergoing test and evaluation (T&E). In order to stress systems under test and evaluation, aerial targets must have flight characteristics, signatures, and other performance factors that emulate the modern threat. This includes long-range planning to determine future target needs and development of coordinated requirement documents; the management of target research, development, test and evaluation process; execution of the validation process to ensure that surrogate targets adequately represent the threat; development and acquisition of surrogate and acquired targets; and continuing maintenance, storage, and development/enhancements/update via engineering services of the developed and acquired threat targets to ensure availability for the T&E customer. The US Army is the Reliance lead for rotary wing targets and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target and is slated to become the Reliance Lead for towed target developments beginning in 2006.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continues management and sustainment of more than 20 Army (Reliance Lead) Rotary Wing Targets, including updates for obsolescence, maintenance, and safety to support T&E programs such as Medium Extended Air Defense System (MEADS), Surface Launched Advanced Medium Range Air to Air Missile (SLAMRAAM), and others.	734	346	580
Provides Research, Development, Test and Evaluation (RDT&E) portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, Joint Land Attack Cruise Missile Defense Elevated Netted Sensors (JLENS), MEADS, SLAMRAAM, and classified programs for Army and Tri-Service customers. FY 2005 began the process to acquire replacements for expended targets, which will include development of updated component/subsystem replacements of no-longer-available, obsolete equipment and systems to reduce operational cost.	1644	2445	2320
Completes redesign and testing of upgraded Target Tracking Control System (TTCS) to new design. Complete testing of upgraded initial test sets. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative to develop and integrate a set of Common Digital Architecture control equipment into aerial targets to improve performance and reduce operating costs. Completes upgrade of remaining TTCS to new configuration 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.	1979	692	670
Continues development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Continues development and testing of Low Cost Towed target systems (Cruise Missile Tow Target, Reduced Radar Tow Target, and the Special Low Altitude Tow Target) emulating current threats at a very low cost to Patriot, JLENS and classified customers. FY 2005 also	796	751	758

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
6 - Management support	0604258A - TARGET SYSTEMS DEVELOPMENT		238
integrated 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 2008 timeframe.			
Integrated Avionics Program incorporates Central Test and Evaluation Investment Program (CTEIP) Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost. Provides RDT&E funding to initialize production and provide maintainer and operator training, and finalize technical documentation. The customer will provide funding and training for production units.	1252	859	130
Funding supports research and development of evolving Army and DoD simulation standards and evolving implementation techniques; fabricates additional simulation target models of airplanes, helicopters, missiles, and unmanned aerial vehicles in commonly used model formats; develops simulation target model infrared and radar frequency signature models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD test and evaluation communities. Simulation target models are employed to facilitate simulations for both Developmental and Operational Testing (test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by Developmental Test Command's (DTC) simulations, Operational Test Command's (OTC) Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System, Patriot, SBCT (Stryker), MEADS, etc.). These models are on-line and available to all T&E simulation developers.	635	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 approximately 20 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.	789	1174	741
Initiates Airborne Control System for Rotary Wing targets, incorporates the Central Test and Evaluation Investment Program(CTEIP) Common Digital Architecture into aerial rotary wing targets controlled by TTCS; improving reliability, maintainability, and target performance while reducing operational cost.	0	0	1092
Developed 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 allows single or multiple target formations to be flown in more threat representative presentations than are now possible with existing hardware and software systems.	2830	0	0
Funding supports development and design of current in-flight icing protection shortfalls with low-weight,low-cost,low-power options made specifically for installation on current and future UAV configurations.	0	1100	0
Total	10659	8239	7062

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT						PROJECT 459
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
459 GROUND TARGETS	4223	3545	3866	4724	4741	4875	3923

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY 2005-2007 Funds management and oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of 164 active and 186 inactive Mobile Ground Target vehicles, and acquisition of new material and spare parts. Supports users such as Future Combat Systems(FCS), Armed Reconnaissance Helicopter (ARH), Guided Multiple Launch Rocket System (GMLRS), Excalibur, Mid-Range Munition (MRM), Non-Line-of-Sight Launch System (NLOS-LS), Precision Guided Mortar Munition (PGMM), and others.	2159	2093	2075
FY 2005-2007 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 support verification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DOD T&E communities. Simulation target models are employed to facilitate simulations for both developmental testing (DT) and operational testing(OT)(test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by DTC's simulations, OTC's Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System [FCS], Excalibur, Precision Guided Mortar Munition[PGMM], Mid Range Munition[MRM], etc.). These models are available on-line to all T&E simulation developers.	1206	1333	1476
FY 2005 Fielded 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 (e.g., ARH, FCS, NLOS-LS, Compact Kinetic Energy Missile(CKEM) and others).	443	0	0
FY 2005-2007 Manages Mobile Ground Target Surrogates development effort. Supplements the Mobile Ground Targets threat fleet with up to date threat representatives surrogates that emulate the visual, infrared and radio frequency signatures to support T&E (e.g. ARH, FCS, NLOS-LS, CKEM, and others).	415	119	315
Total	4223	3545	3866

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

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

COST (In Thousands)	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	65999	66030	64953	67547	65584	67244	45263
983 Reagan Test Site (RTS) T&E Investments	8131	7204	8297	8509	8578	8919	0
984 Major Developmental Testing Instrumentation	40839	39903	36484	37834	35991	36707	27833
986 Major Operational Test Instrumentation	17029	18923	20172	21204	21015	21618	17430

A. Mission Description and Budget Item Justification: This program funds the development and acquisition of major developmental test instrumentation for the U.S. Army Test and Evaluation Command's (ATEC) Developmental Test Command (DTC) test activities: White Sands Missile Range (WSMR), NM; Yuma Proving Ground, (YPG), AZ; Aberdeen Test Center (ATC), MD; 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. The program also funds development and acquisition of Operational Test Command's (OTC) major field instrumentation. Requirements for instrumentation are identified through a long range survey of project managers, Research Development and Engineering Centers (RDECs), and Battle Laboratories developing future weapon systems and the test programs that support these systems. Army testing facilities are also surveyed to determine major testing capability shortfalls.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

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

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	58988	64498	64480
Current BES/President's Budget (FY 2007)	65999	66030	64953
Total Adjustments	7011	1532	473
Congressional Program Reductions		-302	
Congressional Rescissions		-666	
Congressional Increases		2500	
Reprogrammings	7011		
SBIR/STTR Transfer			
Adjustments to Budget Years			473

Change Summary Explanation: FY 2005: Funds reprogrammed to fund Digital Network Migration, Crew Station Interface, Fiber Optic Network II, Systems Test and Intergration Laboratory, Quantitative Visualization, Mobile Multi-Sensor Time Space Position Information (TSPI) System, and Operational Test-Tactical Engagement System. FY 2006: Congressional Plus Up (\$2,500). \$1,000 for Vehicle Durability Simulator and \$1,500 for Network Centric Warfare-Digital Battlefield Instrumentation (NCW-DBI).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 983	
COST (In Thousands)	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	8131	7204	8297	8509	8578	8919	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 US Army Kwajalein Atoll (USAKA) in the Marshall Islands. RTS is a national test site supporting Army, Missile Defense Agency (MDA), US Air Force, National Aeronautics and Space Administration (NASA), U.S. Strategic Command (STRATCOM), and other customers. Program upgrades radars, telemetry, optics, range safety, communications, command/control and other equipment required to maintain RTS as a national test range. These upgrades are critical to maintain a state of the art sensor suite and to the success of MDA test missions, Minuteman Operational Tests and STRATCOM's Space Surveillance Network (SSN) and Space Object Identification (SOI) operations.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Upgrade RTS Safety Control Center (RSCC).	270	0	0
Modernize RTS Operations Control Center (ROCC) for compatibility with upgraded RTS sensors and modernize the existing 10 year old Kwajalein Mission Control Center computer hardware and software. Improves initial interoperability with other Pacific Ranges.	4700	3900	0
Modernize MPS-36 radars to replace unsupported hardware and computer systems.	1700	600	0
Operations Coordination Center (Follow-on phase of the ROCC project). Procure necessary commercial off-the-shelf (COTS) hardware and software for interoperability with Test and Training Enabling Architecture (TENA)middleware. Enable interoperability among all Test and Evaluation ranges in the Pacific region. Prepares for distributed operations in CONUS.	0	1244	3008
Millimeter Wave (MMW) Performance Enhancement. Replace current Ka band transmitter with new gyro traveling wave tube (TWT) based design. Enables tracking and imaging of smaller satellites and collection of intercept data at greater ranges.	500	500	1000
Film to Digital Video (FDV). Replacement of 70mm cameras with high resolution, high speed digital video cameras and recorders.	961	900	0
Range Safety System Upgrade (RSSU). Modernize fixed and mobile range safety assets using commercial off-the-shelf hardware and common computer architecture and interface.	0	60	500
Central Operations of Telemetry Assets (COTA). Relay the analog RF telemetry signals from remote TM tracking antennas to the Kwajalein Telemetry Center.	0	0	900
Digital and Remoted Optical Sensors (DROpS). Replaces 35mm film camera. Digital image capture system and common control room.	0	0	2889
Total	8131	7204	8297

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 984	
COST (In Thousands)	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	40839	39903	36484	37834	35991	36707	27833

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. Vehicle Durability Simulator (VDS) is a laboratory-based durability simulation which simulates driving on and off-road condition for both wheeled and track vehicles. The Versatile Information Systems Integrated Online (VISION) develops a modular, scaleable instrumentation suite with sufficient integral mass storage for extended operation. It extends ATC and Department of Defense (DoD) networking to mobile platforms nationwide and provides database accessibility throughout DoD. It also provides advanced program management tools, and on-line customer definable multimedia reports. The Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMSSTC) develops the capability to test modern weapon systems and subsystems in the laboratory, in an open or closed loop scenario. The Range Digital Transmission System (RDTs) will improve test operations through modernization and will reduce test costs allowing for efficient data collection and remote operations at YPG. The Mobile Infrared Scene Projector (MIRSP) project will conduct performance testing of imaging Infrared and Forward Looking Infrared (FLIR) sensors while installed on the weapon system under test at RTTC. 21st Century Target Control System provides the integration of newly developed joint target control system with the range communication infrastructure and command center and ensures target control interoperability between the services. Starship II is the Command, Control, Communications, Computers and Intelligence (C4I) Test Instrumentation Control Center (TCC) which enhances and modernizes EPG's Enhanced Position Location and Reporting System (EPLRS) TCC to provide and automate a command and control center software tool that monitors test progress and performance status in real time for all Army Battle Command Systems (ABCS). Joint Warfighter Test and Training Suite is the development of an instrumented test area capable of creating Military Operations in Urban Terrain (MOUT) and maneuver training area for platoon size operations. Digital Network Migration is the development of mobile assets for support of remote testing areas and linking instrumentation assets to Test Support Network and Cox Range Control Center (CRCC). Crew Station Interface is the development of a reconfigurable cockpit simulator for various rotary wing platforms to determine optimum man-machine interfaces and connectivity via Defense Research Engineering Network (DREN) to other service/DoD test sites. Fiber Optic Network II is the installation of digital fiber optic cable and transmission electronics to modernize, secure and expand the backbone telecommunication and data transmission network in support of Aberdeen Test Center. Systems Test and Integration Laboratory (STIL) is the development of a systems integration and test lab for use in developmental testing and integration engineering, including a virtual test environment to support integration testing of aviation electronic systems as a part of modernization of army aircraft. Quantitative Visualization (QV) for Test and Evaluation is the development of QV integration models to enable rapid conversion of test data into visual representations. Mobile Multi-sensor Time-Space Position Information (TSPI) System (MMTS) is the development of a tracking system for weapons with low/flat trajectories and low radar cross sections. Roadway Simulator (RWS) allows for year round, 24/7 testing and provides the ability to safely conduct repeated conditions testing and evaluation of vehicle systems in real word driving environment that otherwise cannot be performed due to driver and test area safety limitations.

Accomplishments/Planned Program	FY 2005	FY 2006	FY 2007
Vehicle Durability Simulator (VDS): Development of a Laboratory-based durability simulation which simulated driving on and off-road	2500	1000	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
6 - Management support	0604759A - Major T&E Investment		984
condition for both wheeled and track vehicles. This system allows for year round, 24/7 testing capabilities, provided the ability to perform accelerated life cycle testing of real world driving conditions, safely imposed extreme conditions for both durability and drivetrain performance to reduce overall testing time requirements.			
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.	7894	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.	9354	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.	9731	9572	9176
Mobile Infrared Scene Projector (MIRSP): Continue development and integration of the Multi-spectral Subsystem. Participate in the design, development and integration of the large format resistive-emitter array (LFRA) IRSP to perform integration of the LFRA into Objective MIRSP.	859	170	3241
21st Century Target Control System: Develop and integrate DoD-standard multi-service target control system at WSMR.	980	730	0
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.	1573	1706	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.	918	1339	2100
Digital Network Migration (DNM): Develop mobile assets for support of testing in remote areas and linking of instrumentation assets to the Test Support Network and Cox Range Control Center (CRCC)	1793	3438	5459
Crew Station Interface (formerly Reconfigurable Cockpit Simulator (RCS)): Develop a reconfigurable cockpit simulator for various rotary wing platforms to determine optimum man-machine interfaces and connectivity via Defense Research Engineering Network (DREN) to other service/DoD test sites	656	875	1245
Fiber Optic Network II (FON II) - Aberdeen Test Center (ATC): Install digital fiber optic cable and transmission electronics to modernize, secure and expand the backbone telecommunication and data transmission network in support of Aberdeen Test Center	1074	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.	432	1350	2077
Quantitative Visualization (QV) for Test and Evaluation: Develop QV integration models to enable rapid conversion of test data into visual representations.	760	900	858
Mobile Multi-sensor Time Space Position Information (TSPI) System (MMTS)(formerly Hypervelocity Advanced TSPI System): Begin development of a tracking system for weapons with low/flat trajectories and low radar cross sections.	919	1045	1604
Roadway Simulator (RWS): Completed Phase 3 tractor-trailer laboratory-based vehicle performance testing capability. Allows for year round, 24/7 testing and provides the ability to safely conduct repeated conditions testing and evaluation of vehicle systems in real world	1396	0	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		
driving environment that otherwise cannot be performed due to driver and test area safety limitations. Augmented previously delivered capability currently in use for rapid testing and fielding of up-armored High Mobility Multipurpose Wheeled Vehicles (HMMWV).				
Total		40839	39903	36484

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 986	
COST (In Thousands)	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	17029	18923	20172	21204	21015	21618	17430

A. Mission Description and Budget Item Justification: This project supports the development of major field instrumentation for Operational Testing (OT), Force Development Testing and Experimentation (FDTE), Army Warfighting Experiments (AWE) for the U.S. Army Test and Evaluation Command (ATEC), and Army Transformation. Each initiative set forth in this program element is directly tied to tactical systems that support the following Army Modernization Plan operational capability areas: Dominate Maneuver, Full Dimensional Protection, Precision Engagement, and Focused Logistics. The cornerstone of this effort is the Operational Test-Tactical Engagement System (OT-TES) vice Objective Real-Time Casualty Assessment and Instrumentation Suite (Objective RTCA) that provides users a high fidelity, realistic, real-time capability to measure the performance of hardware and personnel under tactical conditions for small and large-scale operations (up to 1,830 players). OT-TES allows the U.S. Army to test all Current-to-Future, Future Force, and Future Combat Systems (FCS) capabilities in a force-on-force operational environment. OT-TES Research, Development, Test and Evaluation (RDTE) develops performance enhancements and technology upgrades to the Command, Control and Communications (C3) Center, Communications Network, weapons system interfaces, 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 presents opportunities for significant cost savings and greater realism than would otherwise be achievable. This effort responds to the current Operations Tempo (OPTEMPO) and Personnel Tempo (PERSTEMPO) demands to force the U.S. Army to conduct more realistic, more accurate, and comprehensive evaluations at reduced costs by virtually replicating a greater number of troop resources in force-on-force testing and training exercises. Personnel and resource cuts have already been taken in the test community predicated upon data reduction/analysis streamlining provided by this capability.

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
OT-TES: Develop improved communications architecture, rotary-wing instrumentation, new encryption capabilities, and geometric pairing technologies. Complete development of weapons performance modules, player unit upgrades, and Air Defense Artillery fly-out models	14803	16210	18836
Develop Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS)Enterprise Integration Solution (EIS).	1226	1213	1336
Network Centric Warfare Digital Battlefield: Develop the next generation test and training integrated technologies required to support the future mission of the evolving battle space.	1000	1500	0
Total	17029	18923	20172

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center					PROJECT 732	
COST (In Thousands)	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	21846	23460	20171	21037	21588	22145	22723

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.	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.	4545	0	500
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.	9897	2008	0
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.	3902	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605103A - Rand Arroyo Center	732	
Research addressing support to current operations: key issues for the Army in continuing military operations in Afghanistan and Iraq; measuring Army effectiveness in the Global War on Terrorism (GWOT); access to soldiers for deployment; strengthening Army recruiting and retention; evaluation of unit-based leader-development programs; adapting Combat Training Center (CTC) training proficiency to demands of the Contemporary Operating Environment (COE); and anticipating adaptive enemies.	0	2500	3569
Research addressing the Army's transformation to meet near-term challenges: Implementing Army Force Generation (ARFORGEN) for a modular force, including unit-focused stabilization; Units of Action (UAs) and manning the force; training and readiness strategies to support ARFORGEN; and optimizing Combat Service Support (CSS) capabilities. Improving doctrine/organization for Stability and Support Operations/Counterinsurgency (SASO/COIN), including the implications for the Army of irregular warfare; improving doctrine and planning for stability operations; dominating complex terrain; integrating Information Operations (IO) into planning and execution of military operations; and building transitional security capabilities. Managing the tech challenges of transformation, including managing the Future Combat System (FCS) program; recapitalizing Army Battle Command System (ABCS); Optimizing the ground force network; and integrating UAV capabilities into UA networks. Supporting the transforming force, including improving Army repair parts inventories; and supply chain integration with government providers.	0	4958	3783
Research addressing the Army's transformation to shape the future force: key issues for the Army, including reexamining strategic guidance for the US Army; dealing with nuclear weapons; support to TRADOC war-game; building partner capability for coalition operations; assessing the value of commonality and families of systems; developing a total Condition Based Maintenance (CBM) program; evaluating the state of automated fusion; simulating robotics concepts; and future force vulnerability assessment.	0	9710	8440
Research addressing the Army's enduring challenges: key issues for the Army in shaping and staffing the force, including assessing effectiveness of a tier-two attrition screen program, and support to Army review of the Officer Personnel Management System (OPMS); and key issues for the Army in supporting the force, including improving depot supply chain management, identifying best Performance Based Logistics (PBL) practices; evaluating the Army's organic technical capabilities, and implementing best purchasing and supply management practices.	0	4284	3879
Total	21846	23460	20171

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center	PROJECT 732
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	21854	23800	24781
Current BES/President's Budget (FY 2007)	21846	23460	20171
Total Adjustments	-8	-340	-4610
Congressional Program Reductions		-103	
Congressional Rescissions		-237	
Congressional Increases			
Reprogrammings	-8		
SBIR/STTR Transfer			
Adjustments to Budget Years			-4610

Change Summary Explanation: Funding - FY 2007 funds were realigned to higher priority programs.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL					PROJECT 614	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
614 ARMY KWAJALEIN ATOLL	139339	153317	178891	136855	120792	104988	103860

A. Mission Description and Budget Item Justification: In FY07, funding increases to reestablish the necessary funding baseline needed to operate Kwajalein Atoll and the testing range. 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 - ...the institutional and overhead costs of a facility or resource of a military department or Defense Agency that is within the Major Range and Test Facility Base are fully funded....The term ...'institutional and overhead 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; underwater acoustic impact location system; and data analysis/reduction hardware/software. USAKA/RTS is government-managed/contractor-operated (GMCO) and is therefore totally dependent upon its associated support contractors. Program also provides funds for the contractors to accomplish installation operation and maintenance (O&M). Funding is required to maintain minimal O&M support, while accepting moderate risk of continued degradation of USAKA/RTS infrastructure (housing, offices, facilities), higher future repair costs, and reduced logistical support capability. The Army, Air Force, Navy and MDA have programs planned, which have significant test and data gathering requirements at USAKA/RTS. Air Force programs require firing from Vandenberg Air Force Base, CA, with complete data collection during late mid-course and terminal trajectory. MDA programs require range sensors to collect technical data in support of Ground Based Mid-Course Missile Defense (GMD) and Theater Missile Defense (TMD) programs. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of USAKA/RTS. Program supports US Strategic Command (STRATCOM) requirements for data collection on objects in space. The Advanced Research Project Agency (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radar located at USAKA/RTS, are two of only three radars world-wide that have deep-space tracking capability. Program supports Air Force's Peacekeeper, Minuteman III, and Delta; MDA's GMD tests, Ground Based Radar (GBR), Battle Management/Command, Control and Communications (BMC3), In-Flight Interceptor Communication System (IFICS) data terminals; Army/MDA PAC-3, System Integration of Tests, Family of Systems, Critical Measurements Program (CMP), Patriot, and ground-based radar; and NASA's Space Transportation System (STS), Small Expendable Deployer System and Orbital Debris Measurement Programs; and the Air Force Space and Missile Center's associated programs.

Accomplishments/Planned Program	FY 2005	FY 2006	FY 2007
Provide management support (salaries, training, travel, Space & Missile Defense Command (SMDC) matrix, etc).	11596	11495	11964
Accomplish maintenance and repair projects, including design, executed by Corps of Engineers (COE).	2103	2470	7400
Procure petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP) items.	18254	26140	26140

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605301A - ARMY KWAJALEIN ATOLL	614	
Procure other mission operating supplies, equipment and services.	9356	5604	10416
Provide air and sea transportation (cargo to and from continental United States).	5462	4884	4982
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).	32866	41048	45834
Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.	59702	61676	72155
Total	139339	153317	178891

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL			PROJECT 614
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	139939	154535	140010	
Current BES/President's Budget (FY 2007)	139339	153317	178891	
Total Adjustments	-600	-1218	38881	
Congressional Program Reductions		-672		
Congressional Rescissions		-1546		
Congressional Increases		1000		
Reprogrammings	-600			
SBIR/STTR Transfer				
Adjustments to Budget Years			38881	

Change Summary Explanation: Increase in FY 2007 provides funding for T&E mission operations of the Reagan Test Site. Provides funds to operate required telemetry and optics sites and the TRADEX & ALCOR radars to gather test data on the Ballistic Missile Defense System.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management support

0605326A - Concepts Experimentation

COST (In Thousands)	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	20866	38496	21626	21466	22184	22242	19921
308 Concepts Experimentation	9969	16118	0	0	0	0	0
312 Army/Joint Experimentation	8226	19814	18799	20415	21128	21166	19104
33B SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	2671	2564	2827	1051	1056	1076	817

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 Training and Doctrine Command (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.

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 Program Manager/Program Executive Officers 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

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needed capabilities to the current force in an integrated environment in the current year.

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	24190	31653	32472
Current BES/President's Budget (FY 2007)	20866	38496	21626
Total Adjustments	-3324	6843	-10846
Congressional Program Reductions		-169	
Congressional Rescissions		-388	
Congressional Increases		7400	
Reprogrammings	-3324		-10147
SBIR/STTR Transfer			
Adjustments to Budget Years			-699

Change Summary Explanation: FY 06 Congressional increases as follows: (1) Automated Language Translator - 2,500; (2) Online Arabic Language Learning Community - 2,400; (3) Biometric ID Device - 1,000; (4) Handwritten Optical Character Recognition Software - 500; (5) WARFIGHTERS Intelligence Community, Linguists and Analysts - 1,000.

Funding - FY 2007: Funds reprogrammed to support higher priority requirements.

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation					PROJECT 312	
COST (In Thousands)	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	8226	19814	18799	20415	21128	21166	19104

A. Mission Description and Budget Item Justification: This project supports full spectrum experimentation to provide the analytically rigorous underpinnings for actionable DOTMLPF recommendations that support key Army decisions. Experiments are conducted to yield the right set of integrated Doctrine, Organization, Training, Materiel, Leadership and Facilities(DOTMLPF) capabilities for both the Current and Future Force. Experiments are executed within a joint context and are conducted using Defense Planning Guidance compliant scenarios, validated environmental, behavioral, and US Army Materiel Systems Analysis Activity data. In accordance with the Army Concept Development and Experimentation Plan (ACDEP), FY 06-10 experimentation focuses on determining the roles and responsibilities of Future Force Tactical and Operational Units of Employment (UEx and UEy) and their ability to command and control a mix of Future Combat System (FCS) Equipped Units of Action and Modular Brigade Combat Teams. The initial focus is at the tactical level to rapidly develop the FCS-equipped Unit of Action (UA) as described in the UA Operational and Organization Plan and FCS Family of Systems Capabilities Developments Document, and to support the spin out of selected FCS capabilities to the modular force. As the experimentation campaign progresses, the focus shifts to the operational and strategic levels to refine the operational Unit of Employment (UEy) 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.

The Spiraling Program provides Current Force risk mitigation by leading the Army's Training and Doctrine Command (TRADOC) in development/integration of rapid joint, multi-service doctrine, organization, training, leader, material, personnel, and facility (DOTLMPF) solutions for Operation Enduring Freedom/Operation Iraqi Freedom field commander specific requirements. Supports the Army Staff in identifying and managing current and future force related capability gaps and technology shortfalls. Leads TRADOC assessments of rapid deployed force material solutions for continued development, sustainment, or nomination for Army total force application.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
World Class Blue Force Players	3163	0	0
Unit of Action Sustainment Experiment	151	0	0
Unit of Employment Network Operations Experiment	650	0	0
Army Concept Development and Experimentation Plan (ACDEP) Sustainment	484	0	0
Army Concept Development and Experimentation Plan (ACDEP) Analytical Support	951	0	0
Omni Fusion Integrating Experiment Build 2	127	0	0
Omni Fusion Build 3(-) Unit of Action Simulation Exercise (SIMEX)	1300	0	0
Omni Fusion Build 3(-) Unit of Employment Computer Assisted Map Exercise (CAMEX)	1400	0	0
Spiraling - Demo/Assess soldier protection indirect fire threat	0	3746	0
Spiraling - Demo/Assess radar enhancements in support of Counter Rocket, Artillery and Missile (C-RAM)	0	4147	0

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605326A - Concepts Experimentation	312		
Spiraling - Demo/assess command and control capabilities for Maneuver Control System (MCS) modifications	0	3546	0	
Spiraling - Demo/Assess Forward Area Air Defense Command and Control (FAADC2) integration with Area Defense System	0	3347	0	
Spiraling - Demo/Assess Joint Interoperability of emergent Soldier Protection capability	0	0	3000	
Spiraling - Demo/Assess emergent remote operating weapons station capability	0	0	2800	
Spiraling - Demo/Assess emergent explosives detection capability	0	0	2000	
Spiraling - Demo/Assess emergent sensor integration solutions	0	0	2699	
Experimentation requirements will be determined at the FY 07 ACDEP conference.	0	0	8300	
Multi-Cell and Dismounted Command and Control Experiment	0	830	0	
Digital Warfighter Experiment	0	1000	0	
Unit of Action Force Maneuver Concept and Development Experiment	0	500	0	
Maneuver Enhancement Brigade Experiment	0	251	0	
Fires Brigade Experiment	0	450	0	
Urban Resolve	0	688	0	
Future Combat Systems Program of Record - Stability and Reconstruction Operations Experiment and Battalion Tactics, Techniques and Procedures (TTP) Experiment	0	820	0	
Network Operations Experiment	0	489	0	
Total	8226	19814	18799	

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605326A - Concepts Experimentation					PROJECT 33B	
COST (In Thousands)	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	2671	2564	2827	1051	1056	1076	817	

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).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide Human Factors Engineering and Manpower and Personnel Integration (MANPRINT) support to Training and Doctrine Command (TRADOC) Centers, Schools and Battle Laboratories. In FY05, improved and enhanced 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.	1416	1359	1516
Provide dedicated modeling and analysis cell for early and accurate Manpower and Personnel Integration (MANPRINT) estimates to Army Materiel Command (AMC), AMC Research, Development, and Engineering Command (RDECOM) and its Research, Development, and Engineering Centers (RDECs), TRADOC Centers, Schools and Battle Laboratories, Army Test and Evaluation Command (ATEC) and other service laboratories. In FY05, identified soldier-focused modeling and analysis capabilities and mapped those capabilities to the Future Force needs of PEO Soldier. Conducted and transitioned soldier-system integration (form & fit) analysis to support UoA force and systems design decisions using library of individual soldier clothing and equipment. Identified and transitioned 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.	1255	1205	1311
Total	2671	2564	2827

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES					
COST (In Thousands)	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	188226	364007	389840	376413	361966	359527	344050
F30 ARMY TEST RANGES & FACILITIES	181519	364007	389840	376413	361966	359527	344050
F38 BIG CROW SUPPORT	6707	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) weapon system 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
- Electronic Proving Ground (EPG), Fort Huachuca, AZ
- 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 Headquarters, DTC located at APG, MD. 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 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 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 - ...the institutional and overhead costs of a facility or resource of a military department or Defense Agency that is within the Major Range and Test Facility Base are fully funded...The term 'institutional and overhead 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 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.

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BUDGET ACTIVITY
6 - Management support

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

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	191688	369943	390035
Current BES/President's Budget (FY 2007)	188226	364007	389840
Total Adjustments	-3462	-5936	-195
Congressional Program Reductions		-2243	
Congressional Rescissions		-3693	
Congressional Increases			
Reprogrammings	-3462		
SBIR/STTR Transfer			
Adjustments to Budget Years			-195

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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 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	181519	364007	389840	376413	361966	359527	344050

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

This project also funds the indirect test costs associated with rapidly testing field systems and equipment needed in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) such as Individual soldier protection equipment and Counter Measures for Improvised Explosive Devices (IEDs)/Rocket Propelled Grenades (RPGs). This project 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. Unclassified systems scheduled for developmental testing encompass the entire spectrum of transformation weapons systems such as: Unattended Ground Sensors, Non-Line-of-Sight Launch System, Intelligent Munitions System, Non-Line-of-Sight Cannon, Warfighter Information Network-Tactical, Combat Identification, Integrated Computer System and Apache Block III. Capabilities are also required to support System-of-Systems testing.

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

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

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Mission Support. Funds support test equipment upgrade and maintenance; test facility maintenance; routine calibration; handling and disposal of hazardous materials, transportation, postage, administrative supplies; tools; software; spare parts; test support vehicle maintenance; mission unique installation costs; temporary duty/training of civilian and contractor personnel; printing and reproduction;	27872	104792	119490

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605601A - ARMY TEST RANGES AND FACILITIES	F30	
utilities; communications; land leases; and range road maintenance not billable in accordance with NDAA. Effective beginning in FY 06, funding supports indirect cost previously paid by the customer for which funding was realigned, as approved by Assistant Secretary of the Army for Acquisition, Logistics and Technology and validated by Deputy Assistant Secretary of the Army for Cost and Economics, from the Army PEO/PMs and non-Army DOD customers.			
T&E Civilian Pay. This funding supports the overhead costs of the civilian labor for Program Budget Guidance (PBG) authorizations in accordance with NDAA. The balance is customer funded. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. Funding is essential to maintain core T&E skills as part of the Government civilian workforce.	101802	137559	144551
Contractor Pay. This funding supports contractor labor costs not appropriately billable to the customer in accordance with NDAA. Contract labor is essential to augment core civilian T&E personnel. Functions performed include range operations, automotive test support, radar maintenance, aerial cable support operations, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and instrumentation, and automatic data processing support. Effective beginning in FY06, funding supports contractor efforts related to mission support. These cost were previously paid for by the customer prior to implementation of the FY2003 National Defense Authorization Act.	28065	111656	115799
Revitalization/Upgrade of test infrastructure and facilities. Beginning in FY06 MRTFBs must use institutional funding to create or upgrade capabilities that will support multiple customers. In FY05, funded projects included the Test Support Network at Electronic Proving Ground that supports Stryker, Army Battle Command System and Warfighter Information Network; 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 2007 funds will provide the capability to support the Army Transformation test and evaluation program through such projects as: upgrading test facilities to support live fire and armor testing.	10155	10000	10000
Phase 1: National Counter Terrorism Counter-Insurgency Test & Evaluation Center. The Joint Experimentation Range Complex (JERC) provides test and training capabilities geared towards technical and operational characterization of systems and technologies required to support ongoing war efforts. It provides urban/rural terrain sites replicating the current operational theater and addresses the need for a range for long-term testing of technologies and systems proposed to detect, defeat, and neutralize Improvised Explosive devices (IEDs).	4625	0	0
Cold Regions Test Activity (CRTC) Congressional increase. Funds are designated for CRTC Hybrid electric infrastructure.	9000	0	0
Total	181519	364007	389840

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					
COST (In Thousands)	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	71804	68299	74066	75267	75308	74392	58878
628 Developmental Test Technology & Sustainment	58120	45736	47060	47711	47976	45973	36569
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	7887	15398	12723	13047	13150	13681	11022
62C MODELING AND SIMULATION INSTRUMENTATION	5797	7165	14283	14509	14182	14738	11287

A. Mission Description and Budget Item Justification: Increased funding beginning in FY 2007 provides sustainment and improvements to the Army's test infrastructure reflecting an Army leadership decision supporting Congressional and Office of Secretary of Defense interest in implementing the Defense Science Board (DSB) recommendations to increase 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 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 Army Test and Evaluation Command'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 (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management support

0605602A - Army Technical Test Instrumentation and Targets

Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS).

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BUDGET ACTIVITY
6 - Management support

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

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	60142	62687	82385
Current BES/President's Budget (FY 2007)	71804	68299	74066
Total Adjustments	11662	5612	-8319
Congressional Program Reductions		-300	
Congressional Rescissions		-688	
Congressional Increases		6600	
Reprogrammings	11662		
SBIR/STTR Transfer			
Adjustments to Budget Years			-8319

Change Summary Explanation:

In FY05 \$4.7 million reprogrammed for the Joint Experimentation Range Complex (JERC) in support of the Global War on Terrorism. \$6.9 million reprogrammed for test instrumentation improvements at White Sands Missile Range, New Mexico; Redstone Technical Test Center, Alabama; Dugway Proving Grounds, Utah; Aberdeen Test Center, Maryland and Yuma Proving Ground, Arizona. In FY07 \$8.3 million realigned to higher priority requirements.

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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 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	58120	45736	47060	47711	47976	45973	36569

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

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

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Support of simulation and distributed testing: 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 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 projects are used to develop and demonstrate the ability to tie all geographically dispersed Army Test ranges and synthetic battle-space representations together for system of systems level testing. The Future Combat System (FCS) Lead Systems Integrator and the Program Manager (PM), FCS (BCT) Future Combat System Brigade Combat Team, have built this distributed test capability into their testing strategy . These projects also fund a collaborative knowledge management system to provide a common access for all data/documents within the Army test	16853	16000	12264

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605602A - Army Technical Test Instrumentation and Targets	628	
community. It continues development of a High Level Architecture (HLA) and Department of Defense Test and Training Enabling Architecture (TENEA) 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 control and conduct of live, virtual and constructive integrated tests in net-centric warfare environments.			
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. Replace ballistic transducers for measuring chamber pressures during ammunition tests. Support development of common instrumentation for developmental and operational testing within all test commodity areas. Acquire 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 Unmanned Aerial Systems (UAS) 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. Continue to update survivability test capabilities in support of live fire and active protection systems. Improve 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.	21018	23877	29347
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 Test and Evaluation (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).	5702	5859	5449
Chemical Biological Defense Materiel Test and Evaluation Initiative (CBDMTEI) was a congressional addition to Defense Planning Guidance 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.	961	0	0
Congressional add for WSMR modernization (\$4.083 million), Film Eliminator (\$3.362 million), and Advanced Digital Radar (\$1.441 million). The WSMR Test Modernization project supports optical tracking systems by acquiring high-speed, medium-resolution digital imagers and required support equipment; digital photographic support equipment; facility networking equipment; and digital camera data downloading systems; upgrades to digital image processing and optical data analysis computers; high-bandwidth network equipment; a 50TerraByte disk library; and medium-resolution test camera and support equipment for testing, calibration and maintenance. The WSMR Film Elimination project supports non-tracking instruments by acquiring mobile launch support network vans; lenses, portable field computers, field storage devices, media duplicators; and equipment for digital imaging, reproduction, archiving and photo lab support in the Media Transfer Facility. 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	8886	0	0

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February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605602A - Army Technical Test Instrumentation and Targets	628	
to perform at very high and very low altitudes.			
Phase 1: National Counter Terrorism Counter-Insurgency Test & Evaluation Center. The Joint Experimentation Range Complex (JERC) was developed to provide test and training capabilities geared towards technical and operational characterization of systems and technologies required to support ongoing war efforts. Specifically, it provides urban/rural terrain sites, replicating the current operational theater. Originally built in 28-days, the site was anticipated to only be needed for a short time. There is now a clear need for a range for the long-term for Improvised Explosive Devices (IED) efforts and to expand its use to general counter-terrorism missions. To more effectively, reliably and rapidly test technologies and systems proposed to detect, defeat, and neutralize IEDs, the following projects provide crucial capabilities during the first phase of a 2-year multi-phase program: Threat System Auto Command and Control, European Global System for Mobile Communications (GSM) Cell Phone System Upgrades, Soldier Tracking System, Expanded Electronic Proving Ground (EPG) Electro-magnetic Environment (EME) Capability, Radio Frequency (RF) Monitoring Stations, Instrumentation Lab, Expand Global Positioning System (GPS) Coverage, Electronic System Lab, Real-time Command and Control Center, Expanded Network Coverage, and Terrain & Feature Modeling.	4700	0	0
Total		58120	47060

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					PROJECT 62B	
COST (In Thousands)	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	7887	15398	12723	13047	13150	13681	11022

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

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY05 Accomplished projects: Multi-Media Data Transfer System, High Speed Data Recording System, Global Positioning System Modernization, Improved Field Data Collection System v.4, Neural Network Based Software Upgrade, Mobile Instrumentation Support Van, Secure Wideband Satellite Commo Link, Satellite Tool Kit, Airborne Position Location System, Night Vision Enhancements, MCSTF Van Platform Upgrade, Command Audio Visual Modernization, Web Dag Enhancement, Synchronize OTC/EPG DPU Software, Direct Methanol Fuel Cell. DVER Compatibility with ATIN and CVII, Family Digital Data Collection.	7887	0	0
FY06 and FY07 Planned projects: Digital Asset Management System, Data Collection and Analysis Van, Mobile Surveillance and Target Acquisition Radar, OASIS MSI Integration FY06 Phase I, Networked Instrumentation Test System, OT-TES, Family of Digital Data Collectors Test Bed, Digital Image Editing Equipment, MCSTF Van Platform Upgrade, IEW Test Operations Capability, GPS Modernization, Neural Network Based Software, High Speed Data Recording System, NG CEES, Multi Media Data Transfer System, Quick Look Instrumentation Work Station.	0	8798	12723
Congressional increases for Dugway Proving Ground Testing and Infrastructure upgrades, Aberdeen Technology Transfer Initiative, White Sands Missile Range Film Elimination, Mobile Optical Tracking System, and Accelerator Based Neutron Production Study	0	6600	0
Total	7887	15398	12723

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					PROJECT 62C	
COST (In Thousands)	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	5797	7165	14283	14509	14182	14738	11287	

A. Mission Description and Budget Item Justification: Increased funding beginning in FY07 develops synthetic environments and instrumentation systems necessary to test FCS and Future Force systems under realistic operational conditions. This project provides the critical foundation necessary to develop and sustain the Army Test and Evaluation 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); 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); and the 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Funds development and sustainment of high priority modeling and simulation instrumentation systems, such as STORM and OASIS.	1597	2577	11887
Funds development of the C3 Driver. The C3 Driver supports the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Army Battle Command System (ABCS) 6.3, 6.4, Brigade Combat Team, Joint Tactical Radio System, and Warfighter Information Network -Tactical development and integration at the Central Technical Support Facility and contractor locations as the Army's single simulator/stimulator.	4200	4588	2396
Total	5797	7165	14283

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis					PROJECT 675	
COST (In Thousands)	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	44104	41703	40780	40657	41184	42446	39029	

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, Manpower and Personnel Integration (MANPRINT), Deployability, and Sustainability. The challenge of the Army Transformation is to examine holistically the contribution of platforms to force effectiveness. This project provides lethality and survivability data of potential systems in the Stryker and Future Forces to achieve symmetric mix of force effectiveness. The analysis is integrated across all battlefield threats (i.e., conventional ballistic, electronic warfare, and directed energy). The results are used by each 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 (IW), and information operations (IO) of Army communications, electronic equipment and digitized forces against friendly and enemy threats. Provides field threat environment support for Electronic Warfare Vulnerability Analysis (EWVA). Analyzes vulnerabilities of foreign threat weapons and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and Intelligence Electronic Warfare (IEW) systems to U.S. Army Electronic Warfare (EW) systems. Provides threat weapon electronic design data to countermeasure developers and technical capability information to the intelligence community. Supports Army initiatives in vulnerability reduction of C4I/IEW systems against battlefield threats, including IW. Provides analysis for understanding potential vulnerabilities of Digitized Force developmental systems. Supports Army Warfighting Experiments and associated Information Operations Vulnerability Assessments for Digitized Force Architecture. Supports vulnerability analysis of situational awareness data of the Transformation Force.

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Completed non-ballistic survivability/lethality analysis for Stryker variants/configurations. Conduct Stryker Mobile Gun System and Nuclear, Biological and Chemical Reconnaissance vehicle Live Fire Test and Evaluation (LFT&E) and non-ballistic survivability analysis. For these two variants, provide pre-shot predictions, perform damage assessments after live fire tests, post-shot analyses and provide technical data required by ATEC for the Systems Evaluation Reports.	2777	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 System 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	11774	12000	13080

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605604A - Survivability/Lethality Analysis	675		
Survivability related issues during FCS system design to include fratricide prevention and crew protection. Support the planning and execution of the ballistic vulnerability and Title 10 LFT&E programs on the FCS, in conjunction with ATEC and Director, Operational Test & Evaluation (DOT&E). 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 Program Design Review (PDR) in FY 2005.				
Conduct integrated survivability, lethality, and vulnerability analyses for aviation systems. Complete CH-47F LFT&E survivability evaluation. Prepare multi-threat survivability analysis data for CH-47F milestone C decision. Provide Blackhawk and Apache LFT&E support. Conduct EW vulnerability assessments for developmental U.S. Army munition systems such as Advanced Precision Kill Weapon System (APKWS), Intelligent Munition System (IMS) and Mid-Range Munition (MRM). Conduct ballistic survivability/lethality analysis for U.S. Army munitions systems to include APKWS, Spider, XM 982 Excalibur, MRM, Precision Guided Mortar Munition (PGMM), Guided Multiple Launch Rocket System (GMLRS) w/Dual Purpose Improved Conventional Munitions (DPICM), GMLRS Unitary, Compact Kinetic Energy Missile (CKEM), Javelin pre-planned product improvement, and XM307. Provide Global Positioning System jamming analysis for U.S. Army munition systems to include Excalibur, GMLRS w/DPICM and GMLRS Unitary. Conduct obscurant and atmospheric effects survivability analysis for U.S. Army munitions systems. Support LFT&E of GMLRS Unitary and operational testing for GMLRS w/DPICM. Conduct initial lethality estimates on the Non-Line-of-Sight Launcher System, and Intelligent Munitions System (IMS).	7347	7329	6900	
Conduct integrated electronic and IW effects survivability analysis on command and control systems, and various Army weapon platforms as they integrate C4ISR components with internal information/computer processors controlling automotive, flight, fire control and sensor functions. This effort supports the full set of Army Battle Command Systems: Force XXI Battle Command, Brigade & Below, Advanced Field Artillery Tactical Data System, Maneuver Control System, Forward Area Air Defense-C2I, All Source Analysis System, Combat Service Support Control System, and Advanced Missile Defense Warning System. Continue to expand IW vulnerability assessment program to determine exploitable weakness in the Digitized Forces (including FCS) and recommend mitigating solutions. Focus on processor components of the Stryker Force to determine the limitations of system performance in an IW threat environment. Conduct integrated electronic and IO survivability analysis for Army communications systems such as Warfighter Integrated Network-Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System (JTRS), Single Channel Anti-Jam Man-Portable Terminal, Secure Mobile Anti-Jam Reliable Tactical Terminal and Single Channel Ground and Airborne Radio System Advanced System Improvement Program. Conduct integrated electronic and IO survivability analysis for C2 systems integral to air and missile defense systems. Conduct integrated electronic and IO survivability analysis for Global Positioning System components as they are integrated into Army munitions systems. Includes update of information warfare vulnerability database, and vulnerability analyses of Tactical Internet components to radio frequency directed energy weapons (RFDEW). Develop modeling and simulation to examine impacts of EW and IW attacks on the survivability of FCS. Conduct EW and IW investigations of the JTRS design via supplied simulations and emulations.	12707	12057	15463	
Conduct integrated survivability, lethality, vulnerability analyses for developmental air defense and missile defense systems, pre-planned product improvements of current systems, and recently fielded systems. Systems to be addressed include Ballistic Missile Defense System (BMDS), Theater High Altitude Air Defense (THAAD), Patriot, Medium Extended Air Defense System (MEADS), Surface-Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and Sentinel. Provide interim survivability reports. Recommend survivability enhancements. Project also funds Anti-Radiation Missile (ARM) Counter-Arm efforts that assess threat technologies against THAAD and Ground-Based Midcourse Defense, Patriot, MEADS, and Forward Area Air Defense-C21 (FAAD-C21) ground based sensors. Includes work on Focal Plane Array Countermeasures (FPACM) (Project Agreement Partner: United Kingdom): Produce final assessment report for FPACM. Assist in transitioning to new FPACM agreement with the Air Force. Continue support of Missile Defense Agency's (MDA) Ballistic Missile	5299	5317	5337	

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605604A - Survivability/Lethality Analysis	675		
Defense System (BMDS) through MDA Black Team participation which includes postulation of potential countermeasure threats, assessment of countermeasure impacts on BMDS systems and providing communications jamming and Information Assurance inputs to the Adversary Capability Document. Support development of BMDS Test Bed. Design and develop hardware to support the software research and development for the Patriot Advanced Capability-3 Seeker electronic countermeasures/electronic counter-countermeasures algorithms.				
System of Systems Survivability Simulation - develop a System of Systems Survivability engineering model used with the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) and its successor, Combat XXI. The System of Systems Survivability model provides details of how combat outcomes are dependant on understanding the way quality of military decision-making is conditioned by information flow on the battlefield. This model will advance the understanding of Information Operations and Information Warfare.	4200	1000		0
Complete engineering design, site preparation work and concrete pad construction for Rotocraft Survivability Assessment Facility.	0	4000		0
Total	44104	41703		40780

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis			PROJECT 675
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	47543	38306	40005	
Current BES/President's Budget (FY 2007)	44104	41703	40780	
Total Adjustments	-3439	3397	775	
Congressional Program Reductions		-183		
Congressional Rescissions		-420		
Congressional Increases		4000		
Reprogrammings	-3439			
SBIR/STTR Transfer				
Adjustments to Budget Years			775	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility					PROJECT E97	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
E97 DOD HELSTF	17300	19505	16622	16404	16424	16976	2054

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. HELSTF is part of the Department of Defense (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 Solid State Heat Capacity Laser (SSHCL) testbed, the Mobile Tactical High Energy Laser (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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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 weapon systems (Special Operations Command (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 Space & Missile Defense Command (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. 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	17300	19505	16622

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility	PROJECT E97	
to outdoor test areas.			
Total		17300	19505

16622

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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 2006)	15098	17688	18354	
Current BES/President's Budget (FY 2007)	17300	19505	16622	
Total Adjustments	2202	1817	-1732	
Congressional Program Reductions		-86		
Congressional Rescissions		-197		
Congressional Increases		2100		
Reprogrammings	2202			
SBIR/STTR Transfer				
Adjustments to Budget Years			-1732	

Change Summary Explanation: FY05 reprogramming funds upgrades to the mobile diagnostic system, aging laser, beam director, and test support facilities. These upgrades are critical in order to provide a modern, more maintainable HELSTF that supports both operational and developmental testing. FY06 includes a \$2.1 million Congressional Add for HELSTF Upgrade.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605606A - AIRCRAFT CERTIFICATION					PROJECT 092	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
092 AIRCRAFT CERTIFICATION	2920	2709	4580	4691	5002	5723	5970

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Managed/executed technical and airworthiness qualification mission for PEO Aviation/force modernization aircraft systems or multi-system programs. In FY 07, will be limited to multiplatform airworthiness efforts.	1115	990	1580
Continued to ensure safety of flight investigations/assessments to include PEO Aviation/force modernization of aircraft systems.	668	667	600
Develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching Airworthiness qualification documentation.	187	236	1050
Provided continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.	700	599	700
Continued to provide test management capability for PEO Aviation Program/Project/Product Managers.	250	217	250
Active involvement in tri-service/NATO airworthiness activities (i.e. Joint Logistics Commanders Group).	0	0	400
Total	2920	2709	4580

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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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 2006)	3419	2748	12236	
Current BES/President's Budget (FY 2007)	2920	2709	4580	
Total Adjustments	-499	-39	-7656	
Congressional Program Reductions		-12		
Congressional Rescissions		-27		
Congressional Increases				
Reprogrammings	-499			
SBIR/STTR Transfer				
Adjustments to Budget Years			-7656	

Change Summary Explanation: FY 2007 (\$7.656 Million) Funds were realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities					PROJECT 128	
COST (In Thousands)	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	9440	8703	8571	8483	8478	8554	7384

A. Mission Description and Budget Item Justification: All functions and resources in this Program Element (PE) are managed by the U.S. Army Developmental Test Command, a subordinate command of the U.S. Army Test and Evaluation Command (ATEC). Meteorological support to research, development, test, and evaluation (RDT&E) activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/Department of Defense RDT&E test requirements for modern weaponry, e.g., (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target to background measurements, and predictions for electro-optical testing and ballistic artillery/mortar firing; and (3) advisory and warning products such as go/no-go test recommendations for ballistic and atmospheric probe missiles, smoke/obscurant tests, hazard predictions for chemical agent munitions disposal, monitoring dispersion of simulant clouds for chemical/biological detector tests, simulated nuclear blasts, and weather warnings for test range safety. Provides technical support to Army Program Executive Officers (PEOs), Project Managers (PMs), and the Army test ranges and sites at: White Sands Missile Range (WSMR), NM; Electronic Proving Ground (EPG), Fort Huachuca, AZ; Dugway Proving Ground (DPG), UT; Aberdeen Test Center (ATC), Aberdeen Proving Ground, MD; Redstone Technical Test Center (RTTC), Redstone Arsenal, AL; Yuma Proving Ground (YPG), AZ (including the Cold Regions Test Center (CRTC), Fort Greely, AK); Fort Belvoir, VA; and Fort A.P. Hill, VA. 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 essential to the accomplishment of the Army's developmental test mission in that precise weather modeling and measurement directly influence test item performance.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provides indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories; staff meteorological services; and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges, and alternate test sites as required. In FY05 and FY06 provided 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.	3359	2994	2766
Provides funding for meteorological instrumentation and technology to support RDT&E activities at Army test ranges. Includes funding for development, fielding, and enhancement of the 4DWX system, an advanced meteorological support system that provides high-resolution weather forecasts and analyses to support developmental and operational field tests. The 4DWX analyses and forecasts of the 3-dimensional structure of the atmosphere over time (4th dimension) are used in test planning, conduct, and forensic analyses and also provide realistic atmospheric conditions for modeling and simulation. The Global Meteorology on Demand (GMOD) capability allows range meteorologists to set-up and launch 4DWX modeling capabilities anywhere in the world. FY05 accomplishments included addition of the 4DWX real-time four dimensional data assimilation capability to the next-generation mesoscale model, the Weather Research and Forecast (WRF) model; upgrading the Linux PC clusters; and increasing the GMOD computer resources to allow concurrent use at	6081	5709	5805

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605702A - Meteorological Support to RDT&E Activities	128	
<p>multiple locations. System enhancements planned in FY06/FY07 include transition of the range 4DWX system to the WRF model; further upgrades in GMOD computer; and improved land-surface and boundary layer parameterizations to improve forecast accuracy near the surface. FY05 funding was used to continue a multiyear effort to replace or upgrade obsolete instrumentation, including replacing obsolete upper-air sounding systems, upgrading the sensors on the Surface Atmospheric Measurement System fixed and mobile remote automated weather stations, renovation of the radar wind profilers used to provide near real-time wind and temperature profiles to support test activities such as Chemical/Biological simulant release and missile launches, and replacement of Doppler acoustic sounders for near real-time boundary layer wind profile measurements. This instrumentation modernization will continue in FY06/FY07.</p>			
Total		9440	8703
			8571

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	8415	8829	9205	
Current BES/President's Budget (FY 2007)	9440	8703	8571	
Total Adjustments	1025	-126	-634	
Congressional Program Reductions				
Congressional Rescissions		-88		
Congressional Increases		-38		
Reprogrammings	1025			
SBIR/STTR Transfer				
Adjustments to Budget Years			-634	

In FY05 Funds provided to replace or upgrade backlog of obsolete meteorological instrumentation including: upper-air sounding systems; sensors on the Surface Atmospheric Measurement System (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 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS					PROJECT 541	
COST (In Thousands)	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	15908	15296	16526	17151	17531	17804	15975	

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

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

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

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

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

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS	PROJECT 541		
<u>Accomplishments/Planned Program</u>		<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Funding directly pays DA civilians at AMSAA who are responsible for developing and certifying system performance and effectiveness data for U.S. and foreign systems to be used during Army and Joint AoAs, force structure studies, and theater level studies. Analyses of performance and combat effectiveness of materiel systems and technology base programs are conducted in support of DA, the Army Materiel Command, the Research, Development and Engineering Command, Program Executive Officers/Program Managers, the Training and Doctrine Command, and the Army Test and Evaluation Command. 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 PoF analyses. Examples of programs supported with critical analyses: Future Combat System (FCS), Stryker, Objective Individual Combat Weapon (OICW), Objective Crew Served Weapon (OCSW), Land Warrior, Unmanned Aerial Vehicles, Kinetic Energy (KE) Active Protection System (APS), Joint Non-Lethal Weapons Program (JNLWP), Intelligent Munitions System (IMS), and Precision Guided Mortar Munitions (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 PoF 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.		15908	15296	16526
Total		15908	15296	16526

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	17675	15517	15904	
Current BES/President's Budget (FY 2007)	15908	15296	16526	
Total Adjustments	-1767	-221	622	
Congressional Program Reductions		-67		
Congressional Rescissions	-14	-154		
Congressional Increases				
Reprogrammings	-1753			
SBIR/STTR Transfer				
Adjustments to Budget Years			622	

FY 2005: Funds realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605709A - EXPLOITATION OF FOREIGN ITEMS					PROJECT C28	
COST (In Thousands)	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)	4670	4643	4993	5528	5894	6901	7036	

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).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Acquire threat systems identified and prioritized in the Army Foreign Materiel Program (FMP) Five Year Plans.	1700	1653	1751
Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the appropriate Army FMP Exploitation Programs.	2970	2990	3242
Total	4670	4643	4993

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	4672	4710	5090	
Current BES/President's Budget (FY 2007)	4670	4643	4993	
Total Adjustments	-2	-67	-97	
Congressional Program Reductions		-20		
Congressional Rescissions	-2	-47		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years			-97	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605712A - Support of Operational Testing

COST (In Thousands)	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	70181	75891	80057	78833	76925	78587	68904
001 ATEC Joint Tests and Follow-On Test & Evaluations	5737	9921	7766	8102	8502	8873	4605
V02 ATEC ACTIVITIES	64444	65970	72291	70731	68423	69714	64299

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	72284	75993	79062
Current BES/President's Budget (FY 2007)	70181	75891	80057
Total Adjustments	-2103	-102	995
Congressional Program Reductions		-337	
Congressional Rescissions		-765	
Congressional Increases		1000	
Reprogrammings	-2103		
SBIR/STTR Transfer			
Adjustments to Budget Years			995

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing					PROJECT 001	
COST (In Thousands)	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	5737	9921	7766	8102	8502	8873	4605

A. Mission Description and Budget Item Justification: This project funds the Army's direct costs of planning and conducting Multi-service Tests and Evaluations (MOTE) for which there is no Army Project Manager (PM) and Army requirements for Joint Test and Evaluation (JT&E). These are required to evaluate concepts and address needs and issues that occur in joint military environments and provides information required by Congress, Office of the Secretary of Defense, the Unified Commands, and the Department of Defense components relative to joint operations. Beginning in FY 2006, this project will also fund Follow-on Test and Evaluation (FOTE), as necessary. FOTE may be required after a full production decision to assess system training and logistics, to verify correction of deficiencies identified during earlier testing and evaluation, and to ensure that initial production items meet operational effectiveness, suitability and supportability thresholds.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Joint operational testing and evaluation.	913	2692	3271
Other-Special projects/Operational Test and Evaluation without Army Project Manager	4824	3156	1045
Multi-Service Operational Text and Evaluation/Follow-on testing and evaluations.	0	3073	3450
MATTRACKS Track Conversion system for Light Wheeled Vehicles	0	1000	0
Total	5737	9921	7766

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing					PROJECT V02	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
V02 ATEC ACTIVITIES	64444	65970	72291	70731	68423	69714	64299

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command.	45853	47225	48735
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.	18591	18745	23556
Total	64444	65970	72291

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605716A - Army Evaluation Center					PROJECT 302	
COST (In Thousands)	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	56837	56388	60129	62163	64917	67559	63158	

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 Material 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.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Support the early involvement initiative which provides continuous support to materiel and combat developers from the inception of their programs. This initiative leverages science and technology that will lead to cost savings 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.	3334	4643	4682
Provide integrated technical and operational evaluations and continuous evaluation of assigned MDAPs, major automated information systems, and IPR programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. Develop the evaluation strategy, design technical and operational tests, and evaluate the test results to address the combat effectiveness, suitability, and survivability factors pertinent to the decision process, for programs such as Future Combat System (FCS), Warfighter Information Network- Tactical (WIN-T), 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), Army Battle Command System, 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	53503	51745	55447

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management support	0605716A - Army Evaluation Center	302	
<p>(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 Sight Anti Tank (LOSAT). Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapon systems. In support of contingency operations and the Global War on Terrorism (GWOT), AEC has drastically refocused its evaluation workload towards the evaluation of Rapid Initiative (RI) systems, Improvised Explosive Device (IED) Task Force systems, and Urgent Material Releases. Includes costs for 354 civilian authorizations.</p>			
Total		56837	60129

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	61212	57305	64745	
Current BES/President's Budget (FY 2007)	56837	56388	60129	
Total Adjustments	-4375	-917	-4616	
Congressional Program Reductions		-348		
Congressional Rescissions		-569		
Congressional Increases				
Reprogrammings	-4375			
SBIR/STTR Transfer				
Adjustments to Budget Years			-4616	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					
COST (In Thousands)	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	1853	5360	5441	4626	6893	8137	7918
S01 INTEGRATION & EVALUATION CENTER (IEC) SUSTAINMENT	1853	0	784	0	0	0	0
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	0	1600	944	392	1525	1727	1831
S03 TRAC M&S TOOLS & SERVICES	0	2802	2550	2516	2976	4066	4256
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	0	958	1163	1718	2392	2344	1831

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 of the Army 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 (FACT), established by CAA to improve the M&S capability of representing Army capabilities at the campaign-level. The Training and Doctrine Command Analysis Center (TRAC) is an Army analysis agency that conducts research on potential military operations worldwide to inform leaders and support decisions on the most challenging issues facing the Army and the Department of Defense (DoD). This project provides TRAC with the resources to ensure the Army can develop and maintain a current, efficient M&S infrastructure to rapidly respond to the Army leadership on Joint warfighting experiments, analyses of courses of action, and doctrine development. The Army'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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management support

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

major technology breakthroughs in SMART, embedded simulation, rapid prototyping, commercial innovation, and related simulation technology.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

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

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	1853	9437	8592
Current BES/President's Budget (FY 2007)	1853	5360	5441
Total Adjustments	0	-4077	-3151
Congressional program reductions		-4023	
Congressional rescissions		-54	
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			-3151

Change Summary Explanation: FY 2006 - Congressional reduction due to program growth. FY 2007 - funds realigned to support the Tools and Services programs and the Simulation Technology Program.

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S03	
COST (In Thousands)	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	2802	2550	2516	2976	4066	4256	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Advance maneuver sustainment force representation in combat models and simulations	0	617	543
Develop knowledge, models, and data for a strongly networked Future Force Command and Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR).	0	252	222
Advanced simulation of urban operations (complex environments, physical processes and individual and unit behaviors)	0	504	444
Develop algorithms and data that lead to better representation of the threat, non-combatants, and factions	0	700	699
Develop algorithms and data to better represent joint capabilities and the Army's roles as part of a joint force	0	112	99
Develop algorithms and data that lead to better representation of space capabilities and their contributions to the joint fight	0	561	493
Develop algorithms and data for representing individual soldier behaviors and interactions on the battlefield	0	56	50
Total	0	2802	2550

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S05	
COST (In Thousands)	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	958	1163	1718	2392	2344	1831	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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	958	1163
Total	0	958	1163

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

COST (In Thousands)	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	59484	53496	72214	73968	76337	71203	60839
F06 The Futures Center	7286	345	374	390	402	376	294
M02 MED CMD SPT (NON-AMHA)	11152	12547	26572	27478	28231	19454	10290
M15 ARI MGMT/ADM ACT	2205	2171	2260	2311	2406	2702	2672
M16 STANDARDIZATION GROUPS	4145	3924	4818	5083	5213	5283	5347
M42 ARDEC CMD/CTR Support	5602	5087	6108	5880	6096	6618	6831
M44 CECOM CMD/CTR SPT	3063	3397	3922	3999	4151	4756	4797
M46 AMCOM CMD/CTR SPT	5386	4989	5685	5806	6049	6844	6977
M47 TACOM CMD/CTR SPT	2641	2438	2783	2815	2917	3158	3219
M53 Developmental Test Command/Ctr Spt	11548	11205	11443	11842	12269	12647	10914
M55 Edgewood Chemical Biological Center (ECBC)	3767	4365	4908	4947	5079	5558	5637
M58 SSCOM CMD/CTR SPT	1532	1814	2053	2079	2156	2414	2443
M76 Armament Group Support	1157	1214	1288	1338	1368	1393	1418

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)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	58106	54269	79482
Current BES/President's Budget (FY 2007)	59484	53496	72214
Total Adjustments	1378	-773	-7268
Congressional Program Reductions		-235	
Congressional Rescissions		-538	
Congressional Increases			
Reprogrammings	1378		
SBIR/STTR Transfer			
Adjustments to Budget Years			-7268

FY2007: Funds realigned to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M02	
COST (In Thousands)	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)	11152	12547	26572	27478	28231	19454	10290	

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

Additionally, the 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
In FY05, 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 FY06, partially funds civilian salaries and operation of USAMRAA and HQ, USAMRMC activities that support the Medical RDTE Program. In FY07, 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.	11152	12547	17590
Funds FDA requirement for prototyping, certification, and integration of the MeRITS and the standardization/integration of disparate laboratory accounting systems.	0	0	8982
Total	11152	12547	26572

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

PROJECT
M15

COST (In Thousands)	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	2205	2171	2260	2311	2406	2702	2672

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.	2205	2171	2260
Total	2205	2171	2260

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M16	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
M16 STANDARDIZATION GROUPS	4145	3924	4818	5083	5213	5283	5347	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at the six Standardization Groups.	4145	3924	4818
Total	4145	3924	4818

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M42	
COST (In Thousands)	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	5602	5087	6108	5880	6096	6618	6831	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.	5602	5087	6108
Total	5602	5087	6108

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

PROJECT
M44

COST (In Thousands)	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	3063	3397	3922	3999	4151	4756	4797

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CERDEC.	3063	3397	3922
Total	3063	3397	3922

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M46	
COST (In Thousands)	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	5386	4989	5685	5806	6049	6844	6977	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMRDEC.	5386	4989	5685
Total	5386	4989	5685

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M47	
COST (In Thousands)	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	2641	2438	2783	2815	2917	3158	3219	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TARDEC.	2641	2438	2783
Total	2641	2438	2783

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M53	
COST (In Thousands)	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	11548	11205	11443	11842	12269	12647	10914

A. Mission Description and Budget Item Justification: Project M53 funds civilian labor and support costs for the technical direction and administrative functions of the Headquarters, U.S. Army Developmental Test Command (DTC) located at Aberdeen Proving Ground, Maryland, and is required to support accomplishment of assigned developmental test missions not directly related to specific test and evaluation projects. This project includes staff/management functions of resource management, safety, security, environmental, strategic planning and ADPE/information/technology support for command-wide databases in support of the developmental test mission with technical direction of five Major Range and Test Facility Bases (MRTFBs) and test centers: White Sands Missile Range (WSMR), New Mexico; Aberdeen Test Center (ATC), Maryland; Dugway Proving Ground, Utah; Electronic Proving Ground (epg), Arizona; and Yuma Proving Ground (YPG), Arizona; as well as for Redstone Technical Test Center, Alabama; Aviation Technical Test Center, Alabama; Cold Regions Test Center, Alaska; and Tropic Regions Test Center, Hawaii. This is the operating budget for DTC HQ, which provides technical direction for the annual execution of over 2400 tests, 7188 workyears, and a \$2B institutional plus reimbursable program.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Civilian labor and other support costs for DTC to provide technical direction and administer the assigned Army developmental test mission.	10263	10423	10944
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.	853	708	452
Materials, Supplies, and Equipment.	432	74	47
Total	11548	11205	11443

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

PROJECT
M55

COST (In Thousands)	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)	3767	4365	4908	4947	5079	5558	5637

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.	3767	4365	4908
Total	3767	4365	4908

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M58	
COST (In Thousands)	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	1532	1814	2053	2079	2156	2414	2443	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at NSC.	1532	1814	2053
Total	1532	1814	2053

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities					PROJECT M76	
COST (In Thousands)	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	1157	1214	1288	1338	1368	1393	1418

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.	408	451	491
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.	749	763	797
Total	1157	1214	1288

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605803A - Technical Information Activities					
COST (In Thousands)	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	37525	46760	34834	36628	37916	35609	35481
720 TECH INFO FUNC ACTV	6023	6739	7530	7862	8177	8247	8309
727 TECH INFO ACTIVITIES	7228	6534	6971	7399	7777	7938	8102
729 YOUTH SCIENCE ACTIV	3070	2058	2203	2198	2308	2352	2398
730 PERS & TRNG ANALYS ACT	2038	2075	1884	1968	2070	2094	2112
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	7474	18745	6956	7260	7575	7638	7696
733 ACQUISITION TECH ACT	8797	5158	5776	6294	6220	3504	2986
737 KNOWLEDGE MANAGEMENT FUSION	0	2366	0	0	0	0	0
C16 FAST	2204	2119	2398	2494	2594	2617	2636
C18 BAST	691	966	1116	1153	1195	1219	1242

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 Science and Technology (S&T) leadership to refine investment strategy and quickly react to emerging opportunities and issues. This program includes initiatives to improve information derivation, storage, access, display, validation, transmission, distribution, and interpretation. This program addresses the need to increase the competitiveness and availability of scientific, engineering, and technical skills in the DoD and National workforce through outreach programs aimed at high school students. By providing direct working experience for these students in Army laboratories, the programs expose these students to the working world of science and engineering. Work funded under this program includes analyses using behavioral science-based analytic tools to provide policy and decision makers with Soldier-oriented recommendations concerning manpower, personnel and training issues. Funding is provided for an Independent Review Team analysis of technology maturity as part of the Technology Area Readiness Assessment as required by DoDI 5000.2 dated May 12, 2003. This program funds studies by the Board on Army Science & Technology (BAST) and the Army Science Board. This program also supports Combatant Commanders and major Army commands by providing science advisors to address scientific and technical issues and by providing engineering teams to solve field Army technical problems. Coordination of this program with the other Services is achieved through inter-service working groups. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, Defense Basic Research Plan (DBRP) and the Defense Technology Area Plan (DTAP). Work in this Program Element is performed by the Research, Development and Engineering Command (RDECOM), the Army Research Office, the Army Research Institute for the Behavioral and Social Sciences, the Army Corps of Engineers' Engineer Research and Development Center (ERDC), and the Information Management Office.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	27534	32237	34720
Current BES/President's Budget (FY 2007)	37525	46760	34834
Total Adjustments	9991	14523	114
Congressional Program Reductions		-205	
Congressional Rescissions		-472	
Congressional Increases		15200	
Reprogrammings	9991		
SBIR/STTR Transfer			
Adjustments to Budget Years			114

Change Summary Explanation:
 FY05: 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 supports Army Educational Outreach Program (Youth Science Program). Increase, also, supports Virtual InSight implementation as part of Business Reengineering effort.

Three FY06 Congressional adds totaling \$15200 were added to this PE.

FY06 Congressional adds with no R-2A (appropriated amount is shown):
 (\$12800) Army High Performance Computing Research Center
 (\$1000) Knowledge Integration and Management Center of Excellence
 (\$1400) Knowledge System and Relational Database

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 720	
COST (In Thousands)	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	6023	6739	7530	7862	8177	8247	8309

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 Research & Development 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 2005. 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, the Defense Basic Research Plan (DBRP) and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory (ARL).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.	205	200	216
- Provide administrative and contractual support for the Army Science Board.	1310	1139	1337
- Provide administrative support for the Army's SBIR and STTR programs.	0	815	1165
- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	753	1043	1032
- Provide funding for S&T Strategic Planning and Support.	325	177	225
- Provide funding for the Army Science Conference.	400	414	430
- Administer S&T database computer engineering support contract and support RDECOM databases S&T management support.	3030	2951	3125
Total	6023	6739	7530

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 727	
COST (In Thousands)	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	7228	6534	6971	7399	7777	7938	8102

A. Mission Description and Budget Item Justification: This project supports development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test and Evaluation (RDTE) Appropriation. It includes the hardware, software and contractor support required to develop and implement a set of management decision aids, databases, and hardware/software tools to support technical and budgetary decisions at the Office of the Secretary of Defense (OSD) and Department of the Army (DA), including support of the Army Science and Technology Master Plan. Most of the efforts in this project are on-going activities to support Army Research, Development and Acquisition programs. Effective exploitation of S&T information is critical to achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Future Force. Funding in this program 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 RDECOM database support was transferred to PE 0605803A, Project 720 in FY 2005. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, the Defense Basic Research Plan (DBRP) and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Conduct and support S&T program portfolio assessments and analysis.	1600	1035	1069
- Support Army S&T strategic planning, analysis, and prioritization.	2400	2218	2234
- Provide funding and support for Army Science and Technology Master Plan development and publication.	1210	1284	1296
- Provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone Decisions.	1368	1504	1876
- Provide Army support to Director, Defense Research and Engineering Executive Staff for DOD-wide Science and Technology oversight.	650	493	496
Total	7228	6534	6971

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 729	
COST (In Thousands)	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	3070	2058	2203	2198	2308	2352	2398	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- 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).	1490	1405	1510
- Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/Research, Development & Engineering Center (RDEC) sponsorship of students.	215	226	243
- 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.	160	197	200
- Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.	330	230	250
- Support Army Educational Outreach Program (AEOP) to enhance Science, Mathematics and Engineering education through student experiences in Army labs and academic partner institutions.	875	0	0
Total	3070	2058	2203

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 730	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
730 PERS & TRNG ANALYS ACT	2038	2075	1884	1968	2070	2094	2112

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).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Studies completed in FY05 include: evaluated structured Communities of Practice as a leader development tool; provided an initial validation of a Leadership Assessment Tool (LAT) for predicting junior NCO performance above and beyond the current promotion point worksheet system; assessed the impact and effectiveness of using sergeants in pay grade E-5 as drill sergeants; determined if Soldiers graduating from Basic Combat Training are adequately trained to succeed in Advanced Individual Training; recommended new screening tools to identify non high school diploma graduate recruits who have the highest potential to remain through their first terms of service; and evaluated the usefulness of the Non-commissioned Officer Leadership Skills Inventory (NLSI) for predicting drill sergeant duty performance and attrition. Projects for FY06 include: a preliminary evaluation of the Tier Two Attrition Screen (TTAS); assessing the current retention incentives used by the Army that are intended to mitigate the potential negative effects of deployments; completing an assessment of the Warrior Transition Course; evaluating the use of immersive simulation training for dismounted Soldiers; evaluating the new Basic Combat Training (BCT) Program of Instruction in terms of how well it prepares Soldiers to arrive at their first unit with the combat skills they may need immediately. The FY07 program will be based on issues identified by the Training and Doctrine Command (TRADOC), the Assistant Secretary of the Army for Manpower and Reserve Affairs (ASA-M&RA), the Army Deputy Chief of Staff, G-1, and the Human Resources Command (HRC).	2038	2075	1884
Total	2038	2075	1884

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 731	
COST (In Thousands)		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)	7474	18745	6956	7260	7575	7638	7696

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 and diverse computational research areas. The Centers also sustain high performance computing environments and educational outreach as an integral part of their mission. The cited work is consistent with Army Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory (ARL).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Sustain the high performance computing environment and infrastructure in support of the US Army Tank & Automotive Research Development & Engineering Center (TARDEC).	2042	1995	2224
- Sustain the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPARC) research and education activities.	1095	1105	1239
- Sustain the high performance computing environment and infrastructure in support of the US Army Research Laboratory's Major Shared Research Center (MSRC).	2900	3027	3493
- Army High Performance Computing Research Center (AHPARC): In FY05 & FY06, Congressional funding provided for AHPARC high performance computing research. No additional funding is required to complete this project.	1437	12618	0
Total	7474	18745	6956

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT 733	
COST (In Thousands)	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	8797	5158	5776	6294	6220	3504	2986

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 used by leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldiers. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and the Defense Technology Area Plan (DTAP). Work in this Program Element is performed by the Army Acquisition Support Center

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases. Analyze acquisition program financial programming and budgeting requirements. Continue development of Weapon Systems Handbook, long-range planning and policy analysis, resource allocation analysis, cost tracking and analysis, cost-effectiveness and database management/financial analysis, special access required technology application concept research/analysis.	8035	4304	4838
- Conduct analysis and evaluation of new information technologies, and concepts and applications of integrated management activities, to meet the dynamic Army acquisition technology requirements.	762	854	938
Total	8797	5158	5776

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT C16	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
C16 FAST	2204	2119	2398	2494	2594	2617	2636	

A. Mission Description and Budget Item Justification: The Field Assistance in Science and Technology (FAST) program focuses Army Materiel Command (AMC) resources to rapidly identify and solve Army field technical problems that enable the improvement of readiness, safety, training, and reduce operations and support (O&S) costs. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers. Science advisers are recruited from AMC headquarters and all AMC Major Subordinate Commands (MSCs) to serve Combatant Commands and major commands worldwide. The FAST activity is also supported by assigned Quick Reaction Coordinators (QRCs) within each engineering center. All costs associated with science advisor assignments are funded by AMC or the AMC MSCs that supply the science advisers for two to three year tours. 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- 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.	2204	2119	2398
Total	2204	2119	2398

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605803A - Technical Information Activities					PROJECT C18	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	
C18 BAST	691	966	1116	1153	1195	1219	1242	

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, Defense Basic Research Plan (DBRP) and the Defense Technology Area Plan (DTAP). Work in this project is performed extramurally by the Army Research Laboratory (ARL).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Provide studies and conduct periodic meetings involving research and development in science and technology fields applicable to the U.S. Army. Completed primary study topic for FY05 on Network Science. Topics for FY06 and 07 will be selected according to Army S&T strategy and senior leader initiatives.	691	966	1116
Total	691	966	1116

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management support

0605805A - Munitions Standardization, Effectiveness & Safety

COST (In Thousands)	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	38042	37530	18726	18585	19199	19710	20136
296 PYROTECHNIC RELIABILITY & SAFETY	757	845	906	927	950	992	1006
297 Mun Survivability & Log	4458	4704	5054	5159	5384	5569	5693
857 DOD EXPLOSIVES SAFETY STANDARDS	667	720	1529	1601	1662	1703	1746
858 ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	405	403	445	404	468	479	492
859 LIFE CYCLE PILOT PROCESS	25740	18560	3162	3218	3276	3327	3381
862 FUZE TECHNOLOGY INTEGRATION	1656	1930	2062	2105	2149	2191	2235
F21 NATO SMALL ARMS EVAL	296	972	1013	515	528	548	560
F24 CONVENTION AMMO DEMIL	4063	9396	4555	4656	4782	4901	5023

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
6 - Management support

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

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	38159	16922	19498
Current BES/President's Budget (FY 2007)	38042	37530	18726
Total Adjustments	-117	20608	-772
Congressional Program Reductions		-164	
Congressional Rescissions		-378	
Congressional Increases		21150	
Reprogrammings	-117		
SBIR/STTR Transfer			
Adjustments to Budget Years			-772

Change Summary Explanation: Funding:

FY 2006: Congressional increases of +15.8M for Life Cycle Pilot Process efforts (Project 859) and +\$5.4M for Demil efforts (Project F24).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 297	
COST (In Thousands)	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	4458	4704	5054	5159	5384	5569	5693	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Develop scoring patterns and techniques for munitions packaging that will create a venting system during propellant burning to reduce internal pressures and minimize explosive reactions. FY05-Developed improved venting design, conducted producibility and compatibility studies, and produced prototype cylindrical containers for rough handling test. FY06-Conduct IM test for prototype cylindrical containers, develop and produce prototype rectangular containers for rough handling test, and continue compatibility test. FY07-Complete IM and rough handling test on prototype rectangular containers, and transition.	266	410	300
Demonstrate a less sensitive high-performance, melt-castable explosive to replace Composition B explosive in mortars and other warheads for reduced sensitivity to unplanned stimuli. FY05-Developed Comp-B equivalent cast cured and Comp-A5 equivalent pressed IM explosive formulations, produced and tested cast cured IM explosive in mortar rounds. FY06-Continue refinement of the pressed explosive formulation, and development of a Comp-A equivalent cast cured explosive. FY07-Complete the development and evaluation of less sensitive pressed explosives and develop the next generation of cast cured IM explosive.	454	450	500
Demonstrate low temperature gas generating mixtures that when added to explosives reduce reaction to unplanned stimuli. As temperature rises during cook-off, this additive produces pressure to rupture the projectile resulting in a controlled burning rather than detonation. FY05-Evaluated several cast cured explosive additives to mitigate violent reactions of munitions in a cook-off environment. One potential additive solution, PBXN-9, was discovered. FY06-Complete PBXN-9 additive study and provide recommendation on implementation.	313	50	0
Conduct reviews of munitions in development and production to determine if they meet a DoD 5000.1 requirement to withstand unplanned stimuli, manage technology integration efforts to meet the requirement, update and maintain IM compliance status database, the IM waiver process for the Army, and the PEO Ammunition IM Strategic Plan. FY05-Assessed PEO Ammo munitions for IM compliance, identified technology to improve munitions IM performance, and supported IM Strategic Plan development, the Army IM Board, and IM technology development, integration and implementation. FY06-07-Continue to assess PEO Ammo munitions for IM compliance update the Army's IM Strategic Plan and support IM technology development, integration, and implementation.	600	712	911
Optimize munitions designs for IM compliance by modeling and simulating the reactions of these designs to unplanned stimuli in order to	216	197	197

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
6 - Management support	0605805A - Munitions Standardization, Effectiveness & Safety		297
characterize the behavior and performance of energetic materials. FY05-Surveyed IM Modeling and Simulation capability, assisted IM technology development programs by applying modeling and simulation. FY06-07-Continue to provide support to IM technology development programs utilizing modeling and simulation. Investigate opportunities for IM M&S improvements.			
Evaluate and demonstrate new explosive that could mitigate munitions violent reactions from Shaped Charge Jet Impact (SCJI). FY05-Selected chemicals that could reduce explosive reactions to shaped charge jet impact, and manufactured samples for evolution. FY06-Continue down select of chemicals and evaluation, manufacture sufficient quantity for in-house evaluation, make recommendations for further formulation development for application to specific munitions.	800	300	0
Develop standard test equipment and procedure to evaluate IM explosive candidates. This will ensure that generic Fragment Impact, Bullet Impact, Sympathetic Detonation, and Cook-off tests standardize rankings for new candidate IM explosives in a way consistent with their application in actual munitions. FY06 - Design and fabricate standardized test equipment and develop test procedures.	0	490	0
Conduct modeling and simulation to evaluate the effects of IM munitions vs. Non-IM munitions on selected weapon platforms to show the benefits of IM to system/soldier survivability. FY06 - 07 conduct M&S on four weapon systems each year.	0	177	177
Evaluate and demonstrate less sensitive materials for booster and lead for all fuzed munitions. FY07-Conduct subscale IM and reliability tests, and provide final report with implementation recommendation.	0	0	900
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. FY05-Completed component engineering tests. FY06-Modify cover design, fabricate prototypes,conduct engineering testing, prepare final evaluation report, and transition.	475	80	0
Evaluate powder coating alternatives for painting ammunition/munitions containers to reduce hazardous waste and eliminate costly Volatile Organic Chemical (VOC) management associated with paints while insuring NBC survivability. FY06 - Conduct market survey of powder coating materials, procure test panels for Nuclear, Biological, and Chemical Contamination Survivability (NBCCS) testing. FY07 - Conduct NBCCS testing, assess results, evaluate implementation costs and benefits, prepare final analysis report and recommendations.	0	245	100
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	370
Evaluate and recommend alternative materials and methods for strapping ammunition loads to pallets at load plants, depots, contractor facilities and in field operations. FY06 - Identify performance requirements, conduct market survey of potential alternatives, procure and test materials. FY07 - Complete final report and transition.	0	175	30
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-Completed modifications, conducted final tests. FY06-Complete final demonstrations and transition.	848	84	0
Demonstrate standard sized inter-modal shipping modules for ammunition. The modules will interlock with each other, top to bottom, 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. FY05 - Develop preliminary design for modules and design, fabricate and test prototype interlock devices. FY06-Finalize requirements, design interlocking modules, and provide support as part of the Joint Modular Intermodal Distribution System (JMIDS) Joint Capabilities Technology Demonstration (JCTD). FY07-Fabricate prototypes and participate in JMIDS JCTD Military Utility Assessments.	486	1334	1569

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605805A - Munitions Standardization, Effectiveness & Safety	297		
Total		4458	4704	5054

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 857	
COST (In Thousands)	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	667	720	1529	1601	1662	1703	1746

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	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Collect and analyze airblast/fragment/thermal data for revising DoD, NATO hazard classification.	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.	96	100	255
Develop improved explosives and munitions tests and characterization data. Specifically, develop improved gap tests for rocket motors.	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.	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.	96	130	204
Develop and improve risk based analysis tools for explosives safety. Develop sequence of operations prototype.	192	190	326
Total	667	720	1529

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 859	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
859 LIFE CYCLE PILOT PROCESS	25740	18560	3162	3218	3276	3327	3381

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue ongoing technology investigations. Develop concept designs and plans to transfer life cycle pilot process technology into the supplier base.	1160	1680	1400
Perform production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology. Identify single points of failure and assess mitigation plans.	480	1380	462
Develop "pilot" prototype processes for critical ammunition end items and components necessary to establish quality, affordable, and environmentally safe production.	800	2500	1300
Establish framework and operations for the NJ Nanotechnology and Micro-Electromechanical Systems (MEMS) Consortium in support of ammunition production modernization.	1400	3000	0
Develop processes of operations for nanotechnology and manufacturing in support of ammunition production modernization. Develop process for nanoparticle manufacture using Radio Frequency (RF) Plasma technology.	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.	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.	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 transfer those processes to the supplier base. Developed advanced coating technology to be transferred to the explosive manufacturing Industrial Base.	2500	2000	0
Develop generic Micro-Electromechanical Systems Inertial Measurement Unit (MEMS IMU) high volume manufacturing process for precision munitions.	2500	0	0
Continue established Government, Industry and Academia partnerships to support the development of aluminum Metal Matrix Composite (MMC) prototype technologies for munitions application. Established advanced casting capabilities for Metal Matrix Composites.	2500	1500	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605805A - Munitions Standardization, Effectiveness & Safety	859		
Establish an Advanced Technology Center to transition/market government owned intellectual property to the commercial sector prototype processes developed by the US Army.	1050	0	0	0
Develop and prototype new power source options for munitions utilizing advanced fuel cell technology.	1000	0	0	0
Define and develop processes to address munitions lifecycle improvements with application demonstration on the Mid-Range Munition.	4500	0	0	0
Rapidly prototpe and capture the manufacturing science of munition items utilizing nanotechnology.	0	1000	0	0
Provide advanced "ManTech" pilot part processing technology, in conjunction with ARDEC Center for Manufacturing Science, to support metal parts fabrication processes determined to be core capabilities for munitions production.	0	1000	0	0
Establish commercial partnership with ARDEC's Center for Manufacturing Science for the prototyping process and capturing production knowledge in the arena of forged and drawn metal parts.	0	1400	0	0
Assess manufacturing and alloy parameters that affect the performance of armor piercing ammunition and capture the knowledge that will allow new technology to be inserted into current ammunition.	0	1000	0	0
Address manufacturing issues on munitions products to insure manufacturing knowledge is available for transfer into the Industrial Base. Effort will include establishing pilot processes, technology, readiness assessments and support Single Point Failure assessments.	0	2100	0	0
Total	25740	18560	0	3162

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness & Safety					PROJECT 862	
COST (In Thousands)	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	1656	1930	2062	2105	2149	2191	2235	

A. Mission Description and Budget Item Justification: This program investigates maturing technologies and seeks potential candidates for integration on current fuzing and safe and arm devices. This program will implement these technologies into fuzing systems to preclude obsolescence and enhance performance of existing munitions. The program addresses two major areas: (1) risk mitigation and (2) block upgrades. The first area is risk mitigation, which will evaluate a second source Monolithic Microwave Integrated Circuit (MMIC) for artillery and mortar fuzes and a second source signal processor for mortars. Risk mitigation efforts will evaluate and demonstrate second sources for fuzing systems that may reduce cost by providing competition, and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting aging studies of major fuze components to detect and identify latent defects. The second major area is block upgrades, which will evaluate and perform studies on improvements to the Bunker Defeat Munition (BDM) impact sensor, M213 & M228 fuze pull pins, medium caliber fuzing interface control document, a second environment safety using optics for mortars, armor protection system (APS) support by providing fuzes for 60mm mortar, to defeat rocket propelled grenades (RPG's), and inductive set capability for mortar fuzes. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Risk Mitigation: Fabricated 1st wafer run on the second source Monolithic Microwave Integrated Circuits (MMIC) effort, evaluated prototype devices and collected data for input to a second wafer iteration. Fabricated and packaged 1st wafer run parts for the second source signal processor IC for the M734A1 application. Qualified new source for battery separator material in FY 05 for the M762A1/M767A1 fuzes. Purchased Non-Developmental Item (NDI) batteries for testing and battery aging study. Provided an interim battery aging report. Task order contracts awarded to University of Florida (U of F) for Mortar second source signal processor, and evaluation of optical sensor, and to MACOM for second source MMIC transceiver for mortars and artillery. Second source component designs are completed and in fabrication. Predict/evaluate fuze stockpile. Evaluate storage reliability of current artillery batteries/determine possible solutions to battery electrolyte storage instabilities and upgrade a battery spin-airgun. Evaluate improvements to stockpiled training and war reserve fuzes to enhance capabilities and/or address deficiencies. Evaluate tuning fork crystal for artillery time fuzes, new second sources for Monolithic Microwave Integrated Circuits (MMICs) used in artillery and mortar fuzes, evaluate new battery and electronics sources for current inventory fuzes. Evaluate second source for electronic safe and arm device (ESAD) components	1106	990	700
Block Upgrades: Completed a study on 30mm airburst munitions for fuzing interface control and submitted a final report to PEO Ammunition. Conducted a study on inductive fuze set capability for mortars, wrote a statement of work (SOW) for contract modification (Mod.) to include inductive set in XM784. Field test performed for BDM impact sensor signature collection. Performed study on M228/M213 grenade pull pin for increased safety. Task order contract awarded to Alliant Techsystems (ATK) to provide electronics for APS support effort. Fabricated S&A's and electronics for APS program demonstration. Evaluate and provide upgrades for guided munitions fuzing and electronic time fuzes. Investigate drop in proximity upgrades for current airburst fuzing for mortar, artillery and other munitions. Complete breadboard design of new artillery processor. Evaluate proximity sensor upgrades for M734A1. Point detonating/delay fuze upgrades and insertion of inductive setting capability into mortars.	550	940	1362
Total	1656	1930	2062

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 F21	
COST (In Thousands)	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	296	972	1013	515	528	548	560

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 support the relocation and continued operation of the NARTC. These facilities will require additional technical facilitization to accommodate test and evaluation of new products such as non-lethal and air bursting munitions. Additionally, accuracy improvements to the 5.56mm M856 Trace round will be investigated and incorporated into the current design.

FY06 funds maintain the NARTC and will support the NATO qualification of select ammunition types produced by LCAAP and second source manufacturers. Non-lethal standardization will be investigated and qualification of selected 12.7mm ammunition types will be initiated. Additionally, development of accuracy improvements related to M855 will be initiated and incorporated in prototype manufacturing equipment.

FY05 funds maintain the NARTC and support continued standardization efforts associated with medium cal and 40mm (high and low velocity) ammo types. Additionally, funds support development of a multi-caliber manual of proof and inspection (MOPI) associated with maintaining standardization of qualified designs.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
40mm High/Low Velocity Standardization	65	60	40
30mm Assessment Team	22	20	20
Maintain standardization of Qualified designs	85	90	110
New Ammo Design Qualification & NATO Nominated Weapon Evaluation	24	120	120
NARTC Relocation and Equipment Purchase	0	50	50
Staff, Equip, Maintain NARTC	100	126	147
Aeroballistic Study of M856	0	0	155
Design & Refine Models	0	75	75
Design Optimal M855 Parameters	0	150	0
Optimize Manufacturing Process	0	281	296
Total	296	972	1013

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 F24	
COST (In Thousands)	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	4063	9396	4555	4656	4782	4901	5023	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Prove-out prototype plasma arc technology for conventional ammunition and resource recovery potential.	2509	1000	0
Install and prove-out cryofracture demilitarization process for anti-personnel landmines and other munitions.	376	450	0
Development of integrated cryofracture/plasma arc technology on a mobile platform.	65	100	150
Development of recycle/reuse technology for magnesium/aluminum.	769	2211	2606
Develop, install and prove out of transportable alternative materials recovery capabilities for various energetic components.	94	0	0
Multi-based propellant recovery technology application.	0	0	800
Development of advanced resource recovery/reuse technology for explosives.	0	185	849
Application of advanced, non-incinerative chemical reaction technology to demilitarization of non-recoverable energetic materials and munitions items.	250	100	150
This is a Congressional Add in support of Depletion Uranium Sensing and Treatment for Removal that was put in this project erroneously for this budget cycle. Will be reflected in Project 859 in the next budget cycle.	0	4000	0
The purpose of this one year Congressional Add is to support recovery of critically needed propellant ingredients from obsolete and/or waste gun propellant formulations. No additional funds are required to complete this project.	0	1350	0
Total	4063	9396	4555

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Mgmt Support					
COST (In Thousands)	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	4334	3957	4418	4643	4892	4996	5101
031 Environmentally Sustainable Acquisition/Logistics	2847	2925	3268	3455	3664	3737	3811
06E ENVIRONMENTAL RESTORATION TECH SUPPORT	181	0	0	0	0	0	0
06G ENVIRONMENTAL COMPLIANCE TECHNOLOGY SUPPORT	302	0	0	0	0	0	0
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	1004	1032	1150	1188	1228	1259	1290

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 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 project will, beginning in FY 2004, be overseen by the Army. The project has been overseen by office of the Secretary of

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6 - Management support

0605857A - Environmental Quality Technology Mgmt Support

Defense in prior years. This project funds the Joint Unexploded Ordnance Coordination Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to provide oversight in coordinating requirements and technologies in detection and clearance of unexploded ordnance (UXO) and related ordnance issues within the Department of Defense (DoD).

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management support

0605857A - Environmental Quality Technology Mgmt Support

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	4336	4014	4360
Current BES/President's Budget (FY 2007)	4334	3957	4418
Total Adjustments	-2	-57	58
Congressional Program Reductions		-18	
Congressional Rescissions	-2	-39	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			58

Change Summary Explanation:

None

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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 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	2847	2925	3268	3455	3664	3737	3811

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 (AMC) have defined the functions of the ESAL project in coordination with the office of the Assistant Secretary of the Army for Installations and Environment [ASA(I&E)]. This project supports acquisition policy support for 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 (ETTC) and coordinates environmental quality related systems' needs for expanded research and development efforts. ESAL tasks are executed using appropriate Army research, development, and engineering centers; Army laboratories; and contractor facilities. Technologies are assessed for 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, and to 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 on Pollution Prevention (JG-PP).

Accomplishments/Planned Program

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
- Environmentally Sustainable RDTE 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 Department of Defense/Army policies related to hazardous and toxic materials, ozone depleting substances and environmental management systems to reduce environmental risks to acquisition programs. Provided oversight to integrated process teams addressing environmental quality issues from Army commodities and including participation in the Stryker Brigade Combat Team and Unit of Action environmental management teams. Provided technology management support across commodity areas for the Unit of Action in FY05 and represented the Army acquisition community in development of Environmental Analyses related to Army Transformation. During FY06, increasing emphasis will be placed on support of Acquisition Category (ACAT) II and ACAT III systems when the Milestone Decision Authority is not the Army Acquisition Executive.	561	634	689

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BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
6 - Management support	0605857A - Environmental Quality Technology Mgmt Support		031
- 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 FY05, 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 carbon dioxide (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.	341	342	372
- 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.	97	78	84
- 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.	528	424	461
- Technology management, technical support and representation of the Army Materiel Command (AMC) on the Joint Logistics Commander's Joint Group on Pollution Prevention. Includes coordination of technology requirements among service members, coordination of technology and operational requirements among Army program managers, management and oversight for developing joint test protocols, oversight of testing activities, and technical data analysis of test results to support systems engineering decision making.	169	155	169
- Technology management, technical support, and representation of the AMC voting member of the Army's Environmental Quality Technology program's Environmental Technology Technical Council (ETTC). Includes coordination of Technology Base (RDTE) Budget Activity (BA)-1 & BA-2 requirements among members of the ETTC Pollution Prevention Technology Team, coordination of technology and operational requirements in support of RDTE BA-3 and BA-4 evaluations in support of weapon system platform integration, management and oversight for developing test plans, oversight of testing activities, and technical data analysis of test results to	503	662	720

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
6 - Management support	0605857A - Environmental Quality Technology Mgmt Support	031		
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 ASA(I&E) management and representatives in assessing the readiness implications of impending NESHAPs on Army industrial base and garrison activities. Oversee evaluation of impacts of impending NESHAPs on Army Transformation and fielding of Unit of Action. Provide Army acquisition community representation in Office of Systems Develop (OSD) and Department of the Army (DA) committees addressing environmental legislation and rulemaking.	648	630	773	
Total	2847	2925	3268	

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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 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	1004	1032	1150	1188	1228	1259	1290	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct review and technology workshops to coordinate and improve the technological thrusts of DoD UXO RDT&E.	115	115	120
Coordinate/collect/analyze UXO RDT&E information via conferences, seminars, and workshops.	303	331	347
Generate an annual UXO Clearance Report focused on UXO RDT&E efforts for countermines, explosive ordnance disposal, UXO remediation, humanitarian demining, and active range clearance.	178	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.	272	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.	136	136	205
Total	1004	1032	1150

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605898A - Management Headquarters (Research and Development)					PROJECT M65	
COST (In Thousands)	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)	12386	12724	14092	15005	15667	16256	16873	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.	12386	12724	14092
Total	12386	12724	14092

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605898A - Management Headquarters (Research and Development)	PROJECT M65
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	11842	12908	13772
Current BES/President's Budget (FY 2007)	12386	12724	14092
Total Adjustments	544	-184	320
Congressional Program Reductions		-56	
Congressional Rescissions		-128	
Congressional Increases			
Reprogrammings	544		
SBIR/STTR Transfer			
Adjustments to Budget Years			320

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

COST (In Thousands)	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	105395	113652	74506	19278	13606	8840	2421	0	779524
090 MLRS HIMARS	6881	10275	16379	4491	8388	2047	0	0	238597
093 MLRS JOINT TECH ARCHITECTURE	8500	1756	3313	4737	4142	4645	0	0	49184
784 GUIDED MLRS	90014	101621	54814	10050	971	0	0	0	491743
787 HIMARS P3I	0	0	0	0	105	2148	2421	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.

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	105444	114297	79657
Current BES/President's Budget (FY 2007)	105395	113652	74506
Total Adjustments	-49	-645	-5151
Congressional Program Reductions		-499	
Congressional Rescissions		-1146	
Congressional Increases		1000	
Reprogrammings	-49		
SBIR/STTR Transfer			
Adjustments to Budget Years			-5151

FY 2007 - Realigned (\$5151K) to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 090	
COST (In Thousands)	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	6881	10275	16379	4491	8388	2047	0	0	238597

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

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue system design and Production Qualification Testing (PQT), conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); integrate and test Horizontal Technology Insertion (HTI) upgrades including Increased Crew Protection, Enhanced Command and Control, Improved Initialization and Long Range Communication. Perform technical assessments, concept studies, risk reduction and prepare milestone documentation.	6881	10275	16379
Total	6881	10275	16379

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
HIMARS Launcher (C02901)	158380	165228	226884	236165	248369	260478	263593	1207433	3020814
HIMARS Modifications (C67501)	3043	7896	9374	10541	11849	12038	9397	90560	156684
HIMARS Modifications: Initial Spares (CA0289)	0	441	1317	1261	1064	1855	1920	31600	39508
Initial Spares, HIMARS (CA0288)	4013	5375	7941	11541	12037	12574	8713	9029	78662

C. Acquisition Strategy The HIMARS program is currently in Full Rate Production (FRP) and awarded (FRP-1) contract December 2005. HIMARS follow-on Horizontal Technology Insertion (HTI) efforts include the Increased Crew Protection, Enhanced Command and Control and Long Range Communication.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							090		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFC, Texas	112724	0		0		0		0	112724	0
Path through Operational Test	SS/CPFF	LMMFC, Texas	17489	0		0		0		0	17489	0
Work Directives/ Chassis and Cab	N/A	TACOM (S&S)	4850	425	1-3Q	1057	1-2Q	882		1840	8950	0
Battle Command	SS/CPFF	CECOM, STRICOM, UA Networks, LMMFC, Texas	4040	0	2-3Q	1663	1-3Q	1893		7437	15033	0
Government Support	N/A	AMCOM/ GSA, RSA & TSM	17749	1108	1-4Q	1112	1-4Q	1584		1018	21237	0
Increased Crew Protection	SS/CPFF	LMMFC, Texas	0	2335	2-4Q	3404	1-4Q	5963		2047	12825	0
Subtotal:			156852	3868		7236		10322		12342	188258	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

II. Support Costs	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
Support Contract	C /CPFF	Camber Research/S3/TMI, Alabama	1836	176	1-4Q	231	1-4Q	232		718	2894	0
Subtotal:			1836	176		231		232		718	2894	0

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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							PROJECT 090		
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Test Support	N/A	Fort Hood,ATEC,APG MD,WSMR NM & RTTC RSA	33569	2503	1-4Q	2491	1-4Q	5501		1745	38766	0
Subtotal:			33569	2503		2491		5501		1745	38766	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												
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
In-House Support	N/A	PFRMS Project Office, Redstone Arsenal, AL	7497	334	1-4Q	317	1-4Q	324		1009	8679	0
Subtotal:			7497	334		317		324		1009	8679	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			199754	6881		10275		16379		15814	238597	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

Event Name	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
IOT Flight Test	■																											
(1) LRIP 3 CA		▲																										
(2) FUE			▲																									
(3) Full Rate Production (FRP) Contract Award (CA) 1				▲																								
Increased Crew Protection Development and Live Fire Test and Evaluation (LFT&E)			■																									
Central Technical Support Facility Certification									■																			
Enhanced Command and Control development and testing													■															

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					090	
<u>Schedule Detail</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>	
IOT Flight Test	1Q							
LRIP 3 Contract Award	1Q							
FUE	2Q							
Full Rate Production (FRP) Contract Award (CA) 1		1Q						
Increased Crew Protection Development and Live Fire Test and Evaluation (LFT&E)	2-4Q	1-4Q	1-4Q					
Central Technical Support Facility Certification			1-4Q	1-4Q	1-4Q	1-2Q		
Enhanced Command and Control			1-4Q	1-4Q	1-4Q	1-4Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM						PROJECT 093		
COST (In Thousands)	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	8500	1756	3313	4737	4142	4645	0	0	49184

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 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 while decreasing cost and mitigating future obsolescence issues. Conduct assessments on long range communications and situational awareness including implementation and prototyping.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Developed, integrate, and test SAASM and JVMF(DCOMMS).	152	142	0
Perform developmental testing (software blocking).	0	382	0
Reduction in Total Ownership Cost/Card Consolidation Development.	6884	356	2029
Develop anti-jamming hardware (analysis).	498	468	508
Perform technical assessments, concept studies, and risk reduction.	245	170	487
Develop, integrate and test to support network interoperability.	721	238	289
Total	8500	1756	3313

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
MLRS Launcher (C65900)	21102	20514	0	0	0	0	0	0	3020923
MLRS Mods(C67500)	18882	14387	6913	5578	1886	3144	3149	27000	384235
MLRS Initial Spares (CA0257)	3650	0	0	0	0	0	0	0	198622
MLRS Mod Initial Spares (CA0265)	518	3328	521	1043	1048	1048	1049	9000	35407
HIMARS Launcher (C02901)	158380	165228	226884	236165	248369	260478	263593	1207433	3020814
HIMARS Modifications (C67501)	3043	7896	9374	10541	11849	12038	9397	90560	156684
HIMARS Initial Spares (CA0288)	4013	5375	7941	11541	12037	12574	8713	9029	78662
HIMARS Mod Initial Spares (CA0289)	0	441	1317	1261	1064	1855	1920	31600	39508

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT

093

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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							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
Contract (Card Consolidation, and SAASM)	CPFF	LMMFC-D, Dallas, Texas	13695	7634	2Q	667	2Q	2103	2Q	7039	31138	0
Government Support	N/A	AMCOM/GSA, Redstone Arsenal, Alabama	5138	287	1-3Q	251	1-3Q	358	1-3Q	2199	8233	0
Subtotal:			18833	7921		918		2461		9238	39371	0

Remarks: SAASM - Selective Availablity/Anti-Spoofing Module
 CPFF - Cost Plus Fixed Fee LMMFC-D - Lockheed Martin Missile and Fire Control-Dallas
 AMCOM - Aviation and Missile Command GSA - General Services Administration

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Support Contract	Various		0	0		78	1-3Q	167	1-3Q	1096	1341	0
Subtotal:			0	0		78		167		1096	1341	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
Test Support	N/A	CTSF, Ft. Hood, Texas	552	0		553	1-3Q	0		2249	3354	0
Test Support	N/A	AMCOM, Redstone Arsenal, Alabama	0	0		0		451	1-3Q	0	451	0
Test Support	N/A	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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							PROJECT 093		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
In-House Support	N/A	PFRMS Proj Ofc, Redstone Arsenal, Alabama	2407	436	1-4Q	207	1-4Q	234	1-4Q	941	4225	0
Subtotal:			2407	436		207		234		941	4225	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			22091	8500		1756		3313		13524	49184	0

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	Card Consolidation	[Redacted]				[Redacted]																						
Network Interoperability	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
SAASM-GPS Upgrades and Military Code Integration	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
DCOMMS, SAASM Black Key Capability Development/Integration	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Software Blocking/Central Test Support Facility/OT Certification	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Anti-iamming Hardware	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 093	
<u>Schedule Detail</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>	
Card Consolidation	1-4Q	1-4Q	1-4Q					
Network Interoperability	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
SAASM-GPS Upgrades and Military Code Integration				1-4Q	1-4Q	1-4Q		
DCOMMS, SAASM Black Key Capability Development/Integration	1-4Q	1-4Q						
Software Blocking /Central Test Support Facility/Operational Test Certification		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Anti-jamming Hardware	1-4Q	1-4Q	1-4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM						PROJECT 784		
COST (In Thousands)	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	90014	101621	54814	10050	971	0	0	0	491743

A. Mission Description and Budget Item Justification: Guided Multiple Launch Rocket Systems (GMLRS) munitions are the Army's primary organic Joint Expeditionary, all-weather, all-terrain, 24/7, tactical range precision guided rockets employed by modular Fires Brigades supporting Brigade Combat Teams (BCT), Divisions, Corps, and Joint Special Operations Force (JSOF) combatant commanders. GMLRS are the primary munitions for units fielded with the High Mobility Artillery Rocket System (HIMARS) and MLRS M270A1 rocket and missile launcher platforms. GMLRS provides close, medium and long range pin point precision and massed fires to Destroy, Suppress and Shape threat forces and protect friendly forces against: cannon, mortar, rocket and missile artillery; light materiel and armor; personnel; command and control; and air defense surface targets. GMLRS is a major upgrade/replacement for the aging M26A1/A2 rocket inventory. GMLRS integrates a guidance and control package and a new rocket motor achieving greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. There are two variants of GMLRS—GMLRS with Dual Purpose Improved Conventional Munitions (DPICM) and GMLRS with a 200-pound class high explosive warhead (Unitary). The GMLRS DPICM is a five nation cooperative program among France, Germany, Italy, United Kingdom and the United States. The GMLRS Unitary is a modification to the GMLRS DPICM integrating a multi-mode fuze and high explosive insensitive munition (IM) warhead making it an all-weather, low collateral damage, precision rocket. This expands the MLRS target set into urban and complex environments and adds point targets. To meet a Central Command Urgent Need Statement, a quantity of 486 limited capability GMLRS Unitary rockets were accelerated and fielded in Iraq between June and December 2005. In missions in which it has been deployed, GMLRS Unitary has demonstrated both very high accuracy and low collateral damage. The Army has directed continued production of GMLRS Unitary to maintain an operational inventory of these precision, low collateral damage munitions. Continued GMLRS Unitary development efforts will qualify an IM rocket motor for all GMLRS production. Additional spiral development and technology insertions will provide operational flexibility, and capability against an expanded target set including enclosed structures and a reduced hazardous dud rate for the GMLRS DPICM. GMLRS is also a key component of the Marine Corps Future Fighting Effort.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Developed Advanced Field Artillery Tactical Data System (AFATDS) Interface	204	0	0
Conducted system test and evaluation activities to include Initial Operational Test (IOT), Ground and Flight Test.	3813	0	0
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	105	249	152
Conduct Development and Engineering for Insensitive Munitions (IM) Program	2326	9096	2341
Conduct Development Engineering; Design and Develop Alternate Warheads and Multi Mode Fuzes	26608	18049	5852
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))	5589	18293	10747
Perform Anti-Jamming Analysis and System Engineering/Integration	3002	3939	4533
Conduct EDT Flight Test, PQT Ground and Flight Tests, Test Analysis	33025	18187	5321
Conduct Functional Configuration Audit, Final PDDP, and System Integration Test	8125	8622	3572

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 784
Perform Integration and Test of Alternative Warheads and Multi-Mode Fuzes	3111	3307
Conduct system test and evaluation activities	4106	21879
Total	90014	101621

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Missile Procurement Army - GMLRS (C64400)	111290	123174	147795	295041	378757	528860	669100	10872800	13126817

C. Acquisition Strategy The Guided Multiple Launch Rocket System (GMLRS) Dual Purpose Improved Conventional Munitions (DPICM) is currently in Full Rate Production (FRP). The primary objective of the GMLRS DPICM System Development and Demonstration (SDD) was to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. Other GMLRS development efforts include an improved mechanical fuze; a self-destruct fuze; desired new rocket motor capabilities related to insensitive munition compliance; design, evaluation, and test of alternative warhead technologies; 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 and other technology opportunities (e.g., warhead, payloads, trajectory shaping, guidance, Cost As an Independent Variable (CAIV) initiatives). In FY05, Congress encouraged the Army to accelerate the GMLRS Unitary program to field a quantity of not less than 450 rockets with limited capability no later than fourth quarter FY06. In December 2004, the Army received an urgent need statement from Central Command requesting limited capability GMLRS Unitary rockets by fourth quarter FY06. The first 72 limited capability GMLRS Unitary Rockets were fielded in theater during June 05.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM							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
SDD DPICM Contract	SS/CPAF	LMMFCS Dallas, TX	100909	96	1-2Q	0		0		0	101005	0
SDD Unitary Contract	SS/CPFF	LMMFCS Dallas, TX	58631	61129	1Q	43683	2Q	10355	1Q	1578	175376	0
Government Support	N/A	AMCOM/AMRDEC, RSA	32617	3931	1-4Q	3514	1-4Q	2540	1-4Q	0	42602	0
Subtotal:			192157	65156		47197		12895		1578	318983	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 Costs	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
Support Contract	C/CPFF	Camber Research/S3/TMI, Alabama	6030	4154	1-3Q	4510	1-3Q	3513	1-3Q	229	18436	0
Subtotal:			6030	4154		4510		3513		229	18436	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

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
Test Support	N/A	WSMR, NM	19818	14269	1-4Q	41544	1-4Q	33790	1-4Q	7742	117163	0
Subtotal:			19818	14269		41544		33790		7742	117163	0

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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM								784	
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
In-House Support	N/A	PFRMS Proj Ofc, RSA	16268	6435	1-4Q	8370	1-4Q	4616	1-4Q	1472	37161	0
Subtotal:			16268	6435		8370		4616		1472	37161	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems RSA - Redstone Arsenal, Alabama												
Project Total Cost:			234273	90014		101621		54814		11021	491743	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

Event Name	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
DPICM LRIP I/Supplement Del	[Red Grid]				[Red Grid]				[Red Grid]				[Red Grid]				[Red Grid]				[Red Grid]				[Red Grid]			
DPICM IOTE																												
DPICM LRIP II Deliveries (786)	IOTE				LRIP II Deliveries																							
(1) DPICM LRIP III CA	1				LRIP III CA																							
(2) DPICM FRP Decision	2				FRP																							
(3) DPICM IOC	3				IOC																							
Unitary PQT-1	PQT-1				EDT-2				PQT-2																			
Unitary EDT-2									4																			
Unitary PQT-2									5																			
(4) UNITARY MS C									MS C																			
(5) UNITARY LRIP I CA									LRIP I																			
(6) UNITARY FRP IOTE													6															
(7) UNITARY IOC													IOC															
(8) UNITARY FRP																	8											
																					FRP							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784	
<u>Schedule Detail</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>	
DPICM IOTE	1Q							
DPICM LRIP III C A	2Q							
Unitary Configuration EDT, PQT Grnd and Flight Tests	2-3Q	3Q	1Q					
Unitary MS C			2Q					
Unitary LRIP I CA			3Q					
Unitary IOTE				2Q				
Unitary IOC				4Q				
Unitary FRP					2Q			

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 784
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Funding in \$000							
Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Guided MLRS	3247	3348	3150				
Total Termination Liability Funding:	3247	3348	3150				

Remarks:
 In the event of termination, available funding within the contract will be utilized to pay termination costs.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0603820A - Weapons Capability Modifications UAV					PROJECT D20	
COST (In Thousands)	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	5323	16532	3930	0	0	0	0	25785

A. Mission Description and Budget Item Justification: Weaponization of UAVs includes and addresses the full scale development and integration of a weapons system capability for UAS such as: the Extended Range Multi-Purpose (ER/MP) Unmanned Aircraft System (UAS). These modifications 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 the system. This will include requisite airframe, mission management software, or weapon compatibility modifications to allow the system to carry and employ weapons. A spectrum of test will be required to ensure reliable, safe, accurate, and timely weapons stowage and delivery. Weaponization of ER/MP includes the full scale development and integration of modified missile on to the ER/MP. Development of this modified missile will include type classification and formal material release to comply with all life cycle imperatives of armed equipment.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
System Development Demonstration	0	4157	12917
IOT&E / Limited User Test (LUT)	0	1166	3615
Total	0	5323	16532

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 (FY 2006)	0	0	16281	
Current BES/President's Budget (FY 2007)	0	5323	16532	
Total Adjustments	0	5323	251	
Congressional program reductions				
Congressional rescissions				
Congressional increases		5323		
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years			251	

FY 06: Funds were added for ER/MP Weaponization

D. Acquisition Strategy Development/integration of an extended range air vehicle will include a two phased approach. Phase I involved a paper downselect of two vendors. Phase II involved a competition and downselect with a flyoff to one qualified airframe vendor which occurred on 6 Aug 05. 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0603820A - Weapons Capability Modifications UAV							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
System Development Demonstration		TBD	0	0		4157	2-3Q	12917	2-3Q	0	17074	17074
Subtotal:			0	0		4157		12917		0	17074	17074
II. Support Costs	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									
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
IOT&E / LUT		TBD	0	0		1166	2-3Q	3615	2-3Q	0	4781	4781
Subtotal:			0	0		1166		3615		0	4781	4781
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									
Project Total Cost:			0	0		5323		16532		0	21855	21855

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603820A - Weapons Capability Modifications UAV

PROJECT
D20

Event Name	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) System Requirements Review					▲ ₁ SRR																							
(2) Program Design Review									▲ ₂ PDR																			
(3) Contract Design Review									▲ ₃ CDR																			
Proof of Principle Testing Firings													■ PPT Firings (36)															
(4) Limited User Test Firings													▲ ₄ LUT Firings (4)															
(5) P+ Missiles Contract Award (CA)													▲ ₅ P+ Msls CA															
P+ Deliveries (1st)																	■ P+ Deliveries (1st)											
(6) P+ Launcher Contract Option (CO)									▲ ₆ P+ Launcher CO																			
P+ Launcher Deliveries																	■ P+ Launcher Deliveries											
P+ Deliveries (2nd)																	■ P+ Deliveries (2nd)											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0603820A - Weapons Capability Modifications UAV					PROJECT D20	
<u>Schedule Detail</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>	
System Development Demonstration			2-3Q	1-2Q				
IOT&E / Limited User Test (LUT)			2-3Q	1-3Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)						PROJECT E55	
COST (In Thousands)	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	79279	105888	264491	465214	353856	335490	301143	Continuing	1996653

A. Mission Description and Budget Item Justification: The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) program 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, under the Program Executive Office for Missiles and Space (PEO MS). JLENS is a Future Force theater level System of Systems element that supports the Army Campaign Plan. JLENS uses advanced sensor and networking technologies to provide elevated persistent, precision tracking and 360-degree wide-area over-the-horizon surveillance of land attack cruise missiles. JLENS performs as a multi-role platform to enable extended range command and control linkages. An essential element of the Army transformation, JLENS correlates organic tracks/measurements with Identification Friend or Foe (IFF) and Precise Participant Location Identification (PPLI) data. The correlated data is then placed on the external networks. JLENS is the only elevated persistent long range surveillance, and integrated fire control sensor in the Joint Air and Missile Defense System of Systems architecture.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Contract work for Technology Development concludes in FY05. System Development and Demonstration begins in FY06.	64652	70323	224091
Continue work on Lightweight X-Band Radar Micro Electro Mechanical (MEMS) Antenna Technology.	1500	1000	0
Other contracts and OGAs.	7547	16467	18398
Project Management	5580	5318	4551
Government Furnished Equipment	0	12780	17451
Total	79279	105888	264491

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)			PROJECT E55
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	79316	106420	256893	
Current BES/President's Budget (FY 2007)	79279	105888	264491	
Total Adjustments	-37	-532	7598	
Congressional Program Reductions		-464		
Congressional Rescissions		-1068		
Congressional Increases		1000		
Reprogrammings	-37			
SBIR/STTR Transfer				
Adjustments to Budget Years			7598	

Increased funding amount in FY07 represents Army's commitment to fund to the Cost Analysis Improvement Group (CAIG) cost position.

<u>C. Other Program Funding Summary</u>	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	30471	476728	0	507199
PE 0203801A, Patriot Product Improvement Program	32067	15957	10770	11051	11297	12227	12734	0	106103
PE 0603869A, MEADS	251298	0	0	0	0	0	0	0	251298
PE 0604865A, Patriot PAC-3	60408	0	0	0	0	0	0	0	60408
PE 0604869A, Patriot/MEADS Combined Aggregate Program (CAP)	0	284695	329583	459684	517049	592013	422005	0	2605029
SSN C49100, Patriot System	496990	483260	489067	472907	478795	0	0	0	2421019
SSN C50001, Patriot/MEADS CAP	0	0	0	89735	65296	429735	674386	0	1259152
PE 0604802A, SLAMRAAM	63084	35587	26961	10132	0	0	0	0	135764
SSN C81001, SLAMRAAM System	2438	19061	22039	59314	82656	82143	60979	0	328630
PE 0604820A, SENTINEL	5848	5008	2527	2622	0	0	0	0	16005
SSN WK5057, SENTINEL Mods	10566	8289	15125	20914	33394	33239	25314	0	146841
PE 0603327E88, Integrated Fire Control AMD	19984	24480	41746	47995	50096	0	0	0	184301

Comment: This PE is an integral part of the PEO, Missiles and Space Integrated Air and Missile Defense (IAMD) Program including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, SENTINEL, and on-going initiatives to achieve Single Integrated Air Picture (SIAP).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)

E55

D. Acquisition Strategy On 28 Jun 05, the DAB approved the JLENS Block 1, Spiral 2 program entry into System Development and Demonstration (SDD) as recommended by the Army Acquisition Executive. The DAB elected to maintain oversight of JLENS as an ACAT 1D program, as stated in the Acquisition Decision Memorandum signed by the Honorable Mr. Kreig on 5 Aug 05.

A JLENS orbit consists of a Fire Control Radar and a Surveillance Radar, each with its own aerostat platform, mobile mooring station, mobile processing station, and associated ground support equipment. Development Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) will be conducted in FY10-11 culminating in an SDD First Unit Equipped by 3QFY11.

JLENS acquisition strategy calls for initial fielding to Block 1 requirements (tethered aerostat platforms for Fire Control and Surveillance radars); followed by fielding of Block 2 (untethered platforms for Fire Control and Surveillance radars); and Block 3 (both radars on a single untethered platform). There is currently no funding beyond Block 1. The Army plans to move to Block 2 fielding once it is assessed that technology has matured sufficiently to make development of Block 2 capability attainable.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)							E55		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Risk Mitigation, Design, Development and System Development and Demonstration	CR/CPHF	Raytheon Systems Co. (MA/CA/FL/TX)	151241	64652	3Q	70323	3Q	224091		Continue	0	Continue
GFE	MIPR	Multiple	1997	0	1-3Q	12780	1-3Q	17451	1-3Q	Continue	0	0
OGAs	MIPR	Multiple	16083	2300	1-3Q	3149	1-3Q	7276	1-3Q	Continue	0	Continue
Project Management		PEOMS, HSV, AL	27803	5580		5318		4551		Continue	0	0
Misc Contracts	SS/CPFF	Multiple	10185	2258	1-3Q	10167	1-3Q	6361	1-3Q	Continue	0	Continue
Design/Dev/Demo Support (SETA)	CPFF	CAS/AL	16208	2261	1-2Q	2351	1-2Q	4661	1-2Q	Continue	0	Continue
Lightweight X-Band Radar Antenna			5974	1500	2-3Q	1000	2-3Q	0		0	0	0
ORD/AOA/TEMP/MSB			6385	300	1-3Q	100	1-3Q	0		0	0	0
Subtotal:			235876	78851		105188		264391		Continue	0	Continue
II. Support Costs	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
Misc Support			2084	0		0		0		Continue	0	Continue
Subtotal:			2084	0		0		0		Continue	0	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
Maintain Test Bed	SS/CPFF	CAS-TX, NM	2927	428		700		100		Continue	0	Continue
Subtotal:			2927	428		700		100		Continue	0	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)	PROJECT E55
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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
Subtotal:			0									

Remarks: Not Applicable

Project Total Cost:	240887	79279		105888		264491		0	0	0
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)																PROJECT E55										
Program Milestones: (1) SRR, (2) MS B, (3) SFR, (4) System PDR 1, (5) IBR, (6) System ICD, (7) System PDR 2, (8) System CDR, (9) IPR/DRR, (10) SDD 1, (11) SDD 2, (12) MS C, (13) SDD FUE	SRR (1) ▲, MS B (2) ▲, SFR (3) ▲				PDR 1 (4) ▲, IBR (5) ▲				Sys ICD (6) ▲, PDR 2 (7) ▲				Sys CDR (8) ▲, IPR/DRR (9) ▲				SDD 1 (10) ▲, SDD 2 (11) ▲, MS C (12) ▲				SDD FUE (13) ▲							
Platform Development																												
Fire Control Radar Development (14) TRIMM 1, (15) TRIMM 2, (16) ARRAY 1, (17) ARRAY 2																												
Surveillance Radar Development (18) Surv. PDR, (19) Surv. CDR																												
Processing Station Development																												
Communications Payload Development																												
Subsystem/System Level Testing																												
Production Qualification Testing																												
Limited User Test																												
Force Development Test, Initial Operational Test																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)					PROJECT E55	
<u>Schedule Detail</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>	
Milestone B	4Q							
Critical Design Review				4Q				
Milestone C						4Q		
First Unit Equipped							3Q	
IOTE Start							4Q	
IOTE Complete							4Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System							
COST (In Thousands)	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	18846	16820	17394	12661	10073	8426	8204	Continuing	Continuing
322 Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ECS)	18846	16820	17394	12661	10073	8426	8204	Continuing	Continuing

A. Mission Description and Budget Item Justification: 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. Fire support is the effects of lethal and non-lethal weapons (fires) that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. Fire support coordination is the planning and execution of fires so that a suitable weapon or group of weapons adequately covers targets.

AFATDS performs the attack analysis necessary to determine the optimal weapon target pairing to provide maximum use of the fire support assets. AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis and fire support planning. This project is a replacement system for the Initial Fire Support Automated System, 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 2006

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 2006)	17269	16064	16948
Current BES/President's Budget (FY 2007)	18846	16820	17394
Total Adjustments	1577	756	446
Congressional Program Reductions		-74	
Congressional Rescissions	-15	-170	
Congressional Increases		1000	
Reprogrammings	1592		
SBIR/STTR Transfer			
Adjustments to Budget Years			446

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System					PROJECT 322		
COST (In Thousands)	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)	18846	16820	17394	12661	10073	8426	8204	Continuing	Continuing	

A. Mission Description and Budget Item Justification: 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. Fire support is the effects of lethal and non-lethal weapons (fires) that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. Fire support coordination is the planning and execution of fires so that a suitable weapon or group of weapons adequately covers targets.

AFATDS performs the attack analysis necessary to determine the optimal weapon target pairing to provide maximum use of the fire support assets. AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis and fire support planning. This project is a replacement system for the Initial Fire Support Automated System, 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	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Prepare and Support AFATDS Version 6.4 Test, Materiel Release and subsequent software block releases.	1242	3692	2028
Continue AFATDS Version 6.4 and subsequent software block effort.	17604	13128	15366
Total	18846	16820	17394

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA (B28600)	38717	26671	22035	13543	18043	7727	2216	CONT	CONT
Spares (BS9708)	96	100	92	0	0	0	0	CONT	CONT
Mod Of In Service Equip (B28620)	3908	5040	5434	6297	8816	0	0	CONT	CONT

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203726A - Adv Field Artillery Tactical Data System

PROJECT

322

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 March 2006. 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203726A - Adv Field Artillery Tactical Data System							322		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Software Development	CPAF	Raytheon Systems Corp, Ft. Wayne, IN	195447	14082	1-2Q	11378	2Q	13110	2Q	Continue	Continue	0
ABCS System Engineering & Integration Efforts	PWD	PEO C3T, Ft Monmouth, NJ	5390	0		0		0		Continue	Continue	0
Peculiar Support Equipment (PSE)	C/FFP	General Dynamics, Taunton, MA	4267	290	2Q	269	2Q	274	2Q	Continue	Continue	0
Subtotal:			205104	14372		11647		13384		Continue	Continue	0
II. Support Costs	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
Software Development Support	MIPR	CECOM, Ft. Monmouth, NJ & Telos, Shrewsbury, NJ	5187	523	2Q	534	2Q	529	2Q	Continue	Continue	0
Engineering Support	MIPR	CECOM, Ft Monmouth, NJ	3641	580	1-2Q	589	2Q	460	2Q	Continue	Continue	0
Subtotal:			8828	1103		1123		989		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
Test Management		PM IE, Ft. Monmouth, NJ	723	140	2Q	143	2-3Q	146	2Q	Continue	Continue	0
Test Support	MIPR	Titan, Ft Sill, OK and Various	5594	950	2Q	890	2-3Q	760	2Q	Continue	Continue	0
Limited User Test/Government Confidence Demo	MIPR	Army Test & Evaluation Command	3000	730	2-3Q	1536	2-3Q	650	2-3Q	Continue	Continue	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System						PROJECT 322			
Subtotal:				9317	1820		2569		1556		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
PM Support	T&M	CSC, Eatontown, NJ	4104	511	2Q	488	2Q	470	2Q	Continue	Continue	0
Program Management		PM IE, Ft Monmouth, NJ	7263	1040	1-4Q	993	1-4Q	995	1-4Q	Continue	Continue	0
Subtotal:			11367	1551		1481		1465		Continue	Continue	0

Project Total Cost:			234616	18846		16820		17394		Continue	Continue	0
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
322

Event Name	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
Fielding 6.3.2	Fielding 6.3.2																											
(1) UMR 6.4: OIF/OEF					▲ UMR 6.4: OIF/OEF																							
Fielding UMR					Fielding 6.4: OIF/OEF																							
(2) MR: 6.4					▲ MR: 6.4																							
Fielding 6.4					Fielding 6.4																							
(3) MR: S/W Block II					▲ MR: S/W Block II																							
Fielding SW Block II	Fielding SWB II																											
(4) MR: SW Block III	▲ MR: S/W Block III																											
Fielding SW Block III	Fielding SWB III																											
(5) MR: SW Block IV	▲ MR: S/W Block IV																											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0203726A - Adv Field Artillery Tactical Data System					322	
<u>Schedule Detail</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>	
AFATDS Version 6.4 Urgent Materiel Release: OIF/OEF		1Q						
AFATDS Version 6.4 Materiel Release		2Q						
Operational Evaluation Software Block II			2-3Q					
Software Release Block II			4Q					
Operational Evaluation Software Block III				3-4Q				
Software Release Block III					2Q			
Operational Evaluation Software Block IV						2-3Q		
Software Release Block IV						4Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs							
COST (In Thousands)	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	17162	31080	12741	27830	6031	0	0	0	185533
330 ABRAMS TANK IMPROVE PROG	15246	15309	12741	27830	6031	0	0	0	178447
359 INTER VEH INF SYS-IVIS	0	13800	0	0	0	0	0	0	0
718 GRND COMBAT VEHICLE HTI	1916	1971	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 to include the spin out of future combat systems technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and, develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles, and develops the Tactical Wheeled Vehicle Product Improvement Program. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks through a series of product improvements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	17174	12030	12547
Current BES/President's Budget (FY 2007)	17162	31080	12741
Total Adjustments	-12	19050	194
Congressional Program Reductions			
Congressional Rescissions		-450	
Congressional Increases		19500	
Reprogrammings	-12		
SBIR/STTR Transfer			
Adjustments to Budget Years			

FY2006 Congressional add for \$14,000,000 was temporarily placed in the PE, project 359, pending the opening of the new PE.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs						PROJECT 330		
COST (In Thousands)	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	15246	15309	12741	27830	6031	0	0	0	178447

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
M1A1 FLIR	497	0	200
Power Train Improvement & Integration Optimization Program (i.e., Total Integrated Engine Revitalization (TIGER), Transmission, Common Controller, Auxiliary Power Unit (APU))	0	1000	1000
Abrams Suspension Improvement Program (i.e., Track, Roadwheels, Roadarms)	0	1000	0
Improved Situational Awareness/Supportability/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). Environmental Systems (TMS/NBC), Improved diagnostics and Embedded Training).	9677	1000	3694
Improved Lethality (Profile Verification Program (PVP), Advanced Munitions)	630	200	200
Advanced Technology Assessments and Insertion	0	4345	3383
Testing	3166	3000	3000
Engineering support and requisitions	1276	1264	1264
Abrams M1A1 Vehicle Prognostics Development	0	3500	0
Total	15246	15309	12741

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	0	0	0	0	204159	203043	180718	0	587920
Abrams Vehicle Modification (GA0700)	128720	440919	364899	593569	387642	178771	43518	1993900	4131938
System Enhancement Pgm (GA0730)	573634	0	171097	172144	255784	11484	0	0	1184143

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT		
7 - Operational system development	0203735A - Combat Vehicle Improvement Programs						330		
M1A2 Tank Training Devices (GB1302)	6992	7162	899	1117	1120	0	0	0	17290
Training Device Mod (GA5208)	3626	3704	899	1117	1120	0	0	0	10466
Initial Spares (GE0161)	3342	3295	0	0	0	0	0	0	6637

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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203735A - Combat Vehicle Improvement Programs							330		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Power Train Improvement & Integration Optimization Program (TIGER)	C-CPAF	Honeywell International Phoenix, AZ	23427	0	2Q	1000	2Q	1000	2Q	0	25427	191659
Integration of improved engine into vehicle	SSCE	General Dynamics, Sterling Heights, MI	11459	0		0		0		0	11458	84786
Abrams Suspension Improvement Program (Track)	TBD	United Defense Limited Partnership, Anniston, AL	933	0		1000	2Q	0		0	1933	0
Improved Situational Awareness/Supportability/Survivability	CPFF	General Dynamics, Sterling Heights, MI	0	9100	2Q	1000	2Q	3694	2Q	0	0	0
Improved Lethality	MIPR	PM, MAS	0	630		200	2Q	200	2Q	0	1030	0
Advance Technology Insertion	TBD	TBD	0	0		4345	2Q	3383	2Q	0	7728	0
FLIR	FFP	Raytheon Company, Mc Kinney, TX	7024	497	3Q	0		200	2Q	0	7721	0
FLIR integration into tank	SS-CPFF	General Dynamics Sterling Heights, MI	7000	0		0		0		0	7000	0
DRS-Test & Energy Management	FP	Huntsville, AL	0	542	3Q	0		0		0	542	0
DRS - Tactical Systems		Palm Bay, FA	0	35		0		0		0	35	0
Abrams M1A1 Vehicle Prognostics Development			0	0	3Q	3500		0		0	3500	0
Subtotal:			49843	10804		11045		8477		0	66374	276445
II. Support Costs	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
Engineering Support	MIPR	Various	1264	1276	1-3Q	1264	1-3Q	1264		0	5068	0
Subtotal:			1264	1276		1264		1264		0	5068	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs	PROJECT 330
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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
M1A1-FLIR	MIPR	Aberdeen Proving Ground, MD	0	1300	2Q	0		0		0	1300	0
Track testing	MIPR	Yuma Proving Ground, AZ	25	1700	2Q	0		0		0	1725	0
Improved Situational Awareness/Supportability/Survivability	MIPR	Aberdeen Proving Ground, MD	0	166	2Q	0		0		0	166	0
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
Subtotal:			25	3166		3000		3000		0	9191	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									

Project Total Cost:	51132	15246		15309		12741		0	80633	276445
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	Total Integrated Engine Revitalization (TIGER) Program																											
TIGER Development (Honeywell) and Integration (GDLs)																												
(1) TIGER Phase I Production Contract Award, (2) TIGER Phase II Production Contract Award																												
AAPU Production																												
Improved Situational Awareness/Spin-out																												
Improved Lethality																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs					PROJECT 330	
<u>Schedule Detail</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>	
TIGER Development and Integration	1-4Q	1Q						
TIGER Phase I Production Contract Award		1Q						
TIGER Phase II Production Contract Award		2Q						
Abrams Auxiliary Power Unit Production	2-4Q	1-4Q	1-4Q					
Improved Situational Awareness and Spin Out	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
Improved Lethality	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203740A - Maneuver Control System						PROJECT 484	
COST (In Thousands)	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)	31050	40813	37976	22020	21621	15013	15125	0	262977

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct MCS software development and support	13171	6450	6225
Plan and participate in test events, and prepare for the MCS Operational Tests	2555	0	0
Conduct MCS 6.4 IOT&E	3942	0	0
JTCW System Engineering & Development	3600	19467	8762
CPOF Development	7782	14896	22989
Total	31050	40813	37976

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203740A - Maneuver Control System	PROJECT 484
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	23350	44903	14987
Current BES/President's Budget (FY 2007)	31050	40813	37976
Total Adjustments	7700	-4090	22989
Congressional Program Reductions		-3500	
Congressional Rescissions	-20	-590	
Congressional Increases			
Reprogrammings	7720		
SBIR/STTR Transfer			
Adjustments to Budget Years			22989

Change Summary Explanation:
 Funding
 FY05: Funds increased for Command Post of the Future (CPOF) development.
 FY06: Congressional decrease.
 FY07: Funds increased for CPOF development and integration.

<u>C. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA9320 - Maneuver Control System (MCS)	43861	73948	77023	89152	97629	91700	53034	CONT	CONT
BS9710 - MCS Spares	1973	1834	1785	1519	1555	0	0	CONT	CONT

Comment:

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 1QFY08. Army acquisition strategy for technical insertion of Command Post of the Future (CPOF) capabilities into the MCS program is being implemented within this line.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203740A - Maneuver Control System							484		
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
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
JTCW System Engineering & Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	0	3600	1-2Q	14226	1-2Q	4509	1-2Q	Continue	Continue	0
CPOF Development	MIPR	DARPA	5700	6037		4500	2Q	0		0	16237	0
CPOF Development	TBD	To be selected	0	0		5534	3Q	13689	2Q	Continue	Continue	0
Misc Contracts	Various	Various	13933	1168	1-2Q	1880	1-2Q	1958	1-2Q	Continue	Continue	0
Software Development & Technical Support	MIPR	CECOM, NJ	25245	4363	1-2Q	2500	1-2Q	3167	1-2Q	Continue	Continue	0
Technical Support	In House	PM Battle Command, NJ	12037	2079	1-4Q	2183	1-4Q	2830	1-4Q	Continue	Continue	0
PSE H/W & S/W	Various	Various	2575	0		200	2Q	200	2Q	Continue	Continue	0
MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	8615	1106	1Q	875	1Q	755	1Q	Continue	Continue	0
ABCS SE&I	MIPR	PEO C3T, NJ	1830	0		0		0		0	1830	0
Subtotal:			241302	25453		38058		31858		Continue	Continue	197327
II. Support Costs	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
Misc Support	In House	PM Battle Command, NJ	3386	478	1-4Q	490	1-4Q	550	1-4Q	Continue	Continue	0
Misc Contracts	Various	Various	1963	165	1-2Q	200	1-3Q	475	1-2Q	Continue	Continue	0
Subtotal:			5349	643		690		1025		Continue	Continue	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203740A - Maneuver Control System							484		
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
OGA	MIPR	Various	2938	727	1-2Q	435	1-2Q	267	1Q	Continue	Continue	0
Misc Contracts	Various	Various	4071	508	1-2Q	422	1-2Q	250	1Q	Continue	Continue	0
Operational Test/Planning	MIPR	Various	16463	3065	1-2Q	524	2-3Q	3221	1-3Q	Continue	Continue	0
Subtotal:			23472	4300		1381		3738		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
Program Office Mgmt	In House	PM Battle Command, NJ	2105	654	1-4Q	684	1-4Q	1355	1-4Q	Continue	Continue	0
Subtotal:			2105	654		684		1355		Continue	Continue	0
Project Total Cost:			272228	31050		40813		37976		Continue	Continue	197327

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	S/W Development	S/W Development, Integration and COE/Interoperability Upgrades for MCS/JTCW/CPOF																										
Fielding (Purchase of CHS)	Fielding (Purchase of CHS)																											
CTSF Integration Testing/Certification for MCS 6.4	█																											
(1) MCS 6.4 IOT&E Completed			▲																									
(2) MCS Full Rate Production Decision			▲																									
(3) CPOF Transitions from DARPA to Army							▲																					
(4) CPOF Development Contract Award							▲																					
(5) JTCW Test												▲																
(6) JTCW Materiel Release Decision																▲												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0203740A - Maneuver Control System						484
<u>Schedule Detail</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>	
CTSF Integration/Certification for MCS 6.4	1-3Q							
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	1Q				
JTCW Materiel Release Decision				1Q				
Software Development of MCS & JTCW	1-4Q	1-4Q	1-4Q					
Software Development of CPOF	1-4Q	1-4Q	1-4Q	1-4Q	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	1-4Q	1-4Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program								
COST (In Thousands)	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	297917	336884	301739	256998	408701	418964	509326	Continuing	Continuing	
028 Aerial Common Sensor (ACS) (JMIP)	120302	64980	32719	26584	171530	245991	349800	0	1161496	
430 IMPR CARGO HELICOPTER	12360	42532	13051	11260	9989	11053	11253	0	128728	
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	106626	121215	126991	88952	34595	35902	41329	Continuing	Continuing	
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP	1629	0	0	0	0	0	0	0	3293	
D17 APACHE BLOCK III	57000	108157	123405	123616	189546	126018	106944	Continuing	834686	
D18 UTILITY FW CARGO AIRCRAFT	0	0	5573	6586	3041	0	0	0	15200	

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	242628	409103	420769
Current BES/President's Budget (FY 2007)	297917	336884	301739
Total Adjustments	55289	-72219	-119030
Congressional Program Reductions		-3408	
Congressional Rescissions	-134	-1561	
Congressional Increases		-67250	
Reprogrammings	58577		
SBIR/STTR Transfer			
Adjustments to Budget Years	-3154		-119030

Change Summary Explanation: Funding - FY 05:\$57000 funds transferred from Aircraft Procurement to RDTE in support of Apache Block III. FY 06: Congressional plus up on CH47 for Integrated Mechanical Diagnostics(\$19.5) and for MAST (\$3.9), Congressional Plus up for UH-60 for \$7.0 MAST

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 028	
COST (In Thousands)	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)	120302	64980	32719	26584	171530	245991	349800	0	1161496

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 upon arriving in theatre. Specifically, ACS will replace the Army's GRCS and ARL and the Navy's EP-3 systems. The ACS will merge Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), and Measurement and Signature Intelligence (MASINT) into a single airborne system capable of providing a rapid response information dominance capability dedicated to the Joint Force Commander's need for precision real-time geolocation of the enemy on the future force battlefield. ACS will be capable of operating independently or remotely via SATCOM or line-of-sight datalinks to a ground station. ACS will be Joint Airborne SIGINT Architecture (JASA) and Unified Cryptologic Architecture (UCA) compliant and be interoperable within the open Network centric C4ISR architecture in order to support all combat and combat support functions through the emerging DOD Global Information Grid. The primary mission will be standoff Muti-INT (SIGINT, SAR, MTI) collection, with a secondary mission of overflight Imagery (EO/IR) Intelligence. ACS ground functionality will be provided by the Distributed Common Ground Station-ARMY(DCGS-A). ACS is primarily targeted against threat maneuver forces, logistic areas, rocket and artillery forces, air defense artillery, and command control communications and intelligence nodes (C3I). ACS will satisfy unique Tactical Maneuver Commander Indications and Warning, Situation Development, Targeting, and Battle Damage Assessment Intelligence, Surveillance and Reconnaissance (ISR) requirements. ACS simultaneously supports FCS information dominance requirement and is a key airborne ISR enabler for the Joint Future Force.

The National Security Agency's Defense Cryptologic Program (DCP) and Defense Advanced Project (DARP) provides funding to support enhanced SIGINT capabilities.

FY 07 funds support continuation of ISR studies, continued sensor maturation and future ACS risk reduction efforts in the form of current system capability enhancements.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continued execution of contract for ACS Increment 1 System SDD Phase which will integrate technologies developed and demonstrated during the Technology Demonstration phase	65283	0	0
Modeling, Program Office, Matrix Engineering and Test support for the AC Sensors	23019	13321	13540
Support Joint ISR, Aircraft, Integration & CONOPS Studies, Technical Maturation efforts - augment GRCS/ARL relevancy modernization	0	43659	19179
SDD Contract Termination Settlement Costs	32000	8000	0
Total	120302	64980	32719

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
ACS DCP	12995	0	0	0	0	0	0	0	28119

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE							PROJECT	
7 - Operational system development	0203744A - Aircraft Modifications/Product Improvement Program							028	
ACS DARP	0	17545	18056	11331	12175	11928	11320	CONT	CONT
CHALS DCP	2931	1930	1412	4108	4218	4152	4047	CONT	CONT
GRCS DCP	6446	3643	3524	2284	2345	2308	2249	CONT	CONT
0305206/DK98 Tactical Reconnaissance	5111	5321	12	12	13	18	21	CONT	CONT
A02005 Aerial Common Sensor- Aircraft Procurement, Army	0	0	0	0	4907	3456	4736	CONT	CONT
0307207N/3015 Navy Aerial Common Sensor	19500	0	0	0	0	0	0	0	19500

Comment: FY07 DCP/DARP provides funding for the development of ACS SIGINT 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. Navy RDTE funding supported SDD efforts for the baseline ACS prior to SDD contract termination.

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. The SDD contract was terminated for the convenience of the government on 12 January 2006. The funds remaining in the line will support Joint ISR, CONOPS, Integration & Aircraft studies, and sensor maturation efforts, which will reduce ACS risk through these current system capabilities enhancements. At the conclusion of the ISR study, an analysis of alternatives will result in a decision regarding a path-forward for future ACS development. A milestone decision is currently planned for in FY 2009.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program								028	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
ACS SDD Contract/Termination Liability	C-CPAF	Lockheed Martin, Littleton, CO	81438	90258	1-2Q	8000	1-2Q	0		0	0	879000
Multi-Role-Tactical Command Data Link Development	SS-CPAF	L-3 Communications, Salt Lake City, UT	0	4591	2Q	5000	2Q	0		0	0	4590
CHALS Enhancement Development	SS-CPFF	Lockheed Martin, Owego, NY	0	0		4000	2Q	2500	1Q	0	0	0
GRCS COMINT Migration for ACS	C-CPFF	Northrop Grumman, Sunnyvale, CA	0	0		8000	2-3Q	2500	1Q	0	0	0
Modern Signals Sensor Prototype	TBD	TBD; Various	0	0		9000	2Q	2000	1Q	0	0	0
Product Development Support	C-T&M	TBD	0	0	2Q	2494	1-3Q	1500	1Q	0	0	0
Product Development Support	MIPR	Gov't/Variou	0	0	1-2Q	2075	1-2Q	1150	1-2Q	0	0	0
Subtotal:			81438	94849		38569		9650		0	0	883590
II. Support Costs	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
ACS Operational Performance Model	SS-CPFF	SAIC thru TEC	9205	1800	2Q	1500	1-2Q	1500	1-2Q	Continue	0	Continue
Model Evaluation Support	Gov't /Kr	Multiple	5771	2430	1-3Q	590	1-3Q	590	1-3Q	Continue	0	Continue
Aircraft, ISR and Integration Validation Studies	Gov/KR; TBD	TBD	0	0		3000	3Q	0		0	0	0
AoA Study	Gov/Kr;TBD		0	0		0		2264	1Q	0	0	0
CONOPS Analysis and CDD Development	Gov/Kr; TBD	Kr, Various	0	0		1400	2-3Q	1400	1-3Q	0	0	0
Infrastructure Studies: Software, Security, Meta Data/Single Signal Archetitecture (SSA)	Kr/Variou	Gov't, Various	0	0		3000	1-2Q	2000	1-2Q	0	0	0
Studies and Analysis Support	C-T&M	Kr; Various	0	0		1135	1-2Q	1200	1-2Q	0	0	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							028		
Studies and Analysis Support	MIPR	Gov't	0	0		1465	1-2Q	575	1-2Q	0	0	0
Subtotal:			14976	4230		12090		9529		Continue	0	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
Airframe Engineering & Evaluation Support	MIPR	AMRDEC, Redstone Arsenal, AL	3550	2600	1-2Q	190	1-2Q	190	1-2Q	Continue	0	Continue
Test Support	MIPR/ C-T&M	Gov't/Kr Various	1497	1110	1-2Q	1065	1-2Q	1150	1-2Q	Continue	0	Continue
Subtotal:			5047	3710		1255		1340		Continue	0	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
ACS/GRCS/ARL Core Staff	In-House	PM, AC Sensors	10930	5855	1-4Q	4726	1-2Q	4800	1-2Q	Continue	0	Continue
Program Support	C-T&M	TBD; ETOSS	3304	3200	1-3Q	2130	2Q	1200	1-2Q	0	0	7004
Program Support	C-T&M	ILEX, Tinton Falls, NJ	0	400	1-2Q	1475	1-2Q	1200	1-2Q	Continue	0	Continue
Program Management	Kr; Various	Multiple	2857	3171	1-3Q	1470	1-3Q	1400	1-3Q	Continue	0	Continue
Matrix Support	MIPR	Gov't; Various	6802	2757	1-2Q	1343	1-2Q	1500	1-2Q	Continue	0	Continue
Matrix Support	MIPR	CRDEC/I2WD, Ft Monmouth, NJ	0	2130	1-3Q	1922	1-3Q	2100	1-3Q	Continue	0	Continue
Subtotal:			23893	17513		13066		12200		Continue	0	Continue
Project Total Cost:			125354	120302		64980		32719		Continue	0	Continue

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	System Dev & Demo (SD&D)	SD&D																										
(1) Contract Termination					▲ Contract Termination																							
Joint ISR Study/Aircraft, Integration, CONOPS Studies					ISR & Tech Studies																							
AOA					AOA																							
(2) Path Forward Decision					▲ Decision																							
CDD Development and Approval					CDD Process																							
Milestone Preparation Activities					MS Prep																							
RFP Process and Source Selection					RFP/SSEP																							
(3) ACS Milestone Decision					▲ MS Decision																							
ACS Development Contract					ACS Development Contract																							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 028
<u>Schedule Detail</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>
ACS System Dev and Demo (SD&D) Phase Contract	1-4Q	1-2Q					
ACS Contract Termination and Closeout		2-4Q	1-3Q				
Joint ISR Study/Technology Studies		2-4Q					
AOA			1-4Q	1-3Q			
CDD Development & Approval		2-4Q	1-4Q	1-3Q			
Milestone Preparation			2-4Q	1-4Q	1-2Q		
MS Decision					2Q		
RFP Documentation and Source Selection				1-4Q	1-2Q		
ACS Development Contract Restart					2-4Q	1-4Q	1-4Q

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 028
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Funding in \$000							
Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Termination Liability Funding:							

Remarks:
This program does not budget/fund termination liability separately. A Limitation of Funds clause (FAR 52.232-22) is inserted in all incrementally funded R&D contracts. This clause is designed to limit the government's legal liability to the amount obligated on the contract.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 430	
COST (In Thousands)	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	12360	42532	13051	11260	9989	11053	11253	0	128728

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 to meet the Net-Ready Key Performance Parameters (KPPs) and includes a digital data bus that permits installation of enhanced communication 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-GA-714A engines includes testing for Engine Compressor Blade Coating. The Infrared (IR) Suppression system for the 714A engine improves the survivability of the CH-47 by reducing aircraft visual and IR signature to delay or prevent acquisition and engagement of IR manpads. Developmental improvements are included for the Low Maintenance Rotor Hub (LMRH). The Airframe Component Improvement Program funds Swashplate Redesign, Aircraft Transmission Cooling Fan, Integrated Cargo Handling/Ballistic Protection Floor System. The Health and Usage Monitoring System (HUMS) incorporated onboard the Chinook aircraft will collect timely and accurate diagnostic data which will be used to enhance fleet management. The Cargo Condition Based Maintenance (CBM)/HUMS effort will provide near real time accurate aviation maintenance and component performance data for fleet management; provide logistical and engineering data to Army support organizations at a level of detail previously unavailable; exercise CBM technologies and processes in the context of a single Platform Maintenance Application and emerging Army maintenance doctrine; and reduce risk for integration on the CH-47F by proving out key system and process elements/performance specification enabling timely insertion of HUMS/CBM technology.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Operational Test & Evaluation	0	2500	1536
Provide product technical support	0	1750	0
Continue Contract Live Fire Test & Evaluation	0	500	0
Continue in-house and program management administration.	300	827	515
Continue Government Test & Evaluation.	0	2250	0
Test Analysis	0	1000	0
714 Engine	4375	3500	2592
Low Maintenance Rotor Hub	7685	6805	2763
Airframe Component Improvement Program/Health and Usage Monitoring System (HUMS)	0	23400	5645
Total	12360	42532	13051

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 430	
APA, SSN AA0252, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc and Initial Spares)	856741	677532	617357	755674	1046959	863713	967937	6381767	18009829

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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							430		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
EMD	CPIF	Various	117221	0		0		0		0	117221	117098
TOCR	CPIF	Various	1600	0		0		0		0	1600	1600
Technical Support	CPFF	Various	6658	0		1750	1-2Q	0		0	8408	0
714 Engine	CPIF	Various	3259	4375	1-2Q	2500	1-2Q	2592	1-2Q	0	12726	0
Low Maintenance Rotor Hub	CPIF	Boeing	0	7685	2-3Q	6805	2-3Q	2763	1-2Q	0	17253	0
Blade Coating	CPIF	Honeywell	0	0		1000	1-2Q	0		0	1000	0
Airframe Component Improvement Program/Health and Usage Monitoring Systems (HUMS)			0	0		23400	2-3Q	5645	2Q	0	23400	0
Subtotal:			128738	12060		35455		11000		0	181608	118698
II. Support Costs			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
PMO/OGA	Reimbursable	Various government	12380	300	2-3Q	827	2-3Q	515	2-3Q	0	14022	0
Subtotal:			12380	300		827		515		0	14022	0
III. Test And Evaluation			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
DT/OT	Reimbursable	Various government	14221	0		4750	1-2Q	1536	1-2Q	0	20507	0
Live Fire Test & Eval	Reimbursable	Contract/Govt	6365	0		500	1-2Q	0		0	6865	0
Live Fire Test & Eval	Contract		50	0		0		0		0	50	0
Test Analysis	Reimbursable	Various Government	1500	0		1000	1-2Q	0		0	2500	0
Subtotal:			22136	0		6250		1536		0	29922	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 430
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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
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	12360		42532		13051		0	229453	122599
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
430

Event Name	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
Low Rate Initial Production	LRIP																											
(1) MS III/FRP	▲ 1																											
Full Rate Production	Full Rate Production																											
IOT&E Phase II																												
(2) FUE											▲ 2																	

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 430	
<u>Schedule Detail</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>	
Milestone III	1Q							
Full Rate Pdn	1Q							
Initial Oper Test & Eval (IOT&E) Phase II		1-4Q	1-2Q					
FUE			3Q					

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 504	
COST (In Thousands)	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	106626	121215	126991	88952	34595	35902	41329	Continuing	Continuing

A. Mission Description and Budget Item Justification: The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. It is used for air assault, general support, aeromedical evacuation (MEDEVAC), and command and control in active and reserve component theater, corps, division, and Table of Distribution and Allowances (TDA) units. The UH-60A entered service in fiscal year 1978 (FY78), and the newer model UH-60L in FY89. The Army 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 an Upgrade configuration which includes the Fly By Wire (FBW), Composite Tailcone, Full Authority Digital Engine Control (FADEC) and the Common Avionics Architecture System (CAAS), which is the common cockpit to be used by UH-60M, CH-47 and Special Operations. Incorporation of CAAS will minimize the future sustainment costs for these aircraft platforms. A succesful UH-60M Upgrade IPR decision was obtained in January 06. 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 Autonomous Landing Systems (HALS).

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

FY07 Funds the continuation of the Upgrade program. FY07 includes funds for the Army Component Improvement Program (ACIP).

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 504
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<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue airframe, avionics and powerplant development based on finalized configuration as a result of airframe CDR. Conduct System Preliminary Design Review and Critical Design Review.	19183	8987	2227
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.	1892	820	583
Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.	2028	558	380
Prototype build and delivery to support Development Testing (DT).	28140	12974	807
Testing (Conduct flight testing, EME testing and ground testing).	14019	6239	4551
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.	1321	401	86
Conduct training course to support test.	15	1738	0
Maintain Continuous Acquisition and Life Cycle Support (CALs)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's).	456	104	22
Support Equipment	109	35	22
Helicopter Autonomous Landing System (HALS) - Development and delivery of a complete unit; technical support; and integration of the unit.	2024	7000	0
IMD-HUMS demonstration program.	20368	0	0
UH-60M Upgrade Efforts	14799	82359	110193
MAST Demonstration Program	2272	0	0
Aircraft Component Improvement Program (ACIP)	0	0	8120
Total	106626	121215	126991

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
A05002 BLACK HAWK (MYP)	506788	680853	740396	837467	1179414	1068689	921007	CONT	CONT

C. Acquisition Strategy The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. The Army revised the acquisition strategy for the UH-60M

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203744A - Aircraft Modifications/Product Improvement Program

PROJECT

504

to procure new UH-60M helicopters in lieu of Recap/Upgrade. This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) and increasing O&S costs, including all top-ten cost drivers, and provides a common, modernized platform for the UH-60 utility and MEDEVAC fleet of the future. The program will be executed over four phases: pre-System Development/Demonstration Phase (FY00-01), System Development/Demonstration Phase (Baseline FY01-07) (Upgrade FY05-11), Production/Readiness Phase (FY05-25), and Operations and Sustainment Phase (FY06-FY45).

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program								504	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co 30 Moffitt Street Stratford, CT 06601	293153	51788	1-2Q	20652	1-2Q	2185	1-2Q	0	367778	0
Development Support - Organic	MIPR	UH PMO/matrix	8746	5063	1-3Q	3748	1-3Q	631	1-3Q	0	18188	0
Development Support - Contractor	C/FP	Support Contractors	11468	564	1-3Q	576	1-3Q	392	1-3Q	0	13000	0
IMD-HUMS Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	5471	1482	3Q	0		0		0	6953	0
IMD-HUMS Development Support - Contractor	C/FP	Goodrich, 100 Panton Road, Vergennes, Vermont 05491	27985	18886	3Q	0		0		0	46871	0
MAST Development Support - Organic	MIPR'S	Other Government Agency Support	334	1095	1Q	0		0		0	1429	0
MAST Development Support - Contractor	MIPR	Smith Industries Clear Water , FLI	4531	1177	2Q	0		0		0	5708	0
UH-60M Upgrade Efforts - Organic	MIPR		0	4844	4Q	18186	1-2Q	13576	1-2Q	22833	59439	0
UH-60M Upgrade Efforts - Contractor	CPAF		0	9955	4Q	64173	1-2Q	96617	1-2Q	99327	270072	0
Army Component Improvement Program (ACIP) - Organic			0	0		0		922	1-2Q	6425	7347	0
Army Component Improvement Program (ACIP) - Contractor			0	0		0		7198	1-2Q	50159	57357	0
Internal Reprogramming - Payback for FY03			3413	0		0		0		0	3413	0
HALS			0	2024	3Q	7000	3Q	0		0	9024	0
Performance Support System - NG (Apache)	MIPR	Other Government Agency Support	1000	0		0		0		0	1000	0
Future Utility Upgrades	C	TBS	0	0		0		0		22034	22034	0
Subtotal:			356101	96878		114335		121521		200778	889613	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 504
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Remarks: IMD-HUMS demonstration program was funded in FY02-05 and is separate from the UH-60M program.
 MAST demonstration program was funded in FY04 and FY05 and is separate from the UH-60M and the HUMS programs.

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Cost Analysis Support	MIPR	AMCOM Matrix	521	125	1-3Q	127	1-3Q	130	1-3Q	0	903	0
Logistics Analysis Support - Organic	MIPR	AMCOM Matrix	0	287	1-3Q	293	1-3Q	224	1-3Q	0	804	0
Logistics Analysis Support - Support Contractor	MIPR	Support Contractor	0	502	1-3Q	512	1-3Q	294	1-3Q	0	1308	0
Subtotal:			521	914		932		648		0	3015	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
Test Planning, Test and Evaluation	MIPR	Various Activities	6451	6229	1-3Q	3662	1-3Q	2742	1-3Q	0	19084	0
Test Planning, Test and Evaluation	MIPR	Various Activities	0	125	1-3Q	128	1-3Q	98	1-3Q	0	351	0
Subtotal:			6451	6354		3790		2840		0	19435	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
PM Support - Organic	MIPR	UH PMO/matrix	4681	975	1-4Q	942	1-4Q	1100	1-4Q	0	7698	0
PM Support - Contract	C/FP	O2K Contractor	1135	1505	1-3Q	1216	1-3Q	882	1-3Q	0	4738	0
SIBR/STTR			4383	0		0		0		0	4383	0
Subtotal:			10199	2480		2158		1982		0	16819	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 504		
Project Total Cost:	373272	106626		121215		126991	200778	928882	0

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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
504

Event Name	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												
UH-60M Program																																								
(1) MS C																													▲ MS C											
(2) LRIP Contract Award, (3) FRP IPR																													▲ LRIP CA				FRP IPR ▲							
(4) Full Rate Production Contract Award, (5) FUE																																	FRP CA ▲				▲ FUE			
(6) UH-60M Upgrade IPR																																	▲ Upgrade IPR							
(7) UH-60M FRP RFP																													▲ UH-60M FRP RFP											
Test Article Fab/Checkout																													UH-60M Test Article											
DT/Flight Test	UH-60M DT/Flight Test																																							
UH-60M LRIP	UH-60M LRIP																																							
UH-60M 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 Upgrade Development	UH-60M Upgrade Development																																							
UH-60M Upgrade Cut-In																	UH-60M Upgrade Cut-In																							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0203744A - Aircraft Modifications/Product Improvement Program						504
<u>Schedule Detail</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>	
IMD-HUMS: demonstration program	1-4Q	1-3Q						
Test article delivery for testing (UH-60M)	2Q	1-2Q						
OT preparation and conduct		1-4Q	1Q					
HALS	3-4Q	1-4Q						
Closeout of Integration and Qualification			2Q					
Milestone C (UH-60M)	3Q							
LRIP Lot 1 Contract Award (UH-60M)	2Q							
LRIP Lot 2 Contract Award (UH-60M)		3Q						
UH-60M Upgrade IPR		2Q						
Full Rate Production IPR (UH-60M)			3Q					
First Unit Equipped (FUE) (UH-60M)				2Q				
Mast Demonstration Program	1-4Q							

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT D17	
COST (In Thousands)	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	57000	108157	123405	123616	189546	126018	106944	Continuing	834686

A. Mission Description and Budget Item Justification: Project D17 funding is for the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture of 597 Apache aircraft into Block III-configured aircraft (deliveries to begin in FY10). The Block III program will provide Network-Centric capabilities for 597 Apache Longbows at a critical time as the Army transitions from the current force to the Future Force (FF). Block III capability enhancements are achieved via planned technology insertions such as: FF Connectivity-Seamless Global Information Grid Communications (Interim Communications Suite embedded in an Open Systems Architecture (OSA)); extended range sensing; increased survivability; Cognitive Decision Aiding System (CDAS), which speeds critical battle tasks; improved aircraft performance: reduced Operations and Support (O&S) cost and logistics footprint, and increased aircraft readiness. As a result of United States Army transformation, emerging FF organizational and operational structure, lessons learned from OEF and OIF, and a changing operational environment, the Modernized Apache is integral to achieving air-ground synergy during FF operations. The Block III Modernized Apache fleet, with its upgraded system architecture, will enable FF compatibility and enhanced war-fighting capability.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Operational Assessments	307	650	662
Joint Venture NRE Contracts	24000	25000	29000
Boeing NRE Contracts	31190	72000	75600
NRE Program Support Activities	82	4844	12415
Management Services	1421	5663	5728
Total	57000	108157	123405

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
APA, SSN 6670, SSN 6605;	919840	699849	797516	648826	630839	488357	472829	CONT	CONT
RDTE, 0203744A, D12	1629	0	0	0	0	0	0	0	1629

C. Acquisition Strategy The NRE for FY05 - 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 59 aircraft which will take 18 months for delivery and therefore will be two separate contractual actions (FY 09 & FY 10). These 59 LRIP aircraft are to be used for operational testing, FUE and training base fielding.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203744A - Aircraft Modifications/Product Improvement Program

PROJECT

D17

In FY 11, a contract for Apache Block III Lot 3 (39 aircraft), initiating full rate production, will be awarded with options for Lot 4 (60 aircraft), Lot 5 (60 aircraft) and Lot 6 (60 aircraft), and continuing through to 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.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							D17		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Joint Venture Contracts	Cost Reimb	Orlando, FL	0	24000	4Q	25000	1-2Q	29000	1-2Q	22000	100000	100000
Boeing Contracts	Cost Reimb	Mesa, AZ	0	31190	3Q	72000	1-2Q	75600	1-2Q	307050	485840	485840
Longbow Limited Contracts	Cost Reimb	Orlando, FL	0	0		0		0		61870	61870	61870
Lockheed Martin Contracts	Cost Reimb	Orlando, FL	0	0		0		0		16930	16930	16930
Subtotal:			0	55190		97000		104600		407850	664640	664640
II. Support Costs	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
Block III NRE Support	Various	Various Activities	0	82	4Q	4844	1-3Q	12415	1-3Q	38224	55566	55566
Subtotal:			0	82		4844		12415		38224	55566	55566
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
Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	MIPR, Various	Various Activities	0	307	4Q	650	1-2Q	662	1-2Q	78275	79894	79894
Subtotal:			0	307		650		662		78275	79894	79894
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
Management Svcs (In-House,	Various	PMO AAH, Matrix	0	1421	4Q	5663	1-2Q	5728	1-2Q	21774	34586	34586

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							D17		
Travel, etc.)		Support, O2K										
Subtotal:			0	1421		5663		5728		21774	34586	34586

Project Total Cost:			0	57000		108157		123405		546123	834686	834686
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	<div style="background-color: #000080; color: white; padding: 2px; text-align: center;">Boeing NRE Contracts</div>																											
NRE Contracts - Boeing																												
NRE Contracts - Joint Venture	NRE Contracts - Joint Venture																											
(1) Critical Design Review (CDR)																												
(2) Capabilities Production Document (CPD)																												
(3) Milestone B Decision																												
LRIP Contract Award (Lots 1&2)																												
Test Planning/Support -- TWIG, TEMP, Etc.	Test Planning/Support -- TWIG, TEMP, Etc.																											
Limited User Test (LUT) I																												
Initial Operational Test (IOT) 1																												
FRP Contract Award (Lot 3)																												
Block III Deliveries																												
Longbow Limited Contract Award																												
Lockheed Martin Contract Award																												

Schedule Detail (R4a Exhibit)

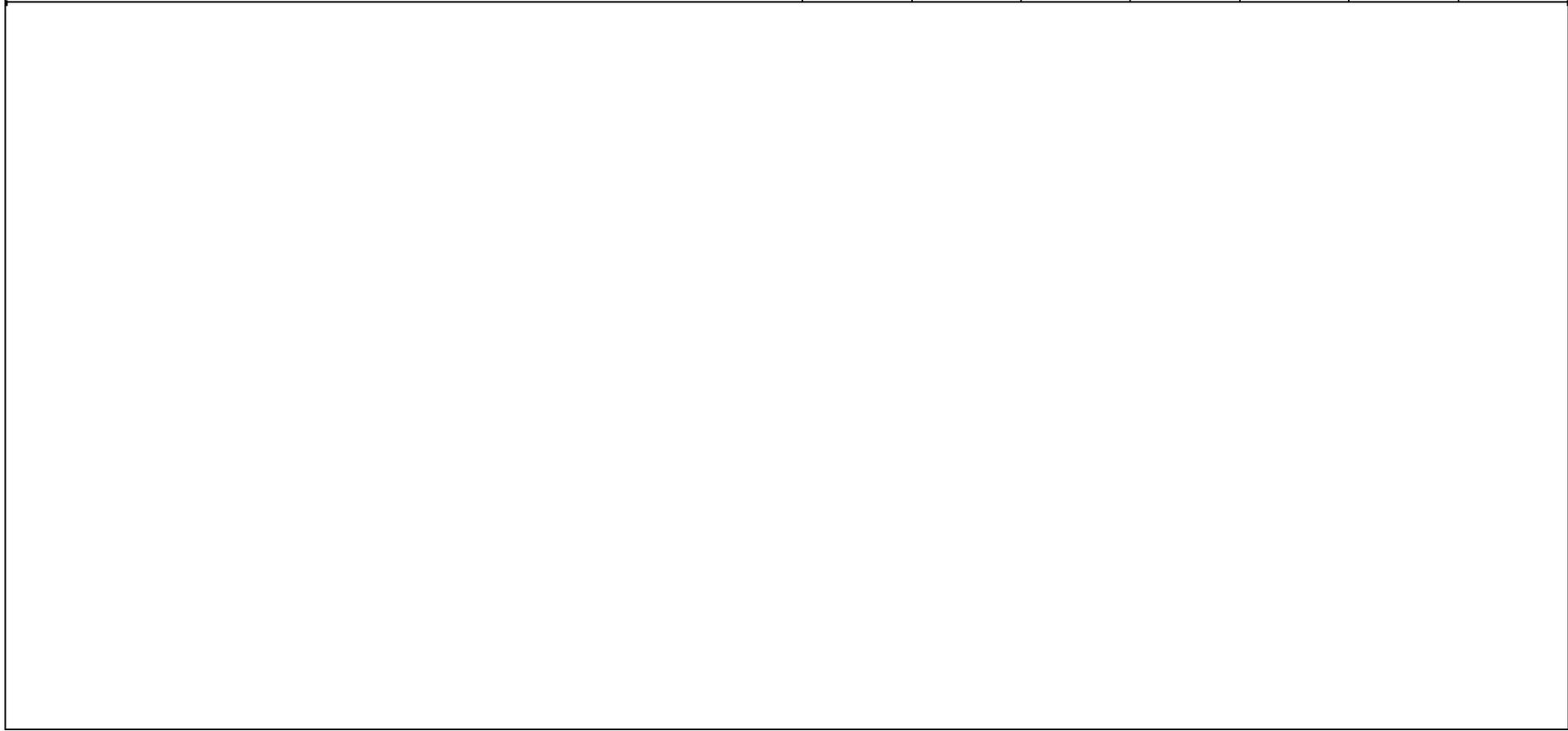
February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0203744A - Aircraft Modifications/Product Improvement Program					D17	
<u>Schedule Detail</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>	
NRE Contract Award -- Boeing	3-4Q	1-2Q	1-2Q	1-2Q	1-2Q	1-2Q	1-2Q	
Radar Electronics Unit (REU) NRE Contract Award -- Joint Venture	4Q	1-2Q	1-2Q	1-2Q				
Longbow Limited Contract Award						1-2Q	1-3Q	
Lockheed Martin Contract Award						1-2Q	1-2Q	
Critical Design Review (CDR)			2-3Q					
Capabilities Production Document (CPD)					1-2Q			
JROC Approval/MS C					2Q			
Milestone C					2-3Q			
TWIG, TEMP, Other Testing Activities		1-4Q	1-4Q					
LRIP Contract Awards [Lots 1 and 2]					3-4Q	1Q		
Limited User Test [LUT]					1-2Q			
Operational Assessment I [OAI]						2-3Q		
FRP Contract Award (Lot 3)							1Q	
Initial Deliveries [LRIP, Lot 1]						4Q		

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT D17
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Funding in \$000							
Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
D17, Apache Block III	5700	11000	12000	12000	19000	12000	11000
Total Termination Liability Funding:	5700	11000	12000	12000	19000	12000	11000



ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program				PROJECT D18	
COST (In Thousands)	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
D18 UTILITY FW CARGO AIRCRAFT	0	0	5573	6586	3041	0	0	0	15200

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
IOT&E Test Plan	0	0	300
IOT&E Test Material	0	0	573
LFT&E Test Plan	0	0	300
LFT&E Test Material	0	0	2850
LFT&E Test Execution	0	0	800
Production Qualification Test (PQT)	0	0	750
Total	0	0	5573

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
A11000 UTILITY F/W CARGO AIRCRAFT	0	4860	109154	157043	258622	303824	427737	0	1261240

Comment: The Fixed Wing Cargo Aircraft program was established to correct operational shortfalls to cargo mission requirements, provide commonality with other aviation platforms, and replace multiple retiring aircraft systems. This aircraft addresses these shortfalls, and replaces retiring C-26 and C-23 fleets, and selected C-12s.

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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							D18		
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									
II. Support Costs			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									
III. Test And Evaluation			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
IOT&E Test Plan	MIPR	Operational Test Command (OTC), Ft. Hood, TX	0	0		0		300	2Q	0	300	0
IOT&E Test Material	C/FFP	TBD	0	0		0		573	2Q	0	573	573
IOT&E Test Execution	MIPR	Operational Test Command (OTC), Ft. Hood, TX	0	0		0		0		500	500	0
IOT&E Test Reports	MIPR	Operational Test Command (OTC), Ft. Hood, TX	0	0		0		0		300	300	0
LFT&E Test Plan	MIPR	Army Research Lab, Aberdeen Proving Ground, MD	0	0		0		300	1Q	0	300	0
LFT&E Test Material	C/FFP	TBD	0	0		0		2850	1Q	0	2850	2850
LFT&E Test Execution	MIPR	Army Research Lab, Aberdeen Proving Ground, MD	0	0		0		800	2Q	7450	8250	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT			
7 - Operational system development			0203744A - Aircraft Modifications/Product Improvement Program							D18			
LFT&E Modeling & Simulation	MIPR	Army Research Lab, Aberdeen Proving Ground, MD	0	0			0			0	500	500	0
Production Qualification Test	MIPR	Naval Air Systems Command , Patuxent River NAS, MD	0	0			0		750	1Q	877	1627	0
Subtotal:			0	0			0		5573		9627	15200	3423

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									

Project Total Cost:			0	0		0		5573		9627	15200	3423
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																										
7 - Operational system development	0203744A - Aircraft Modifications/Product Improvement Program	D18																										
Event Name	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
IOT&E									IOT&E																			
LFT&E									LFT&E																			
Production Qualification Test													PQT															

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0203744A - Aircraft Modifications/Product Improvement Program					D18	
<u>Schedule Detail</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>	
IOT&E Test Plan			2-4Q					
IOT&E Test Material			2-4Q					
IOT&E Test Execution				1-4Q				
IOT&E Test Reports					1-2Q			
LFT&E Test Plan			1-3Q					
LFT&E Test Material			1-3Q					
LFT&E Test Execution			2-4Q	1-4Q	1-2Q			
LFT&E Modeling & Simulation					2-4Q	1Q		
Production Qualification Test (PQT)			1-4Q	1-4Q	1Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program							PROJECT 106	
COST (In Thousands)	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	7117	2036	860	479	331	800	722	0	24389

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<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 warfighting capability and improve durability and reliability while reducing cost of ownership. 2005: Performed life analysis and development work on the 701D engine to reduce engine O&S costs, increase flight safety, and improve engine on-wing life. Continued development of the Enhanced Digital Engine Control Unit and supported flight testing on the UH-60L to reduce O&S costs and improve safety. Began development of a Full Authority Digital Engine Control for the UH-60M to improve readiness and reduce O&S costs. 2006: Initiate development of Apache controls for the 701D to improve readiness and flight safety and reduce O&S costs. Complete all open -701D qualification reports. Contribute to the development and qualification of an improved durability compressor to increase readiness and reduce O&S costs. Begin development of an improved durability Inlet Particle Separator impeller to improve engine on-wing life, resulting in improved readiness and reduced O&S costs. 2007: Funding reprogrammed to PE 273744 beginning FY07. All work efforts will cease due to the removal of funding, resulting in reduced safety and readiness, and increased O&S costs for H-60 and H-64 helicopters.</p>	1039	1233	0
<p>T55 Engine: Continue applying engineering effort to unanticipated flight safety problems revealed in the field & provide timely support. Continue the engineering support of fielded engines to enhance war-fighting capability, improve durability & reliability while reducing cost of ownership. 2005: Continued with the design & qualification of an improved bleed system to reduce O&S costs. Completed the 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 T55-GA-714B engine upgrade program, the program which will increase temperature margin & reduce specific fuel consumption (SFC) and O&S costs. (Note: In July 2005 the T55-G-714B engine upgrade program was deferred by the Cargo Helicopters Program Manager (PM), Program Executive Office (PEO) Aviation.) Started efforts to complete the qualification of an improved Engine Control Unit (ECU) for CH-47 D/F aircraft. The ECU is a member of the "Universal Control" family of engine controls, previously funded by Congressional and Cargo Helicopter PM funds and now a part of CIP. 2006: Complete the qualification effort for the Improved Bleed Systems and Improved N2 Speed Sensor and submit Engineering Change Proposal (ECP) for incorporation. Continue with the qualification effort for the ECU program. Initiate Compressor Erosion Resistant Coating program to increase engine time on wing. Initiate a program to activate the ECU MIL-STD-1553 data bus for CH-47F aircraft. Initiate an Aviation Diagnostic and Engine Prognostic Technology (ADEPT) program to include updating engine lifing algorithms. 2007: Efforts to be performed to complete previously awarded tasks: Complete qualification of the ECU and submit the ECP for incorporation. Complete the Compressor Erosion Resistant Coating ECU 1553 Activation, and the ADEPT programs.</p>	750	256	400
<p>GTCP36 Auxiliary Power Unit (APU): Continue to provide timely responses to technical problems arising in the field during operational</p>	143	150	100

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
7 - Operational system development	0203752A - Aircraft Engine Component Improvement Program		106
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). 2005: Conducted engineering analysis of SRDs, life analysis of critical rotating parts and continue life analysis of critical rotating components. Conduct engineering analysis of service revealed deficiencies. 2006/2007: Complete life analysis and establish and/or verify life limits for turbine and compressor wheels to improve flight safety. Develop new repairs and extend wear limits, new repair tools and techniques to reduce O&S costs. Conduct engineering analysis of service revealed deficiencies.			
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). 2005: 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. 2006/2007: 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. Evaluate current combustor fuel manifold failures from field and initiate redesign effort to increase reliability and maintainability.	150	125	150
IN HOUSE: In-house support for the CIP engineers. Contracting support for CIP contracts.	244	272	210
Continued development of Universal Full Authority Digital Engine Control (FADEC).	4791	0	0
Total	7117	2036	860

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	7121	2066	6702
Current BES/President's Budget (FY 2007)	7117	2036	860
Total Adjustments	-4	-30	-5842
Congressional Program Reductions		-9	
Congressional Rescissions		-21	
Congressional Increases			
Reprogrammings	-4		
SBIR/STTR Transfer			
Adjustments to Budget Years			-5842

FY07 - Funds transferred to higher priority Army programs.

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)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0203752A - Aircraft Engine Component Improvement Program								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
T700 Engine	SS/CPFF	GE-Air, Lynn, MA	56934	1038	1-2Q	1233	1-2Q	0	1-2Q	Continue	0	Continue
T55 Engine	SS/CPFF	Honeywell, Phoenix, AZ	26628	750	1-3Q	256	1-2Q	400	1-2Q	Continue	0	Continue
APU's	MIPR	Air Force, Kelly AFB, TX	13557	0		0		0		0	13557	13557
EDECU	SS/CPFF	GE-Air, Lynn, MA	774	0		0		0		0	774	0
FADEC/FDU	MIPR	CECOM, Ft. Monmouth, NJ	8107	4788		0		0		0	0	5716
APU's	MIPR	Air Force, Hill AFB, UT	1263	300	3Q	275	3Q	250	3Q	Continue	0	Continue
LOLA	MIPR	CECOM, Ft. Monmouth, NJ	938	0		0		0		0	938	0
Subtotal:			108201	6876		1764		650		Continue	15269	Continue
II. Support Costs	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
Contract Engineering	SS/CPFF	Westar, St. Louis, MO	10	0		0		0		0	10	10
Contract Engineering	SS/CPFF	Camber, Huntsville, AL	199	0		0		0		0	199	199
Contract Engineering	SS/CPFF	AMS, Huntsville, AL	107	0		0		0		0	107	107
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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program							PROJECT 106		
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

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
In-house Engineering		ATCOM, St. Louis, MO	10342	0		0		0		0	10342	10342
In-house Engineering	NA	AMRDEC Redstone Arsenal, AL	1182	241	1-4Q	272	1-4Q	210	1-4Q	Continue	0	Continue
DA Withhold			118	0		0		0		0	118	0
Prior Year Closed Account Funding			5	0		0		0		0	5	0
SBIR/STTR			147	0		0		0		0	147	0
Subtotal:			11794	241		272		210		Continue	10612	Continue

Project Total Cost:	121287	7117		2036		860		Continue	27173	Continue
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203758A - Digitization					PROJECT 374			
COST (In Thousands)	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	
374 HOR BATTLEFLD DIGITIZN	24055	13152	13373	10187	11456	10835	8485	Continuing	Continuing	

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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.	3665	2713	3158
Manage cross-platfrom software development and fielding and ensure oordinated ensuring interoperability among the various weapon platforms.	5575	3530	4115
Integrate and synchronize interoperability across C4ISR programs in support of testing, training, and fielding system of systems developments to the force. Continue application across current and future force.	1963	1909	2100
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.	7291	0	0
Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.	2050	1000	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.	0	0	0
Support digitization technical integration with Active and Reserve Components both CONUS and OCONUS.	3511	4000	4000

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
7 - Operational system development	0203758A - Digitization	374		
Total		24055	13152	13373

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203758A - Digitization	PROJECT 374
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	29045	12343	13061
Current BES/President's Budget (FY 2007)	24055	13152	13373
Total Adjustments	-4990	809	312
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases		1000	
Reprogrammings	-4990		
SBIR/STTR Transfer			
Adjustments to Budget Years		-191	312

Change Summary Explanation: Funding - FY 2005: Funds transferred to new PE 0605737A, Defense Foreign Language, as directed by Congress to support the Broadband Foreign Language Training program and Satellite Communications for Learning (SCOLA).

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.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203758A - Digitization							374		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
System/Software Integration	MIPR/PWD	Various	87324	8239	1Q	5252	2-3Q	6423	2-3Q	Continue	0	0
International Digitization	MIPR/PWD	Various	11001	0	1Q	0		0		0	11001	0
Technical Analysis	MIPR	MITRE, McLean, VA	6447	1709	1Q	1600		1600	1Q	Continue	0	0
Other Government Agencies	MIPR	Various	6522	0		0		0		0	0	0
Single Integrated Ground Picture	MIPR		0	7281		0		0		0	0	0
Subtotal:			111294	17229		6852		8023		Continue	11001	0
II. Support Costs	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
Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	9207	1265	1-4Q	1300		1350	1-4Q	0	0	0
Digitization Planning, Internet and graphics support	MIPR	General Dynamics Corp. Pentagon, Arlington, VA	6999	0		0		0		0	6999	0
Info Ops, System Eng. & Field Integration, Internet and graphics support.	PWD	Quantum Res International, Pentagon & NC3, Arlington, VA, Ft. Monroe, VA, & Ft. Hood, TX and others	16383	3511	3Q	0		0		0	0	0
Other Integration Support	MIPR	L3Com, Pentagon	2119	0		0		0		0	2119	0
System Eng. & Field Integration, Internet and graphics support.	PWD	TBD, Pentagon & NC3, Arlington, VA	0	0	2Q	4000		4000	2Q	0	0	0
Subtotal:			34708	4776		5300		5350		0	9118	0
III. Test And Evaluation	Contract	Performing Activity &	Total	FY 2005	FY 2005	FY 2006	FY 2006	FY 2007	FY 2007	Cost To	Total	Target

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203758A - Digitization								PROJECT 374	
	Method & Type	Location	PYs Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Complete	Cost	Value of Contract
Other Govt. Agencies	MIPR	Various	5062	0		0		0		0	5062	0
University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	12692	2050		1000		0		0	0	0
Studies/Analyses	MIPR	Pentagon, Arlington, VA	2116	0		0		0		0	2116	0
DISM Battalion Test	MIPR/PWD		1000	0		0		0		0	1000	0
Subtotal:			20870	2050		1000		0		0	8178	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									
Remarks: Not Applicable												
Project Total Cost:			166872	24055		13152		13373		0	28297	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120						PROJECT 120	
COST (In Thousands)	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)	43668	19913	26375	33835	14813	0	0	0	245905

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

FY07 funds continue execution of Chief of Staff of the Army Directives for Battle Command Architecture and Joint Requirements Oversight Council Memorandum (JROCM) efforts. Efforts include Type I Encryption and interoperability between TI and L-Band based FBCB2 systems. Funds will be used to provide platform-level situational awareness and provide interoperability with ABCS System of Systems, Bradley, Abrams, Aviation, Stryker and support mandated Army/DoD protocol/system updates. Efforts will drastically reduce initialization database requirements and provide for updates to over the air on FBCB2-BFT and FBCB2-Enhanced Position Location and Reporting System (EPLRS).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Complete Army Battle Command System (ABCS) architecture and system of systems network engineering and integration efforts in support of v6.4 and Software Block Functionality	1041	0	0
Type I Encryption and NSA Endorsement	1959	6104	3687
Conducted v6.4 operation evaluation (FY05), Army software Block II evaluation (FY06), and JCR v1.0 testing (FY07).	1987	1925	3000
PM FBCB2 Program Management	3215	1924	2800
Develop/Maintain Joint Interoperability (USMC, Land Warrior/Dismount) and implement Coalition (UK) interoperability	10277	960	7386

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
7 - Operational system development	0203759A - Force XXI Battle Command, Brigade and Below (FBCB2	120	
Common Software Product Line	4759	0	0
JROCM - USMC & SOCOM Common Solution Brigade & Below	20430	6000	2502
Interoperability-Transciever	0	0	7000
Comm Connectivity Improvements	0	3000	0
Total	43668	19913	26375

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120			PROJECT 120
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	22546	20201	10451	
Current BES/President's Budget (FY 2007)	43668	19913	26375	
Total Adjustments	21122	-288	15924	
Congressional Program Reductions		-87		
Congressional Rescissions		-201		
Congressional Increases				
Reprogrammings	21122			
SBIR/STTR Transfer				
Adjustments to Budget Years			15924	

<u>C. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA - W61900	259179	255274	160060	129708	80270	73290	22757	0	980538
OPA - BS9736 (Spares)	3345	3549	380	2831	6455	0	0	0	16560
OMA - 432142	11319	11694	14394	19794	19793	0	0	0	76994

Comment:

D. Acquisition Strategy The FBCB2 development effort follows an evolutionary acquisition strategy to support Product Line Architecture, Army/Marine Corps convergence, Army Battle Command System (ABCS) interoperability and Army Software Blocking requirements. A Full Rate Production (FRP) decision review conducted by the Army Systems Acquisition Review Council (ASARC) in Aug 2004 and authorized FBCB2 program to enter into the Production and Deployment phase. Development efforts are executed via an Indefinite Delivery/Indefinite Quantity (ID/IQ) Cost Plus Award/Fixed Fee type contract. The current contract was awarded in Sep 2004.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120)									
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Software/Systems Engineering	CPIF/CPAF	Northrup Grumman, CA	168006	15204	1-2Q	6259	1-2Q	7775	1-2Q	Continue	Continue	0
Hardware Development	FFP	Northrup Grumman, CA	27645	0		0		0		0	27645	0
Software Development	CPIF/CPAF	Northrup Grumman, CA	238650	10562	1Q	9405		12050	1-2Q	Continue	Continue	0
TACNAV	CPIF	TRW CA	1000	0		0		0		0	1000	0
Systems Eng, Training and Log Development	CPAF	Lockheed Martin, NJ	0	11196	2Q	0		0		0	11196	0
Systems Eng, Training and Log Development	Various	Various Contracts	0	1504	2Q	0		0		0	1504	0
Subtotal:			435301	38466		15664		19825		Continue	Continue	0
II. Support Costs	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
PM Office Support	N/A	CECOM, Ft. Monmouth	13437	831	1-4Q	750	1-4Q	900	1-4Q	Continue	Continue	0
Matrix Support	MIPR	CECOM, Ft. Monmouth	4430	205	1-2Q	350	1-2Q	300	1-2Q	Continue	Continue	0
Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	25420	2179	1-2Q	824	1-2Q	1600	1-2Q	Continue	Continue	0
Subtotal:			43287	3215		1924		2800		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
CTSF	MIPR	CTSF	2323	951		0		0		0	3274	0
ATEC	MIPR	ATEC	35280	375	1-2Q	1500		650		Continue	Continue	0
EPG	MIPR	EPG	19444	180	1-2Q	375		3100		Continue	Continue	0
CRTC	MIPR	CRTC	1040	0		0		0		0	1040	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2 120							PROJECT 120		
Misc Contract Support			2488	481		450		0		0	0	0
Subtotal:			60575	1987		2325		3750		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
Subtotal:			0									

Remarks: Actual dollars received on funding authorization document in FY04 was 46,652.

JROCM Development efforts are included in the Software/Systems Engineering and Software Development.

Project Total Cost:	539163	43668		19913		26375		0	45659	0
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	SDD																											
System Development & Demonstration Phase																												
(1) Follow-On SE&I Contract Award																												
(2) V6.4x Operational Evaluation																												
(3) V6.4.4 System Segment Acceptance Test (SSAT)																												
(4) V6.4.4 Intra-Army Interoperability Certification (IAIC)																												
Product Line Object Architecture																												
JROCM 161-03: Army-Marine Corps Convergence.																												
(5) Quick Kill Op Eval																												
(6) Quick Kill Operational Deployment Decision																												
(7) JCR SSAT																												
(8) JCR Operational Evaluation																												
Field Common HW/SW																												
Full Rate Production Phase																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0203759A - Force XXI Battle Command, Brigade and Below (FBCB2						120
<u>Schedule Detail</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>	
Follow-On SE&I Contract Award	1Q							
V6.4 Operational Evaluation	2Q							
V6.4.4 System Segment Acceptance Test (SSAT)	3Q							
V6.4.4 Intra-Army Interoperability Certification (IAIC)		2Q			1Q			
Quick Kill Op Eval		1Q						
Quick Kill Operational Deployment Decision		2Q						
JCR SSAT		3Q						
JCR Operational Evaluation			2Q					
Software Block 4				2Q				
Software Block 4 Op Eval					2Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program						PROJECT 036	
COST (In Thousands)	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	32067	15957	10770	11051	11297	12227	12734	180300	190952

A. Mission Description and Budget Item Justification: Patriot is an advanced Surface-to-Air guided missile system with a high probability of kill capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic 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. Program objective is to define and implement software changes necessary to enhance system capabilities against evolving Tactical Ballistic Missile (TBM) and Cruise Missile threats. Development efforts address Mode V/S Identification Friend or Foe (IFF), launcher and design improvements. RDTE costs associated with developing and implementing Operation Iraqi Freedom (OIF) fixes are funded through this PE.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Post Deployment Software Development	5752	7548	10770
Recapitalization	19463	8409	0
SIAP, Block 0 Integration	4852	0	0
Advanced Composite Radome	2000	0	0
Total	32067	15957	10770

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program			PROJECT 036
<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007	
Previous President's Budget (FY 2006)	32082	16188	10607	
Current BES/President's Budget (FY 2007)	32067	15957	10770	
Total Adjustments	-15	-231	163	
Congressional Program Reductions		-70		
Congressional Rescissions		-161		
Congressional Increases				
Reprogrammings	-15			
SBIR/STTR Transfer				
Adjustments to Budget Years			163	

<u>C. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
MSLS PROC C50700 Patriot Mod	66287	76393	69856	76479	49746	53977	56361	CONT	CONT
MSLS PROC CA0267 Patriot Mod Initial Spares	6404	9422	15585	18798	18942	20851	7237	CONT	CONT
0604865A, Project 01C PAC-3	60408	0	0	0	0	0	0	0	60408
0603869A, Project 01B MEADS	251298	0	0	0	0	0	0	0	488121
0604869A, Project M06 Patriot/MEADS Combined Aggregate Program (CAP)	0	284695	329583	459684	517049	592013	422005	CONT	CONT
MSLS PROC C49100, PAC-3 Missile	496990	483260	489067	472907	478795	0	0	0	2421019
MSLS PROC C50001, Patriot/MEADS CAP	0	0	0	89735	65296	429735	674386	CONT	CONT
0102419A, Project E55 JLENS Development	79279	105888	264491	465214	353856	335490	301143	0	1905361
OPA BZ0525, JLENS Procurement	0	0	0	0	0	30471	476728	0	507199
0604802A, Project S23, SLAMRAAM	63084	35587	26961	10132	0	0	0	0	135764
MSLS PROC C81001, SLAMRAAM Production	2438	19061	22039	59314	82656	82143	60979	0	328630
0604820, Project SENTINEL Development	5848	5008	2527	2622	0	0	0	0	16005
OPA WK5057, SENTINEL	10566	8289	15125	20914	33394	33239	25314	0	146841
0603327, Project S23, Integrated Fire Control	19984	24480	41746	47995	50096	0	0	0	184301

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0203801A - Missile/Air Defense Product Improvement Program

036

Comment: This PE is an integral part of the PEO, Integrated Air and Missile Defense Program including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, and SENTINEL.

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 Product Improvement program upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally. 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203801A - Missile/Air Defense Product Improvement Program							036		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Post Deployment Software Development	1095/SS-CPIF	AMRDEC, AL/Raytheon, MA, LMMFC-D,TX	9253	2726	2-3Q	4952	2Q	8670	2Q	Continue	0	Continue
Recapitalization	SS-CPIF/MIPR	LM/CECOM/Raytheon	61514	19463	1-2Q	8409	2Q	0		0	0	0
SIAP	SS-FP	Raytheon, MA	10000	4852	2Q	0		0		0	14852	0
Advanced Composite Radome	SS-CPIF	AMRDEC, AL, LMMFC - D, TX, Holloman AFB, NM	1100	2000		0		0		0	3100	0
Subtotal:			81867	29041		13361		8670		Continue	17952	Continue
II. Support Costs	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
In-House Support	1095	RSA/AL	15911	850	1-4Q	550	1-2Q	500	1-2Q	Continue	0	Continue
Matrix Support	1095	RSA/AL	4217	520	1-2Q	500	1-2Q	400	1-2Q	Continue	0	Continue
Subtotal:			20128	1370		1050		900		Continue	0	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
Missile Command	1095	RSA/AL	17321	500	1Q	446		350		Continue	0	Continue
White Sands Missile Range	MIPR	WSMR/NM	13367	400	2Q	300		250		Continue	0	Continue
RDEC and Other Govt Agent	1095/MIPR	RSA/AL	98436	756	1Q	800		600		Continue	100592	Continue
Subtotal:			129124	1656		1546		1200		Continue	100592	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program	PROJECT 036
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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
Subtotal:			0									

Project Total Cost:	231119	32067		15957		10770		0	118544	0
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE												PROJECT															
7 - Operational system development		0203801A - Missile/Air Defense Product Improvement Program												036															
Event Name	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	
RECAPITALIZATION																													
Mode V IFF		Mode V IFF																											
Launcher Electronics						Launcher Electronics Development																							
Surveillance/Detection																													
Post Deployment Software Build		Post Deployment Software Build																											
(1) PDB 6										▲ PDB 6																			
(2) PDB 6.5														▲ PDB 6.5															
(3) PDB 7																						▲ PDB 7							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203801A - Missile/Air Defense Product Improvement Program

PROJECT

036

Schedule Detail: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs							
COST (In Thousands)	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	0	18414	19706	23346	5747	6149	4871	Continuing	Continuing
786 APKWS Simulator Upgrade	0	0	12	5546	5747	6149	4871	Continuing	22325
788 ATACMS PIP	0	18414	19694	17800	0	0	0	0	55908

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

The Army Tactical Missile System (ATACMS) Product Improvement Program (PIP) is an effort to integrate a new Tri-Mode warhead and fuzing system into the qualified TACMS 2000 Quick Reaction Unitary (QRU), M57 missile system. The PIP will be designed to be a 24/7 near 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 PIP will provide the joint war fighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition. It will be effective against counter fire, air defense, light material, and urban infrastructure targets. This effort will encompass the acquisition of a new warhead, the development and implementation of a tri-mode fuze, and Insensitive Munition (IM) trade studies. The new warhead and multi-mode fuze will provide the capability to execute air-burst, point detonation, and delay missions. Future technologies and munitions will be assessed for incremental development and potential insertion into ATACMS PIP to provide operational flexibility and capability.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational system development

0203802A - Other Missile Product Improvement Programs

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	4659	23560	24622
Current BES/President's Budget (FY 2007)	0	18414	19706
Total Adjustments	-4659	-5146	-4916
Congressional Program Reductions		-4960	
Congressional Rescissions	-4659	-186	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			-4916

FY 2007 - Project 786 funds realigned to higher Army priority requirements in accordance with APKWS program restructure.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs						PROJECT 786	
COST (In Thousands)	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	0	12	5546	5747	6149	4871	Continuing	22325

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 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	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Develop system requirements for training simulator hardware and software.	0	0	12
Total	0	0	12

B. Other Program Funding Summary	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	15289	10625	44742	66670	49824	19014	19666	0	225830

C. Acquisition Strategy Development and qualification of APKWS training simulator hardware/software will be accomplished via various types of contracts. The U.S. Army Aviation and Missile Life Cycle Management Command will provide assistance and technical expertise during the development effort.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs						PROJECT 788		
COST (In Thousands)	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	18414	19694	17800	0	0	0	0	55908

A. Mission Description and Budget Item Justification: The Army Tactical Missile System (ATACMS) Product Improvement Program (PIP) is an effort to integrate a new Tri-Mode warhead and fuzing system into the qualified TACMS 2000 Quick Reaction Unitary (QRU), M57 missile system. The PIP will be designed to be a 24/7 near 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 PIP will provide the joint war fighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition. It will be effective against counter fire, air defense, light material, and urban infrastructure targets. This effort will encompass the acquisition of a new warhead, the development and implementation of a tri-mode fuze, and Insensitive Munition (IM) trade studies. The new warhead and multi-mode fuze will provide the capability to execute air-burst, point detonation, and delay missions. Future technologies and munitions will be assessed for incremental development and potential insertion into ATACMS PIP to provide operational flexibility and capability.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct Development Engineering which includes: Warhead design, evaluation and qualification, tri-mode fuze development and qualification, and Insensitive Munitions (IM) trade studies.	0	15496	14683
Conduct system Test and Evaluation program which includes: Developmental (Arena) and Operational (Flight) tests.	0	873	2917
Develop Advance Field Artillery Tactical Data System (AFATDS) interface.	0	511	491
Perform continuous technical and risk assessments, conduct studies and prepare milestone documentation.	0	1534	1603
Total	0	18414	19694

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
ATACMS Block IA - Procurement Army C98501	160800	57689	60502	61268	0	0	0	0	340259
ATACMS MODS - Procurement Army C98800	0	0	0	2278	38380	40953	42685	424247	548543

C. Acquisition Strategy Currently the Army Tactical Missile Systems (ATACMS) Quick Reaction Unitary (QRU) is the only ATACMS variant in production. The PIP will be a product improvement to the QRU. The PIP will integrate a new warhead, develop/implement a tri-mode fuze and perform IM trade studies. The PIP will focus on developing these capabilities to meet the requirements of the ATACMS Unitary Operational Requirements Document (ORD). Additionally, the PIP program will include a development and

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203802A - Other Missile Product Improvement Programs

PROJECT

788

operational test program that will assess system survivability, suitability, 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 an incremental development approach.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0203802A - Other Missile Product Improvement Programs							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
Prime Contract	TBD	TBD	0	0		14654	2Q	13607	2Q	11402	39663	0
Developmental Engineering	Various	RDEC, AL	0	0		842	1-2Q	1076	1-2Q	1228	3146	0
Subtotal:			0	0		15496		14683		12630	42809	0

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

II. Support Costs	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
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.

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
Test Support	Various	WSMR, RTTC, 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; RTTC - Redstone Technical Test Center; 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
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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs				PROJECT 788			
Remarks: PFRMS - Precision Fires Rocket and Missile Systems; N/A - Not Applicable								
Project Total Cost:	0	0	18414	19694	17800	55908	0	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT										
7 - Operational system development		0203802A - Other Missile Product Improvement Programs																788										
Event Name	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) Contract Award					▲ CA																							
Warhead Trade Studies / Evaluation									████████████████████																			
Fuze Evaluation Studies / Evaluation									████████████████																			
Arena / Lethality Test									██████████████																			
Warhead Qualification													████████████████████															
Fuze Qualification													██████████████															
Safety & Transportation Tests																	████████████████████											
Flight Tests																	████████████████████											
Launcher / FCS Integration Tests																	████████████████████											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs					PROJECT 788	
<u>Schedule Detail</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>	
Contract Award		2Q						
Warhead Trade Studies / Evaluation		2-4Q	1-4Q					
Fuze Evaluation Studies / Evaluation		2-4Q	1-2Q					
Arena / Lethality Test		4Q	1-4Q					
Warhead Qualification			2-4Q	1-3Q				
Fuze Qualification			2-4Q	1-2Q				
Safety & Transportation Tests			4Q	1-4Q				
Flight Tests			3-4Q	1-4Q				
Launcher / FCS Integration Tests			4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)							
COST (In Thousands)	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	17354	24550	5804	1548	928	0	0	0	79653
01D TACTICAL INTERNET MANAGEMENT SYSTEM	17345	24550	5796	1548	928	0	0	0	62303
107 ISYSCON DEVELOPMENT	9	0	8	0	0	0	0	0	17350

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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational system development	0208010A - Joint Tactical Communications Program (TRI-TAC)		
	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	17414	24906	5980
Current BES/President's Budget (FY 2007)	17354	24550	5804
Total Adjustments	-60	-356	-176
Congressional Program Reductions		-108	-176
Congressional Rescissions	-14	-248	
Congressional Increases			
Reprogrammings	-46		
SBIR/STTR Transfer			
Adjustments to Budget Years			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)						PROJECT 01D	
COST (In Thousands)	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	17345	24550	5796	1548	928	0	0	0	62303

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>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Test & Evaluation	2200	0	1500
Requirement Analysis, System Engineering, Software Development "Must Have Beyond Good Enough" Block 5 requirements	15145	24550	4296
Total	17345	24550	5796

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
B93900 TIMS	11126	16752	11355	9215	3914	0	0	0	52362

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), superseding the ISYSCON ROC/2028 Change, was approved in May 02 and updated and approved in April 05. 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 was completed in Mar 05. Full Rate Production IPR and Material Release will follow in 2nd and 3rd Qtr FY06. In FY05, development of the Block 5 Initialization Capability (IC) Key Performance Parameters began as part of the CSA approved ABCS 6.4 "Beyond Good Enough" initiative. The IC Software Development Test is scheduled for 3rd and 4th quarter FY-06. LUT is scheduled for FY07.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0208010A - Joint Tactical Communications Program (TRI-TAC)							01D		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
TIMS Software Development and Upgrade	CPIF	NGMS, Carson, CA	8457	10950	2Q	14128	2Q	2172	2Q	Continue	0	0
Objective Initialization Capability	T&M	CSC, Falls Church, VA	0	1580	3Q	9074	3Q	1127	3Q	Continue	0	0
Subtotal:			8457	12530		23202		3299		Continue	0	0
II. Support Costs	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
TIMS Contractor Engr	MIPR/PWD	Various	464	703	2Q	732	2Q	350	2Q	Continue	Continue	0
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
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
TIMS IOT&E	MIPR	AEC-Variou	556	2200	2-3Q	0		0		0	2756	0
IC Op Eval (Block 5)	MIPR	AEC-Variou	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
MITRE	MIPR/PWD	Eatontown, NJ	1506	1325		0		0		0	0	0
Subtotal:			1506	1325		0		0		0	0	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)					PROJECT 01D				
Project Total Cost:	12010	17345		24550		5796		0	4256	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT										
7 - Operational system development		0208010A - Joint Tactical Communications Program (TRI-TAC)																01D										
Event Name	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
Software Development																												
IC (Block 5)																												
Software DT																												
ABCS 6.4																												
(1) CTSF Certification																												
IC																												
LUT																												
IOTE, Test Report																												
LUT, Test Report																												
Milestones																												
(2) Full Rate Prod IPR, (3) Matl Rel/Init Oper Capab, (4) Follow-on MR																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0208010A - Joint Tactical Communications Program (TRI-TAC)					01D	
<u>Schedule Detail</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>	
IOTE	3Q							
Full Rate Prod IPR		2Q						
Materiel Release/ IOC		3Q						
IC (Block 5) Contract Award	3Q							
IC (Block 5) Developmental Testing		3-4Q						
IC (Block 5) LUT and Report			1-4Q					
Follow-on MR				1Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208053A - Joint Tactical Ground System						PROJECT 635	
COST (In Thousands)	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)	9817	12670	15044	23644	7968	19274	7986	0	108775

A. Mission Description and Budget Item Justification: This program element supports development of critical improvements and insertion of technological upgrades to the Joint Tactical Ground Station (JTAGS) and research and development of the JTAGS replacement, the Multi-Mission Mobile Processor (M3P). 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. JTAGS is required to remain viable through FY11/12. 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. JTAGS today and M3P in the future are an integral part of the Integrated Air & Missile Defense (IAMD) System of Systems (SoS) architecture.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue Block I & Begin Block II M3P Integrated Product and Process Development (IPPD)	6648	6617	7240
Continue Block I & Begin Block II M3P Development	2065	6028	7804
Continue Block I M3P Test & Evaluation Support	1104	25	0
Total	9817	12670	15044

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	9822	12854	14817	
Current BES/President's Budget (FY 2007)	9817	12670	15044	
Total Adjustments	-5	-184	227	
Congressional Program Reductions		-56		
Congressional Rescissions		-128		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years	-5		227	

<u>C. Other Program Funding Summary</u>	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	7559	329	0	0	7309	5649	CONT	CONT
BZ8430 JTAGS M3P Institutional Training Equipment	0	4932	9523	0	0	0	0	CONT	CONT

Comment:

D. Acquisition Strategy Under this program element, critical improvements will be developed making maximum use of Non-Developmental Items(NDI)/Commercial Off-The-Shelf (COTS) elements. After design and integration, the system will be subject to thorough developmental and operational testing to verify performance and operational effectiveness and suitability. M3P Block I and Block II are joint interest developmental efforts with the U.S. Air Force and involve cost sharing of the acquisition. All Block I (referred to as DSP Only M3P (DM3P)) activities (including development and testing) were cancelled and resources refocused to maintain viability of JTAGS and rebaseline of Block II (formerly referred to as SBIRS High Geosynchronous M3P activities).

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0208053A - Joint Tactical Ground System							635		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Primary Hardware Development	C/CPAF	Lockheed / Sunnyvale, CA	27436	1755	1Q	0		2917	1Q	Continue	31335	Continue
Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	4766	310	1Q	6028	1Q	5087	1Q	0	15881	0
In-House IPPD	N/A	Various	15965	2641		2505		2996		Continue	21476	Continue
Contractor Engineering IPPD Support	C/CPFF	Various	11257	2373	2Q	2500	2Q	2500	2Q	Continue	17140	Continue
Government Engineering IPPD	N/A	Various	14023	1426		1404		1544		Continue	16318	Continue
Government Furnished Equipment	N/A	Various	711	208		208		0		0	927	0
Subtotal:			74158	8713		12645		15044		Continue	103077	Continue
II. Support Costs	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									
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
WSMR	MIPR	White Sands Missile Range, NM	590	100		0		0		Continue	690	Continue
ATEC	MIPR	Army Test Evaluation Command Ft. Bliss, TX	1720	82		0		0		Continue	1802	0
JITC	MIPR	Joint Interoperability Test Center, Ft. Huachuca, AZ	358	900		0		0		Continue	1258	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0208053A - Joint Tactical Ground System							635		
Aberdeen	MIPR	Aberdeen Proving Grounds, MD	0	22		25		0		Continue	47	0
Subtotal:			2668	1104		25		0		Continue	3797	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									
Project Total Cost:			76826	9817		12670		15044		0	106874	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT										
7 - Operational system development		0208053A - Joint Tactical Ground System																635										
Event Name	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) DSP Only) Multi-Mission Mobile Processor (DM3P) First Unit Equipped (FUE)					▲																							
(2) Materiel Release Approval									▲																			
(3) DM3P Full Operational Capability													▲															
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 Production Unit 5 Fielding (Army) (EUCOM)																												
DM3P Production Unit 1 Fielding (Army) PACOM)																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208053A - Joint Tactical Ground System					PROJECT 635	
<u>Schedule Detail</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 P3I Block I Development								
Continue P3I Block I Development (DM3P DT/OT)	1-4Q							
Continue 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 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)						PROJECT JH1	
COST (In Thousands)	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	3215	20397	5148	2955	3155	3274	0	22690

A. Mission Description and Budget Item Justification: The Joint High Speed Vessel (JHSV) program is a merger of the Army's Theater Support Vessel (TSV) program and the Marine Corps/Navy High Speed intra-theater surface Connector (HSC) program into a joint (multi-service) High Speed Vessel program. The JHSV program takes advantage of inherent commonality hull forms to create a more flexible asset for the Department of Defense and leverage the Navy's core competency in ship acquisition. The JHSV program will provide high speed intra-theater surface connector capability to rapidly deploy selected portions of the Joint Force that can immediately transition to execute, even in the absence of developed infrastructure, and conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns. The primary missions include: support to Theater Security Cooperation Program (TSCP) and Global War on Terrorism (GWOT), littoral maneuver, and seabasing support. Department of Army (DA) and Department of Navy (DoN) will maintain separate and distinct funding streams to support this joint program. DA will resource to the critical Army requirement set validated for the joint Initial Capabilities Document (ICD) for High Speed Intra-theater Surface Connector (HSC). 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY06-FY07: Provide Program Management Support.	0	800	850
FY06-FY07: Provides Acquisition/Documentation Development.	0	2415	1845
FY07: Continues Technical/Design Development	0	0	17702
Total	0	3215	20397

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 (FY 2006)	0	3261	5090		
Current BES/President's Budget (FY 2007)	0	3215	20397		
Total Adjustments	0	-46	15307		
Congressional Program Reductions		-14			
Congressional Rescissions		-32			
Congressional Increases					
Reprogrammings			15307		
SBIR/STTR Transfer					
Adjustments to Budget Years					

<u>C. Other Program Funding Summary</u>	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	54737	0	0	0	0	0	0	0	54737
OPA 3, M11203, Joint High Speed Vessel (JHSV),	0	0	0	303807	306263	156616	156900	0	923586

Comment:

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 is current under development. The JHSV program Mileston A Defense Acquisition Board (DAB) is planned for April 2006.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0208058A - Joint High Speed Vessel (JHSV)							JH1		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Acquisition/Documentation Development	MIPR	PEO Ships Washington Navy Yard, DC	0	0		2415	1-2Q	1845	1-2Q	0	4260	0
Technical/Design Development	MIPR	PEO Ships Washington Navy Yard, DC	0	0		0		17702	1-2Q	0	17702	0
Subtotal:			0	0		2415		19547		0	21962	0
II. Support Costs	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									
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									
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
Program Management Support	PWD	PM Force Projection, TACOM, Warren, MI	0	0		800	1-2Q	850	1-2Q	0	1650	0
Subtotal:			0	0		800		850		0	1650	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)						PROJECT JH1			
Project Total Cost:	0	0		3215		20397		0	23612	0

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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
JH1

Event Name	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) Acquisition Milestones, (2) Acquisition Milestones					 MS A				 MS B																			
Source Selection																												
(3) Award Lead Vessel																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208058A - Joint High Speed Vessel (JHSV)					PROJECT JH1	
<u>Schedule Detail</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>	
Acquisition Milestones		2Q		1Q				
Source Selection			2-4Q	1Q				
Award Lead Vessel(Army)				2Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303140A - Information Systems Security Program							
COST (In Thousands)	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	28531	26323	23828	21082	23137	31936	33437	0	230718
491 INFORMATION ASSURANCE DEVELOPMENT	7835	9049	7710	5108	5804	12371	15134	0	91238
501 ARMY KEY MGT SYSTEM	1346	1461	1554	996	1036	1929	0	0	10868
50B BIOMETRICS	19350	15813	14564	14978	16297	17636	18303	0	128612

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 Command, Control, Communications and Computer Intelligence (C4I) systems are protected against malicious or accidental attacks. Several joint service/NSA working groups exist in the area of key management in order to avoid duplication and assure interoperability between all systems, including the establishment of standards and testing. The Defense Information Systems Agency (DISA) Multi-Level Security (MLS) working group coordinates all the different ongoing technology efforts. This program will also develop, integrate, and demonstrate Command and Control (C2) Protect Common Tools into C4I systems that manage, protect, detect and react to C2 system vulnerabilities, threats, reconfigurations, and reconstitutions. Modeling, simulation, and risk management tools will be used to develop C2 Protect capabilities, enabling the warfighter to distribute complete and unaltered information and maintain a dynamic, continuous synchronous operational force.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational system development	0303140A - Information Systems Security Program		
	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	28618	22903	24282
Current BES/President's Budget (FY 2007)	28531	26323	23828
Total Adjustments	-87	3420	-454
Congressional Program Reductions		-115	
Congressional Rescissions		-265	
Congressional Increases		3800	
Reprogrammings	-87		
SBIR/STTR Transfer			
Adjustments to Budget Years			

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303140A - Information Systems Security Program						PROJECT 491	
COST (In Thousands)	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
491 INFORMATION ASSURANCE DEVELOPMENT	7835	9049	7710	5108	5804	12371	15134	0	91238

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

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conducted initial and follow-on concept validation of secure wireless, wired, and network information assurance (IA) and cryptographic solutions currently under consideration for integration into the Army's LandWarNet. Completed vulnerability and interoperability tests for the latest Secure Terminal Equipment software release prior to development into the SWA network architectures	4677	5338	4695
FY06-Provide planning/technical support on Crypto Mod and Key Management programs.-Form Key Management PMO under CIO/G6.- Implement INE and LEF Evolution plans.-Plan Army Secure Wireless Local Area Network (LAN) Strategy.-Support Joint Blue Force Tracking to improve situational awareness.-Support Secure Voice Over IP transition of the Tactical Communications Network.---FY07- Support development of net centric technologies for the Tactical Network, Modularity, and the Global ware on Terror.-Complete evaluation/fielding of Continue evaluation and fielding of network IA and cryptographic solutions	3158	3711	3015
Total	7835	9049	7710

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA TA0600	114188	59047	83280	47400	47444	0	0	CONT	CONT

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)**February 2006**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303140A - Information Systems Security Program

PROJECT

491

modernizing the Army's aging cryptographic systems.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303140A - Information Systems Security Program							491		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
System Engineering		CECOM, RDEC	30810	3367	1Q	5749	1Q	4410		Continue	0	Continue
Hardware/Software Engineering	Various	CECOM, RDEC	5224	0		0		0		0	5224	0
C2 Protect Common Tools	Subcontracts reflected in d. through k. below	Subcontracts reflected in d. through k. below	4504	1795	1Q	1800	1Q	1450	1Q	Continue	Continue	Continue
Engineering Support	Various	CECOM, RDEC	7847	0		0		0		0	0	0
Engineering Support	T&M	SRI Int., Eatontown, NJ	1348	186	1Q	250	1Q	250	1Q	Continue	Continue	Continue
Secure Management System	C-Reimburs	MITRE, McLean, VA	1113	0		0		0		0	1113	0
Malicious Mobile Code Analysis	T&M	ILEX Tinton Falls, NJ	577	0		0		0		0	577	0
C2 Protect ATD Engineering Support	T&M	Madentech Consulting	373	900	2Q	900	1Q	900	1Q	Continue	Continue	Continue
Tactical/Strategic Interface Development	T&M	Lockheed Martin, Tinton Falls, NJ	370	0	1Q	0	1Q	0	1Q	0	370	0
Tactical Intrusion Detection System	T&M	MIT, Cambridge, MA	135	0		0		0		0	135	0
Model & Simulation for Information Assurance Trainer	T&M	Atlantic Consulting Services, GA	1020	0		0		0		0	1020	0
DHIAP	Various	CIO/G6 BMO	12027	0		0		0		0	12027	0
DoD Biometrics Program	TBD	CIO/G6 BMO	18280	0		0		0		0	18280	0
Crypto Mod	Various	CECOM, RDEC	455	124	2Q	150	2Q	700		Continue	Continue	Continue
SEGATE	CPFF	VIASAT, Carlsbad, CA	1500	813	2Q	200	2Q	0		Continue	Continue	Continue
Maden Technologies		Gaithersburg, Md.	247	0		0		0		0	247	0
Engineering Support	T&M	Booze Allen, Eatontown, NJ	0	450		0		0		Continue	Continue	Continue
Engineering Support	T&M	CSC, Virginia	0	200		0		0		Continue	Continue	Continue
Subtotal:			85830	7835		9049		7710		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303140A - Information Systems Security Program							491		
II. Support Costs	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									
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									
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									
Remarks: Not Applicable												
Project Total Cost:			85830	7835		9049		7710		0	38993	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
491

Event Name	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
Network Access Control	[Redacted]																											
Intrusion Detection Control	[Redacted]																											
Host Machine Vulnerabilities	[Redacted]																											
Purge Tools	[Redacted]																											
INE Upgrades	[Redacted]																											
LPI Prototype & Test	[Redacted]																											
Acquisition of Installation Kits	[Redacted]																											
Type Classification Standard (TC Standard)	[Redacted]																											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program				PROJECT 491		
<u>Schedule Detail</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>
- Network Access Control	1-4Q	1-4Q	1-4Q				
- Intrusion Detection Control	1-4Q	1-4Q	1-4Q				
- Host Machine Vulnerabilities	1-4Q	1-4Q	1-4Q				
- Purge Tools	1-4Q	1-4Q	1-4Q				
Acquisition of Installation Kits	1-4Q						
Type Classification Standard (TC Standard)	1-4Q						
INE Upgrades	1-4Q	1-4Q					
LPI - Prototype & Test	1-4Q	1-4Q	1-4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303140A - Information Systems Security Program				PROJECT 501	
COST (In Thousands)	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	1346	1461	1554	996	1036	1929	0	0	10868

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.
- SKLs move the ACES/LCMS data to End Crypto Units (ECUs).

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue development of next set of software tools for the AKMS workstation development environment to support Army modularity requirements.	1048	1154	1238
Engineering Support	298	307	316
Total	1346	1461	1554

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BA1201 TSEC - AKMS	21775	2957	14924	16175	9791	10989	5972	CONT	CONT

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. SKL Fielding began in May FY05.

The RDTE effort continues in accordance with the approved Acquisition Strategy. The upgrade to ACES v1.7 Block II software for the LCMS is scheduled to complete in 2Q FY06. Upon completion, ACES Block III software upgrade effort is scheduled to begin and will continue in FY07. 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 and continuing into FY07. Functional Qualification testing will be conducted to validate the

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)**February 2006**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303140A - Information Systems Security Program

PROJECT

501

upgrades.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303140A - Information Systems Security Program							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
Software development	C/T&M	SYPRIS, Tampa, FL	21009	0		0		0		0	21009	0
Software development/Upgrade	C/T&M	ISS, Tinton Falls, NJ	4148	773	2Q	879	2Q	958	2Q	Continue	0	0
Electronic Key Management Sys (EKMS)	MIPR	Navy, Washington	3900	0		0		0		0	3900	0
Software Support	CPFF	SAIC, San Diego, CA	0	225	3Q	225	3Q	230		Continue	0	0
Subtotal:			29057	998		1104		1188		Continue	24909	0
II. Support Costs	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									
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
Testing	MIPR	SPAWAR, San Diego, CA	25	50	1Q	50	2Q	50	2Q	Continue	Continue	0
Subtotal:			25	50		50		50		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
Contractor Engineering	C/T&M	TELOS System Integration, Ashburn,	154	0		0		0		0	154	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303140A - Information Systems Security Program							501		
		VA										
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	1346		1461		1554		Continue	Continue	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE																PROJECT																																							
7 - Operational system development	0303140A - Information Systems Security Program																501																																							
Event Name	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																												
Local COMSEC Management Software	<div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em; opacity: 0.5;"> 1 2 </div>																																																							
LCMS Tier 2 Phase 4																													LCMS Software Development				Fielding Tier 2																							
Automated Communications Engineering Software (ACES)																																																								
ACES NET Fielding																													ACES NET/Fielding																											
ACES V1.7 Block II Upgrades, ACES Block III Upgrades																													ACES V1.7								ACES BLK III Upgrades																			
Simple Key Loader/Data Transfer Device (SKL/DTD) (Tier 2)																																																								
SKL Hardware Production/Fielding																													Hardware Production/Fielding																											
(1) SKL FAT																													1																											
SKL Block Upgrades																													DTD/SKL S/W BLK I & II																											
SKL Block Upgrades																																					DTD/SKL Block III Upgrade																			
(2) SKL FUE	2																																																							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 501	
<u>Schedule Detail</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>	
SKL FAT	1Q							
SKL FUE	3Q							
SKL Software Blk I & II Upgrade Completion		4Q						
SKL Block III Upgrade Start			1Q					
ACES V1.7 Blk II Completion		2Q						
ACES Blk III Upgrade Start		3Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 50B	
COST (In Thousands)	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	19350	15813	14564	14978	16297	17636	18303	0	128612

A. Mission Description and Budget Item Justification: Secretary of the Army (SA) is the Executive Agent for the DoD Biometrics (automated methods of human recognition) Program. The DoD Biometrics program consists of the DOD biometric Management Office (BMO), DoD Biometric Fusion Center (BFC), and Product Director (PD)-Biometrics, supports biometric research, testing, evaluation, and related activities. The BMO provides oversight, guidance, policy and standards support. The BFC provides technical expertise, early assessment of biometric capabilities, as well as industry and academia interface. PD-Biometrics provides acquisition support, repository management, DoD Automated Biometric Identification Support (ABIS) operations and maintenance, lifecycle management, and material development. The DoD Biometric program focuses on an enterprise approach, emphasizing interoperability and utilizing tested biometric technologies for incorporation into DoD business processes. This program was previously funded under PE 0303140A, Project 491. This system supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct test and evaluation of biometric commercial hardware and software to determine suitability for use within DoD. Conduct modeling and simulation efforts to support operational evaluation. Conduct DoD-wide working groups to synthesize enterprise biometric requirements and abilities into biometrics technology demonstrations and pilot activities. Support biometric integration in existing command and control and MIS systems.	19350	15813	14564
Total	19350	15813	14564

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
TA0600 - Information Systems Security Program	1462	7585	1465	1404	1434	1463	1492	0	16305
432144 - Operations and Maintenance Army	1804	12958	11821	11977	11108	11468	11825	0	72961

C. Acquisition Strategy The objective of this project is to develop the DoD Automated Biometrics Identification System (ABIS) and biometric capability that will be managed at the enterprise level. ABIS currently provides a biometric matching capability that can identify national security threats in support of the Global War on Terrorism for a variety of functions. Primary focus for FY06 was to establish the biometrics program of record and develop a framework for leveraging technologies and processes to facilitate better sharing of biometric data on persons of interest collected and forwarded to other DoD agencies and to develop a biometric implementation strategy for Homeland Security Presidential Directive (HSPD)-12. The program will also continue to support the testing and evaluation of products and other analysis and evaluation of applicable technologies as well as finalize and synthesize an interoperable biometric enterprise approach. FY07 and beyond will continue to support technology, pilot test and evaluation activities and the

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303140A - Information Systems Security Program

PROJECT

50B

deployment of biometric devices and systems used for biometric data collection and processing, physical access, logical access, identity proofing, intelligence exploitation, and law enforcement. A board selected Program Manager will be appointed at PEO EIS to ensure that biometric activities continue to serve the DoD communities that use biometric technology.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303140A - Information Systems Security Program							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
Enterprise Development	Various	Various	11129	19350	1-4Q	15813	2Q	14564	1-4Q	Continue	Continue	Continue
Subtotal:			11129	19350		15813		14564		Continue	Continue	Continue
II. Support Costs	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
N/A			0	0		0		0		0	0	0
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
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
N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			11129	19350		15813		14564		0	0	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program																PROJECT 50B											
Event Name	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
Enterprise Development																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 50B	
<u>Schedule Detail</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>	
Enterprise Development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303141A - Global Combat Support System							
COST (In Thousands)	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	90310	68264	55272	41074	7474	8298	8195	0	382816
083 GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	90310	51648	28407	21423	7474	8298	8195	0	319684
08A PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)	0	16616	26865	19651	0	0	0	0	63132

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational system development	0303141A - Global Combat Support System		
	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	90351	79752	54033
Current BES/President's Budget (FY 2007)	90310	68264	55272
Total Adjustments	-41	-11488	1239
Congressional program reductions		-10799	
Congressional rescissions		-689	
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303141A - Global Combat Support System						PROJECT 083	
COST (In Thousands)	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)	90310	51648	28407	21423	7474	8298	8195	0	319684

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+) it will establish a net centric management system with robust communications for timely and responsive Army logistics.

Global Combat Support System-Army (GCSS-Army) 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). PLM+ will serve as the single point of entry for Army logistics.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
GCSS-Army ERP	72881	34682	11836
PM Operations	10714	16966	16571
Product Life-Cycle Management Plus (PLM+) Development	6715	0	0
Total	90310	51648	28407

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA SSN: W00800, STACOMP	37549	68500	94877	114449	43603	27053	27209	CONT	CONT
OMA APE: 432612	3475	1600	27700	37800	45040	30198	30198	CONT	CONT
OPA SSN: BZ8889, LOGTECH	10330	14000	27767	63710	21668	0	14407	CONT	CONT

C. Acquisition Strategy For GCSS-Army (F/T), the Product Manager (PM) Enterprise Logistics Systems (ELS) will follow commercially proven ERP phases for project

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303141A - Global Combat Support System

PROJECT

083

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., Logistics Modernization Program (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 include 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. 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303141A - Global Combat Support System							083		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Enterprise Resource Planning (ERP) Implementation	C/FP	Northrop Grumman, Chester, VA	53504	67656	1-4Q	29242	1-4Q	7346	1-4Q	Continue	0	Continue
Tactical Combat Developer	MIPR	CASCOM, Ft Lee, VA	6663	1552	1Q	1040	1Q	1060	1Q	Continue	Continue	Continue
PLM+ ERP Implementation	C/FP	Computer Sciences Corporation, Falls Church VA	6000	6715	1-4Q	0		0		Continue	Continue	Continue
Subtotal:			66167	75923		30282		8406		Continue	Continue	Continue
Remarks: PLM+ FY06 and outyears funding reflected under Project 08A												
II. Support Costs	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
PM Support	C/FP	Titan Corp, Colonial Heights, VA	12218	4582	1-4Q	5207	1-4Q	5320	1-4Q	Continue	Continue	Continue
Engineering and Security	MPIR	ISEC, Ft Huachuca, AZ	10248	2000	1-4Q	2000	1-4Q	2031	1-4Q	Continue	Continue	Continue
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
Technical Services	C/FP	Log Mgt Institute, McLean, VA	7828	2868	1-3Q	1841	1-4Q	1896	1-3Q	Continue	Continue	Continue
Subtotal:			39330	11977		12544		12847		Continue	Continue	Continue
Remarks: PLM+ FY06 and outyears funding reflect under 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
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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303141A - Global Combat Support System	PROJECT 083
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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
PMO Operations	NA	NA	18924	1264	1-4Q	4422	1-4Q	4554	1-4Q	Continue	Continue	Continue
Subtotal:			18924	1264		4422		4554		Continue	Continue	Continue

Remarks: PLM+ FY06 and outyears funding reflect under Project 08A

Project Total Cost:	134114	90310		51648		28407		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	GCSS-Army Blueprinting (Increment 1)																											
(1) Milestone (MS) B (Increment 1)					▲ (MS B)																							
Realization (Increment 1), Final Preparation/Operational Test (Increment 1)																												
(2) MS C, Limited Deployment Decision (Increment 1)													▲ ERP LDD (MS C)															
(3) Full Deployment Review (Increment 1)													▲ Deployment Review															
GCSS-Army Fielding (Increment 1)																												
													Fielding															

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303141A - Global Combat Support System					PROJECT 083	
<u>Schedule Detail</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>	
Blueprinting (Increment 1)	1-4Q	1Q						
MS B (Increment 1)		1Q						
Realization (Increment 1)		2-4Q	1Q					
Final Preparation/Operational Test (Increment 1)			1-4Q					
MS C (Increment 1)			2Q					
Full Deployment Review (Increment 1)			4Q					
Fielding (Increment 1)			4Q	1-4Q	1-4Q	1-2Q		

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)						February 2006			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT		
7 - Operational system development			0303141A - Global Combat Support System				083		
Funding in \$000									
Program			FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Termination Liability Funding:									

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303141A - Global Combat Support System						PROJECT 08A		
COST (In Thousands)		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	16616	26865	19651	0	0	0	0	63132

A. Mission Description and Budget Item Justification: Product Life-Cycle Management Plus (PLM+) is a component of the Global Combat Support System-Army (GCSS-Army). 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. PLM+ will be the technology enabler component of GCSS-Army. PLM+ will provide interfaces to external systems and limited Master Data Management.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
PLM+ Lead Systems Integrator (LSI)	0	9361	21035
PM Operations	0	7255	5830
Total	0	16616	26865

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA SSN: W11001, STACOMP	0	4500	4098	3078	0	0	0	CONT	CONT
OMA APE: 423612	0	0	0	0	7000	7000	7000	CONT	CONT

C. Acquisition Strategy For PLM+, the Acquisition Strategy has been approved by the Office of the 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., Logistics Modernization Program (LMP), Business Systems Modernization (BSM), etc. This effort was accomplished in FY04 and FY05 in PE 0303141A 083.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)**February 2006**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303141A - Global Combat Support System

PROJECT

08A

- 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303141A - Global Combat Support System							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
Enterprise Resource Planning (ERP) Implementation		Computer Sciences Corporation	0	0		9361	1-4Q	21444	1-4Q	Continue	0	Continue
Subtotal:			0	0		9361		21444		Continue	0	Continue
Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)												
II. Support Costs	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
PM Support	C/FP	Titan Corp, Colonial Heights, VA	0	0		1004	1-4Q	1275	1-3Q	Continue	Continue	Continue
Subtotal:			0	0		1004		1275		Continue	Continue	Continue
Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)												
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Army Test & Evaluation Center/Operational Test Command	MIPR	ATEC/OTC, Ft Hood TX	0	0		0		496	1-4Q	Continue	Continue	Continue
Subtotal:			0	0		0		496		Continue	Continue	Continue
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
PMO Operations	NA	NA	0	0		6251	1-4Q	3650	1-4Q	Continue	Continue	Continue
Subtotal:			0	0		6251		3650		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303141A - Global Combat Support System	PROJECT 08A
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Remarks: PLM+ FY04-05 funding reflect under Project 083 (GCSS-Army)

Project Total Cost:	0	0		16616		26865		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
08A

Event Name	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
GCSS-Army Blueprinting (Increment 1)																												
(1) Milestone B (Increment 1)					▲																							
Realization (Increment 1), Final Preparation/Operational Test (Increment 1)																												
(2) Milestone C (Increment 1)													▲															
Full Deployment Review (Increment 1), Fielding (Increment 1)																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303141A - Global Combat Support System					PROJECT 08A	
<u>Schedule Detail</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>	
Blueprinting (Increment 1)	1-4Q	1Q						
MS B (Increment I)		1Q						
Realization (Increment 1)		2-4Q	1Q					
Final Preparation/Operational Test (Increment 1)			1-4Q					
MS C, (Increment 1)			2Q					
Full Deployment Review (Increment 1)			4Q					
Fielding (Increment 1)			4Q	1-4Q	1-4Q	1-2Q		

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303141A - Global Combat Support System	PROJECT 08A
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Funding in \$000							
Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Termination Liability Funding:							

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational system development

0303142A - SATCOM Ground Environment (SPACE)

COST (In Thousands)	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	51759	57822	41336	73380	97740	122520	106717	Continuing	Continuing
253 DSCS-DCS (PHASE II)	8965	11384	12083	8658	8705	8017	7448	0	89936
384 SMART-T	15454	5186	5573	0	0	0	0	0	68169
456 MILSATCOM SYSTEM ENGINEERING	14076	8805	8111	9574	9389	7833	7902	Continuing	152285
562 MBAND INT SAT TERM MIST	13264	32447	15569	55148	79646	106670	91367	0	389667

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

This program is designated as a DoD Space Program.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational system development

0303142A - SATCOM Ground Environment (SPACE)

	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	51829	58659	55882
Current BES/President's Budget (FY 2007)	51759	57822	41336
Total Adjustments	-70	-837	-14546
Congressional Program Reductions		-254	
Congressional Rescissions		-583	
Congressional Increases			
Reprogrammings	-70		
SBIR/STTR Transfer			
Adjustments to Budget Years			-14546

Change Summary Explanation:

FY07: D384 \$5.6M increase to SMART-T to complete the Advanced EHF (AEHF) development.

FY07: D456 \$.7M decrease from MILSATCOM SYSTEM ENGINEERING realigned to higher priority Army Requirements.

FY07: D562 \$19.7M decrease from MBAND INT SAT TERM MIST realigned to higher priority Army Requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 253	
COST (In Thousands)	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)	8965	11384	12083	8658	8705	8017	7448	0	89936

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

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	2967	3760	4465
Continue the development of the Common Network Planning Software (CNPS) program	3358	4062	4056
Multiband Enterprise Terminal (MET)	369	0	0
Netcentric Systems Engineering	0	1572	1552
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	2271	1990	2010
Total	8965	11384	12083

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
DSCS Other Procurement Army	92167	64142	53616	87277	96129	166969	127128	CONT	CONT

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

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)**February 2006**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development**0303142A - SATCOM Ground Environment (SPACE)****253**

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)							253		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
DIMS Software	C / CPFF	JHU/APL, Laurel, MD	23553	2641	1-2Q	3346	1-2Q	3840	1-2Q	Continue	0	Continue
CNPS	C / FFP	Logicon, Winter Park, FL	22710	2250	1-2Q	3183	1-2Q	2906	1-2Q	Continue	0	Continue
MET	S/CPFF	Hypres, Elmsford, NY	700	369		0	1-2Q	0		0	0	0
Subtotal:			46963	5260		6529		6746		Continue	0	Continue
II. Support Costs	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
Matrix Support	MIPR	Fort Monmouth, NJ	4217	1049	1-2Q	930	1-2Q	1100	1-2Q	Continue	0	Continue
SETA Support	C / CPFF	Fort Monmouth, NJ	1923	511	1-2Q	363	1-2Q	700	1-2Q	Continue	0	Continue
Engineering Support	C / CPFF	Fort Monmouth, NJ	350	208	1-2Q	1572	1-2Q	1527	1-2Q	Continue	0	Continue
Core Support	Various	Fort Monmouth, NJ	2509	219	1-4Q	630	1-4Q	650	1-4Q	Continue	0	Continue
Subtotal:			8999	1987		3495		3977		Continue	0	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
SEL	MIPR	Fort Monmouth, NJ	5359	1118	2Q	760	2Q	760	2Q	Continue	0	Continue
Subtotal:			5359	1118		760		760		Continue	0	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

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)							PROJECT 253		
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	8965		11384		12083		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE)

PROJECT
253

Event Name	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				
CNPS Testing V1.0	V1.0																															
(1) CNPS Materiel Release V 1.0, (2) CNPS Materiel Release V 2.0					▲ 1				▲ 2																							
DIMS Testing V 5.1/5.2					V 5.2																											
(3) DIMS Materiel Release V 5.1/5.2									▲ 3																							
MET Studies	[Redacted]																															
(4) Complete MET Risk Mitigation					▲ 4																											
DIMS Testing V6.0																	V 6.0															
(5) DIMS Materiel Release V 6.0																					▲ 5											
Netcentric System Engineering, Conduct System Engineering Studies/Analysis					[Redacted]																											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0303142A - SATCOM Ground Environment (SPACE)					253	
<u>Schedule Detail</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>
DIMS Version 5.1/5.2 Merged Software Testing - Beginning			1Q					
DIMS Version 5.1/5.2 Merged Software Testing - Ending			3Q					
DIMS Version 5.1/5.2 Merged Materiel Release				1Q				
DIMS Version 6.0 Testing						2-3Q		
DIMS Version 6.0 Materiel Release						4Q		
CNPS V1.0 Testing - Beginning								
CNPS V1.0 Testing - Ending			1Q					
CNPS V1.0 Materiel Release			3Q					
CNPS V2.0 Materiel Release				3Q				
Start MET Risk Component Studies								
Complete MET Risk Mitigation		4Q						
Conduct Netcentric Systems Engineering Studies / Analysis and Technology Insertion			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 384	
COST (In Thousands)	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	15454	5186	5573	0	0	0	0	0	68169

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 Milstar, Ultra High Frequency (UHF) Follow-On (UFO), the Navy Fleet SATCOM Extremely High Frequency (EHF) satellite packages, and MIL-STD-1582D and MIL-STD-188-136 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 upgrade from EHF to AEHF 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Payload specification change development	2720	941	267
AEHF development efforts	12734	4245	5306
Total	15454	5186	5573

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BC4002 - SMART-T	69616	14426	62342	69312	97798	18259	10888	CONT	CONT
BS9720 - Spares	3010	4618	6334	10561	16511	13673	0	0	54707

C. Acquisition Strategy The Army's SMART-T Advanced Extremely High Frequency (AEHF) development effort must be synchronized with the Air Force's AEHF satellite development effort. The Army procured 326 Extremely High Frequency (EHF) SMART-T terminals (239 Army, 29 Air Force, 40 Marine Corps 4 JCSE and 14 other DoD agencies). The Army must now develop an upgrade for all of the EHF terminals to AEHF to ensure that each will be compatible with the Air Force's AEHF satellites when

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)**February 2006**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303142A - SATCOM Ground Environment (SPACE)

PROJECT

384

operationally available. Completion of the SMART-T AEHF development effort in FY07 will support AEHF upgrade kit production scheduled to begin in FY07. Other services and DoD agencies will fund production of their own AEHF upgade kits.

As part of the Army's AEHF upgrade, a Federally Funded Research and Development Center, MIT Lincoln Labs, developed three satellite simulators for testing the AEHF waveform and terminal integration efforts. This effort is critical for keeping the Army's AEHF development efforts synchronized with the joint system acquisition strategy for AEHF.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)							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
Dual Development Contracts	C / CPIF	Rockwell - Richardson, TX / Raytheon - Marlborough, MA	117173	0		0		0		0	117173	0
Baseline Mods	SS / CPFF	Raytheon - Marlborough, MA	120113	12701	1-3Q	4073	1-3Q	3920	1-2Q	0	0	0
Transmitter Development	SS / CPFF	Raytheon - Marlborough, MA	2044	2100	1-2Q	0		0		0	4144	0
Govt Support	MIPR	Various	14646	173	1Q	189	2Q	126	1Q	0	15134	0
GFE	MIPR	Various	149	0		0		0		0	149	0
Subtotal:			254125	14974		4262		4046		0	136600	0
II. Support Costs	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
Other Contracts	MIPR	Various	11290	0		0		0		0	11290	0
Engineering Services	N/A	Fort Monmouth, NJ	5565	104	1Q	129	2Q	67	1Q	0	5865	0
Lab Activities	MIPR	Various	7767	245	1Q	269	2Q	132	1Q	0	8413	0
Subtotal:			24622	349		398		199		0	25568	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
Simulator Development	MIPR	MIT Lincoln Labs - Lexington, MA	24859	0		0		0		0	24859	0
DT & OT Test Support	MIPR	Various	6700	131	3Q	526	1-4Q	1328	1-2Q	0	8685	0
Test Bed Development	MIPR	MIT Lincoln Labs	2980	0		0		0		0	2980	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)								PROJECT 384	
		Lexington, MA										
Subtotal:			34539	131		526		1328		0	36524	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
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	15454		5186		5573		0	206592	0
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE)

PROJECT
384

Event Name	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
Fielding	Fielding																											
AEHF Development	Development																											
AEHF Production																												
AEHF Fielding																												
MOT&E																												

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0303142A - SATCOM Ground Environment (SPACE)					384	
<u>Schedule Detail</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 Development	1-4Q	1-4Q	1Q					
AEHF Development Completed			2Q					
Developmental Testing Completed			2Q					
Interoperability Test Events		3Q	1-4Q	1-4Q	1-4Q			
Award Production AEHF Mod Contract			2Q					
Procure AEHF Retrofit Kits			2Q	2Q	2Q			
Field 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 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)						PROJECT 456	
COST (In Thousands)	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	14076	8805	8111	9574	9389	7833	7902	Continuing	152285

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct various developmental efforts or analysis and trades to protect Army interests and enhanced system/network capability and joint interoperability in support of Transformational Communications and Joint Interoperability	3129	2889	2467
System Engineering in support of technology assessment and transition for WIN-T network / communication systems	1481	1283	1351
Experimentation and prototyping of critical communication and network technologies	3131	2439	2269
AEHF, WGS, TC, MUOS System Engineering in support of network system / terminal acquisition and joint interoperability	2532	2194	2024
Continued Development of SHF Ka band augmentation (KaSAT)	3803	0	0
Total	14076	8805	8111

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
373142/562 MIST/HC3 (RDTE)	13264	32447	15569	55148	79646	106670	91367	CONT	CONT
BB8417 - MOD OF IN-SVC (TAC SAT)	194	7603	9113	2442	1015	0	0	0	20367
BC4002 - SMART-T	69616	14426	62342	69312	97798	18259	10888	CONT	CONT

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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)							456		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Terminal Upgrades	Various	Various	1524	0		0		0		0	1524	0
Ka Band Integration	C/CPFF	L-3 Communications - West - Salt Lake City, UT	20000	0		0		0		0	20000	0
Ka Band Augmentation	C/CPAF/T&M	Titan Corporation - San Diego, CA	29700	3803	2Q	0		0		0	33503	0
Advanced Wideband/TCS	Various	Various	19351	0		0		0		0	19351	0
ABCS SE&I	MIPR	Various	1288	0		0		0		0	1288	0
Subtotal:			71863	3803		0		0		0	75666	0
II. Support Costs	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
Engineering (In-House)	MIPR	Various	10819	1400	2Q	1226	2Q	1181	2Q	Continue	14626	0
Engineering (Contract)	Various	Various	11341	2802	2Q	3226	2Q	2719	2Q	Continue	0	0
System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	6382	2121	2Q	1530	2Q	1500	2Q	Continue	0	0
Subtotal:			28542	6323		5982		5400		Continue	14626	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
Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	3169	700	2Q	600	2Q	578	2Q	Continue	Continue	Continue
Test Support	Various	Various	7486	1400	1Q	1213	1Q	1189	1Q	Continue	Continue	Continue
Subtotal:			10655	2100		1813		1767		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)	PROJECT 456
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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
Advanced Architecture	MIPR	MIT Lincoln Labs Lexington, MA	6190	500	1Q	450	2Q	434	2Q	Continue	Continue	0
Advanced Wideband System Architecture	MIPR	Various	1650	1350	1Q	560	2Q	510	2Q	Continue	Continue	0
Subtotal:			7840	1850		1010		944		Continue	Continue	0
Project Total Cost:			118900	14076		8805		8111		Continue	Continue	0

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT										
7 - Operational system development		0303142A - SATCOM Ground Environment (SPACE)																456										
Event Name	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
Transformational Communication MILSATCOM (TCM)	[Redacted]																											
AEHF, AMPE, WGS, Ka band Svs Eng and Analysis	[Redacted]																											
Advanced Component Experimentation/Prototyping	[Redacted]																											
Technology Assessment	[Redacted]																											
Joint Interoperability Test	[Redacted]																											
KaSAT Development / Prototypes	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]			

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT
7 - Operational system development	0303142A - SATCOM Ground Environment (SPACE)						456
<u>Schedule Detail</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>
Transformational Communication MILSATCOM (TCM)	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
AEHF System Engineering and Analysis	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
AEHF Mission Planning Element (AMPE)	1-4Q	1-3Q	1-4Q	1-4Q	1-2Q	1-4Q	1-4Q
Wideband Gapfiller and Ka Band System Engineering	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Advanced Component Experimentation / prototyping	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Technology Assessment /MUOS	1-4Q	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	1-4Q
Support AEHF AEST 8000 (System Test)				4Q	1Q		
Conduct Transformational Communication (TC) System Engineering Studies/Analysis	1-4Q	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	1-4Q	1-4Q		
TC Design Review SDR / PDR / CDR		1-3Q	1Q	1Q	1Q		
KaSAT development / prototypes	1-4Q	1-3Q					

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)						PROJECT 562	
COST (In Thousands)	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	13264	32447	15569	55148	79646	106670	91367	0	389667

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

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

HC3 will develop high capacity, multi-band, protected comm-on-the-halt (COTH) satellite communication solutions to replace end-of-life AN/TSC-85/93 terminals in the 2014 timeframe. In addition, HC3 will develop a Joint, high capacity transit case solution in accordance with Army and Air Force requirements. These initial HC3 capabilities satisfy Army and Air Force high capacity communication requirements that are separable from the Transformational Communications MILSATCOM Architecture (TCM/TCA). In addition, the Warfighter Information Network-Tactical (WIN-T) will leverage Transformational Communications MILSATCOM/Architecture (TCM/TCA). HC3 will be developing the TCM/TCA technology insertion for WIN-T. This upgrade will provide higher capacity, as well as low, near zero, probability of detection, interception (LPD/LPI) and exploitation capabilities. This technology insertion will be integrated into WIN-T on the move and at the quick halt platforms. HC3 will also develop a TCM/TCA compatible manpack capability for the Army and Air Force.

The high capacity communications capability System Development and Demonstration (SDD) phase will commence in FY08. Various risk mitigation studies will be executed with tri-service participation in order to mature critical technologies prior to SDD. The program will be structured to allow for increment and spiral enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
High capacity communications capability studies/efforts that include Waveform integration/porting issues for Multi-band SCA compatible terminals and Modular, open systems investigations.	7958	7684	4196
Antenna/RF and Architecture design efforts and risk mitigation efforts	5306	14321	6599
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	0	2522	4774
Special Studies/Collaboration Efforts	0	7920	0
Total	13264	32447	15569

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)					PROJECT 562			
<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost	
0303142A D456 - MILSATCOM SYSTEM ENG	14076	8805	8111	9574	9389	7833	7902	CONT	CONT	

C. Acquisition Strategy A competitive high capacity communications capability SDD contract will be awarded in FY08, following comprehensive studies currently being performed and further supported by extensive risk mitigation efforts to enhance Technology Readiness Levels of critical higher risk technologies. 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)							562		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
System Development	MIPR	MIT Lincoln Labs, Lexington MA	0	2843	1-2Q	3834	1Q	2222	1Q	Continue	0	0
Pre-SDD Study Contracts	T&M	Raytheon, Marlborough, Mass and Boeing, Anaheim, Ca.	0	5079	1-2Q	3067	1-2Q	0		0	0	0
Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	0	2105	1-2Q	2331	1-2Q	1917	1-2Q	Continue	0	0
Risk Mitigation Efforts	Various	Various	0	1193	1-2Q	10835	1-2Q	5052	1Q	Continue	0	0
Subtotal:			0	11220		20067		9191		Continue	0	0
II. Support Costs	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
Engineering Services	N/A	Fort Monmouth, NJ	0	1309	1-2Q	2833	1-2Q	2533	1-2Q	Continue	0	0
Other Contracts	Various	Various	0	0	1Q	45	1-2Q	778	1-2Q	Continue	0	0
Special Studies/Collaboration Efforts	Various		0	0		7920	2Q	0		0	0	0
Subtotal:			0	1309		10798		3311		Continue	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
Engineering (In-House)	N/A	PM WIN-T, Fort Monmouth, NJ	0	0	1-2Q	244	1-2Q	233	1-2Q	Continue	0	0
Subtotal:			0	0		244		233		Continue	0	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)	PROJECT 562
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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
Core Support	N/A	PM WIN-T, Fort Monmouth, NJ	0	735	1-2Q	1338	1-2Q	2834	1-2Q	Continue	0	0
Subtotal:			0	735		1338		2834		Continue	0	0

Project Total Cost:	0	13264		32447		15569		Continue	0	0
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	Pre-Milestone B Activities/Risk Mitigation	[Redacted]																										
High Capacity Communications Capability Studies	[Redacted]																											
(1) RFP Release	[Redacted]																											
SSEB	[Redacted]																											
(2) SDD Contract Award (COTH/Joint Modular Capability)	[Redacted]																											
System Design/Demonstration	[Redacted]																											
EUTE	[Redacted]																											
(3) MS C: COTH	[Redacted]																											
LRIP: COTH	[Redacted]																											
Transit Case variant design	[Redacted]																											
TSAT Waveform design/integration	[Redacted]																											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)					PROJECT 562	
<u>Schedule Detail</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>	
High capacity communications capability studies	1-4Q	1-4Q						
Pre-Milestone B Activities/Risk Mitigation Efforts	1-4Q	1-4Q	1-4Q					
SDD RFP Release			3Q					
Milestone B				1Q				
SDD Contract Award				1Q				
SDD Phase				1-4Q	1-4Q	1-4Q	1-4Q	
SDD EUTE							4Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System						PROJECT C86	
COST (In Thousands)	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	18394	13452	12200	38387	47837	14130	0	Continuing	Continuing

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>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Perform Systems Engineering	1800	1650	1593
Software Development	13992	8797	7912
Perform Data Engineering	903	1284	510
Conduct Test and Evaluation	993	950	950
Perform Program Support and Management Efforts	706	771	1235
Total	18394	13452	12200

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System	PROJECT C86
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	18459	13647	12067
Current BES/President's Budget (FY 2007)	18394	13452	12200
Total Adjustments	-65	-195	133
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-65		
SBIR/STTR Transfer			
Adjustments to Budget Years		-195	133

FY 2006: -195 funds realigned to higher priority requirements.

FY 2007: +133 funds systems engineering.

<u>C. Other Program Funding Summary</u>	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)	23899	17358	16997	60314	82751	23095	0	CONT	CONT

Comment:

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) 6.4 (Army Software Block 1). The next major block for GCCS-A will be Block 1 of Joint Command and Control (JC2). GCCS-A utilizes Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) software products, in addition to developed software. Common Hardware (HW) platforms will be used within the Army to implement GCCS-A/GCCS-J, and include products from the Army's Common Hardware/Software-2 (CHS-2) contract. GCCS-A Block 4-Operational will be the next release and will coincide with GCCS-J Block 4.x , COE 4.7, and ABCS 6.4. GCCS-A Block 4 will coincide with GCCS-J Block V and Net-Centric Enterprise Services (NCES) Block I/II. Follow-on development of GCCS-A 4.1 and 4.2 releases maintains concurrency with GCCS-J and begins implementation of NET-CENTRIC Web Based services.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303150A - WWMCCS/Global Command and Control System							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
Software Development	HYBRID	Lockheed Martin Corp, Springfield, VA	104838	11183	1-2Q	5065	1-2Q	4023	1-2Q	Continue	Continue	Continue
COE Support	MIPR	Various	1766	0		0		0		0	1766	1766
GFE	MIPR	Various	1464	0		0		0		0	1464	1465
ABCS System Engineering & Integration Efforts	MIPR	PEO C3T, NJ	1514	0		0		0		0	1514	1514
Matrix	MIPR	CECOM, NJ & Fort Belvoir, VA	4889	46	1-2Q	400	1-2Q	420	1-2Q	Continue	Continue	Continue
Product Studies	MIPR	SAIC, VA	2391	0		0		0		0	2391	2391
Technical Management	In House	PM GC C2, NJ	26042	2763	1-4Q	3332	1-4Q	3469	1-4Q	Continue	Continue	Continue
System Engineering	MIPR	Various	0	1800	2-4Q	1650	2-4Q	1593	2-4Q	Continue	Continue	Continue
Subtotal:			142904	15792		10447		9505		Continue	Continue	Continue
II. Support Costs	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
FCBS/CSC	MIPR/Del Ord	Various	2389	0		0		0		0	2389	2389
INRI	MIPR	Various	200	0		0		0		0	200	200
Support Contractors			0	903	2Q	1284	2Q	510	2Q	Continue	Continue	Continue
Subtotal:			2589	903		1284		510		Continue	Continue	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
Government	MIPR	Various	3367	293	2Q	550	2Q	550	2Q	Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System							PROJECT C86		
EPG	MIPR	Various	786	0		0		0		0	786	786
ATEC	MIPR	Various	802	700	1Q	400	1Q	400	1Q	Continue	Continue	Continue
Subtotal:			4955	993		950		950		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
Program Office Management	In House	PM GC C2, NJ	3993	706	1-4Q	771	1-4Q	1235	1-4Q	Continue	Continue	Continue
Subtotal:			3993	706		771		1235		Continue	Continue	Continue

Project Total Cost:	154441	18394		13452		12200		Continue	Continue	Continue
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Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System					PROJECT C86	
<u>Schedule Detail</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>	
GCCS-A Block 4 Development	1-4Q	1-4Q	1-4Q					
JC2 Milestone A		2Q						
JC2 Block 1 Development				1-4Q	1-4Q	1-4Q	1-2Q	
JC2 Block 2 Development					4Q	1-4Q	1-4Q	

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System	PROJECT C86
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Funding in \$000							
Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Termination Liability Funding:							

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303158A - Joint Command and Control - Army					PROJECT 714	
COST (In Thousands)	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	1672	4057	3958	1760	1759	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Joint Requirements Oversight Council Memorandum 163-03 (JROCM 163-03 established a need for, and directed evolving the current Global Command and Control System (GCCS) Family of Systems into a single joint command and control (C2) architecture and capabilities-based implementation. This implementation will be based on Global Information Grid (GIG) Enterprise Services (GES) and consists of joint mission capability packages. 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>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Program Management	0	1672	4057
Total	0	1672	4057

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 (FY 2006)	0	1696	1730	
Current BES/President's Budget (FY 2007)	0	1672	4057	
Total Adjustments	0	-24	2327	
Congressional program reductions				
Congressional rescissions				
Congressional increases				
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years		-24	2327	

FY06: -24 funds realigned to higher priority requirements.

FY07: +2327 Supports an expanding JC2 PMO based on the Joint Requirements Oversight Council Memorandum 163-03 which established a need for, and directed evolving the current Global Command and Control System (GCCS) Family of Systems into a single joint command and control (C2) architecture and capabilities-based implementation.

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

The Analysis of Alternative (AoA) will be completed in two parts: Part I is the Capabilities Refinement Analysis, and Part II the Cost Effectiveness Analysis. During Phase I, the capabilities were refined to frame alternative implementations for Part II. These alternatives have been presented by National Information Infrastructure (NII), and were accepted for approval. The capabilities recommended to move forward for Part II are Situational Awareness, Force Projection and Force Mobilization. The cost effectiveness analysis will additionally satisfy the requirement to complete an Economic Analysis at Milestone A, anticipated to occur in 2QFY06.

During the JC2 Technology Development Phase, required acquisition documentation for milestone decisions will be prepared and/or updated, as necessary; the system architecture and technical baseline will be further defined, including test strategy development and lifecycle management considerations; collaboration/coordination will occur with Joint Forces Command (JFCOM), Training and Doctrine Command (TRADOC) and other organizations, as appropriate, to refine and finalize the Capability Development Document (CDD) to assure an achievable requirement; and in accordance with the Clinger/Cohen Act, an Analysis of Alternatives (AoA) will be performed with a formal update provided, as required.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0303158A - Joint Command and Control - Army							714		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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									
II. Support Costs	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									
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									
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
Program Management			0	0		1672	1Q	4057	1Q	Continue	Continue	Continue
Subtotal:			0	0		1672		4057		Continue	Continue	Continue
Project Total Cost:			0	0		1672		4057		Continue	Continue	Continue

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303158A - Joint Command and Control - Army

PROJECT
714

Event Name	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) JC2 Milestone A					▲ 1																							
JC2 Software Development																												
(2) JC2 Increment 1 MS B, (3) JC2 Increment 2 MS B													▲ 2								▲ 3							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303158A - Joint Command and Control - Army					PROJECT 714	
<u>Schedule Detail</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>	
JC2 Milestone A		2Q						
JC2 Software Development				1-4Q	1-4Q	1-4Q	1-4Q	
JC2 Increment 1 Milestone B				1Q				
JC2 Increment 2 Milestone B						3Q		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles							
COST (In Thousands)	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	53900	147040	114087	49403	15520	30974	28589	Continuing	Continuing
114 Tactical Unmanned Aerial Vehicle (TUAV) (JMIP)	15868	25573	12873	8012	8224	7854	8123	Continuing	Continuing
11A Advanced Payload Develop & Spt (JMIP)	20330	9550	4280	1241	1242	16555	13654	Continuing	Continuing
11B TSP DEVELOPMENT (JMIP)	15468	17076	7213	0	0	0	0	0	45407
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2234	2318	2438	2262	2363	2483	2538	Continuing	21108
D09 EXTENDED RANGE UAV (JMIP)	0	92523	87283	37888	3691	4082	4274	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Tactical Unmanned Aerial Vehicle (TUAV) provides the Brigade Commander with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA), Intelligence, and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow 200 air vehicle meets the required range of 50 kilometers and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). Procurement of systems including attrition air vehicles commenced in FY 2001. The TUAV Shadow 200 system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported at the brigade level by one Maintenance Section Multifunctional Vehicle and at the division level by a Mobile Maintenance facility. The TUAV Shadow 200 is a brigade asset that has logged over 70,000 flight hours since June 2001, 60,000+ of which were flown in the last 24 months in support of Operation Iraqi Freedom (OIF). The Shadow UAV system has proven itself under combat conditions while deployed in support of OIF.

Continued fielding and war time lessons learned have been used to identify critical areas for improvement. These areas include enhanced C4I (Blue Force Tracker), survivability enhancement (noise and signature reduction), automatic landing system enhancements, software optimization including increased Joint Technical Architecture - Army (JTA-A) compliance and automated checklists and reduce human error during launch, flight and recovery operations, 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 Operations Requirement Document (ORD) threshold and objective requirements priorities include Synthetic Aperture Radar/Moving Target Indicator, Communication Relay Payload, Laser Designation, and Objective EO/IR. Interoperability and joint operations integration activities aimed at reducing cost of ownership and commonality with other Army and Department of Defense (DoD) agencies is accomplished through the Joint Technology Center/System Integration Lab (JTC/SIL). The 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 to integrate Shadow 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 to simulate Shadow in warfighter exercises throughout the world.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles
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	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	53592	139610	113223
Current BES/President's Budget (FY 2007)	53900	147040	114087
Total Adjustments	308	7430	864
Congressional Program Reductions		-652	
Congressional Rescissions		-1498	
Congressional Increases		11200	
Reprogrammings	308	-1620	
SBIR/STTR Transfer			
Adjustments to Budget Years			864

Change Summary Explanation: Funding - FY06: \$6.3 million Congressional plus up for Project 114 in support of Tactical Hyperspectral Imaging System (\$1.8M), TUAV Testing and Engineering Support (\$1.5M), UAV to Soldier Real Time Video Link (\$1.5M), I-GNAT Extended Range Remotely Operated Aircraft System (\$1.5M). \$4.9M Congressional plus up for Project 11B for Small Platform Modern Signal Communications Intelligence.

Schedule Detail (R4a Exhibit)	February 2006
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 0305204A
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Schedule Detail: Not applicable for this item.

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT 114	
COST (In Thousands)	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)	15868	25573	12873	8012	8224	7854	8123	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Tactical Unmanned Aerial Vehicle (TUAV) provides the Brigade Commander with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA), Intelligence, and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow 200 air vehicle meets the required range of 50 kilometers and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). Procurement of systems including attrition air vehicles commenced in FY 2001. The TUAV Shadow 200 system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Anticipated system improvements include Blue Force Tracker integration, laser designator integration and tactical common data link integration and testing. Each system is supported at the brigade level by one Maintenance Section Multifunctional Vehicle and at the division level by a Mobile Maintenance Facility. The TUAV Shadow 200 is a brigade asset that has logged over 70,000 flight hours since June 2001, 60,000+ of which were flown in the last 24 months in support of OIF. The Shadow UAV system has proven itself under combat conditions while deployed in support of OIF.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Program Management Support	2162	1122	650
Development Testing / Risk Reduction Testing / ST&E / Reliability Test	1124	1500	1000
Target Location Error (TLE) / Digital Data Link development efforts, Tactical Common Data Link (TCDL) and Joint Tactical Radio System (JTRS) / Laser Designator	4251	15300	2000
C4I Maintenance / Improvements (ABCS 4.3, 6.2, ...) / Communications Relay	1875	0	0
OIF Improvements (Blue Force Tracker, 1101 Engine Upgrade, System Upgrades)	4356	2851	4223
TLE Inertial Measurement Unit (IMU)	0	0	5000
I-GNAT	2100	1500	0
Tactical Hyperspectral Imaging System	0	1800	0
UAV Soldier Real Time Video Link	0	1500	0
Total	15868	25573	12873

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
TUAV Procurement (BA0330)	305569	160974	36098	43359	216943	218854	32679	CONT	CONT

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles				PROJECT 114		
Initial Spares - TUAV (BS9738)	9783	3000	2834	0	0	0	0	CONT	CONT

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, reliability, 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 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles								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
TUAV LRIP Program	Comp / FPIF	AAI Corporation, MD	63965	0		0		0		0	63965	63965
C4I Maintenance / Improvements / Communications Relay	MIPR / PWD	Various	1000	1875	1-3Q	0		0		0	2875	2875
TAFT System Support	CPFF	AAI Corporation, MD	3375	0		0		0		0	3375	3375
Ground Control Station and Trailers	CPFF	AAI Corporation, MD & Northrop Grumman, CA	11808	0		0		0		0	11808	11808
I-GNAT	CPFF	General Atomics	9709	2100	1-4Q	1500	2-3Q	0		0	13309	11809
Government Furnished Equipment	MIPR	Various	2036	0		0		0		0	2036	2036
SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500	0		0		0		0	1500	1500
Tactical Control System	PWD	AMCOM RDEC Redstone, AL	700	0		0		0		0	700	700
Advanced Payload Development/Modification/Integration	MIPR	PM UAV Payloads, Huntsville, AL	4118	0		0		0		0	4118	4118
Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2910	0		0		0		0	2910	2910
Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	3044	0		0		0		0	3044	3044
Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200	0		0		0		0	200	200
TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275	0		0		0		0	7275	7275
Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600	0		0		0		0	10600	10600
TUAV Source Selection/System Capabilities Demo	MIPR/PWD	Various	7200	0		0		0		0	7200	7200
Target Location Error (TLE) /	MIPR/PWD	Various	15042	4251	2-3Q	15300	2-3Q	2000	1-2Q	0	36593	36593

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							114		
Digital Data Link, TCDL/JTRS / Laser Designator												
Army Apache/UAV Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350	0			0			0	350	350
Corrective Actions/Engineering Support	CPFF / PWD	AAI Corporation, MD	10375	0			0			0	10375	10375
Hunter UAV non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140	0			0			0	4140	4140
Hardware cost for GCS's (2) to be integrated into the selected AV's for the ER req.	CPFF	Northrop Grumman, CA	2000	0			0			0	2000	2000
OIF Reliability Upgrade	CPFF / PWD	AAI Corporation, MD	4100	0			0			0	4100	4100
OIF Reliability Upgrade	CPFF / PWD	AAI Corporation, MD	2100	0			0			0	2100	2100
OIF Improvements (Blue Force Tracker, 1101 Engine Upgrade, System Upgrades)	CPFF / PWD	AAI Corporation, MD	928	4356	2-3Q	2851	2Q	4223	1-2Q	0	12358	12358
Airframe Optimization	CPFF / PWD	AAI Corporation, MD	5300	0			0			0	5300	5300
TLE Inertial Measurement Unit (IMU)	CPFF / PWD	AAI Corporation, MD	0	0			0	5000	1-3Q	0	5000	5000
Tactical Hyperspectral Imaging System	CPFF / PWD	AAI Corporation, MD	0	0		1800	2-3Q	0		0	1800	1800
UAV Soldier Real Time Video Link	CPFF / PWD	AAI Corporation, MD	0	0		1500	2Q	0		0	1500	1500
Subtotal:			173775	12582		22951		11223		0	220531	219031
II. Support Costs	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
Contractor Engineering Support	CPFF	Various	8000	656	1-2Q	600	1-2Q	250	1Q	Continue	Continue	Continue
Government Engineering Support	PWD	AMCOM Redstone, AL	4904	773	1Q	222	1Q	150	1Q	Continue	Continue	Continue
Government Engineering Support - Extended Range	PWD	AMCOM Redstone, AL	1476	0		0		0		0	1476	1476
Subtotal:			14380	1429		822		400		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 114
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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
Risk Reduction Testing/ST&E	MIPR	Various	14221	1124	1-3Q	1500	2Q	1000	1-3Q	Continue	Continue	Continue
Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E	MIPR	Various	4354	0		0		0		0	4354	4354
C4I Testing	MIPR	Various	1980	0		0		0		0	1980	1980
OPTEMPO Demo	MIPR	Various	1000	0		0		0		0	1000	1000
Data Acquisition System (DAS) Instrumentation Van	MIPR	Redstone Technical Test Center, AL	810	0		0		0		0	810	810
IOT&E Preparation and Support/Travel	MIPR	ATEC/PM/OGA Ft. Hood, TX	750	0		0		0		0	750	750
Subtotal:			23115	1124		1500		1000		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
Program Mgt Personnel	MIPR	PM UAVS Redstone, AL	7323	733	1-4Q	300	1-4Q	250	1-4Q	Continue	Continue	Continue
Subtotal:			7323	733		300		250		Continue	Continue	Continue

Project Total Cost:	218593	15868		25573		12873		Continue	Continue	Continue
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Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles																PROJECT 114										
OIF	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
C4I Maintenance/Improvements	[Redacted]																											
Development Testing	[Redacted]																											
Total Ownership Cost Reduction Initiatives	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0305204A - Tactical Unmanned Aerial Vehicles						114
<u>Schedule Detail</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>	
C4I Maintenance/ Improvements (ABCS 4.3, 6.2,)	1-4Q						1Q	
Development Testing / Risk Reduction Testing / ST&E	1-3Q	2-3Q	1-3Q					
TLE / TCDL / JTRS / Laser Designator	1-3Q	2-3Q	1-3Q					
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								
OIF Improvements	1-3Q	2-3Q	1-3Q					
Airframe Optimization								
I-GNAT	1-4Q	2-3Q						
TLE Inertial Measurement Unit (IMU)			1-3Q					
Tactical Hyperspace Imaging System		2-3Q						
UAV Soldier Real Time Video Link		2-3Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT 11A	
COST (In Thousands)	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)	20330	9550	4280	1241	1242	16555	13654	Continuing	Continuing

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

FY2007 funding continues the development, system integration and refurbishment of UAV payloads for follow on testing.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
SAR/GMTI Development and Integration - includes Development Test.	9543	3482	3042
EO/IR/LD development includes engineering/program management support	10787	6068	1238
Total	20330	9550	4280

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	0	41647	33328	39215	20285	25867	34282	127797	322421

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 ER/MP for integration and testing and participation in the ER/MP Limited User Test (LUT). Additional capabilities will be added via spiral development depending on need and technology maturity. An additional two (2) units have been procured under the existing contract to support ER/MP system integration and test.

The SDD contract for the ER/MP EO/IR/LD was competitively awarded in 3rd quarter FY05 for 10 test articles. After combined development and operational testing, the SDD

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

PROJECT

11A

articles will be provided to the ER/MP program for system integration and test. After the ER/MP Limited User Test, the SDD units will be refurbished and used to support the platform during Initial Operational Test & Evaluation (IOT&E).

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							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
SAR/GMTI System Development & Demonstration	COMP/CPIF	General Atomics, San Diego, CA	16596	6740	2-4Q	500	2-3Q	1750	2-3Q	0	25586	25586
EO/IR/LD System Development & Demonstration	COMP/FFP/C PFF	Raytheon, McKinney, TX	0	8589	3Q	2485	1-2Q	0		0	11079	11079
Subtotal:			16596	15329		2985		1750		0	36665	36665
II. Support Costs	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
Engineering Support	MIPR	Various	5097	3461	1-4Q	2386	1-4Q	1797	1-4Q	Continue	Continue	0
Subtotal:			5097	3461		2386		1797		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
SAR/GMTI Developmental Test Support	MIPR	DTC, Aberdeen Proving Grounds, MD	70	227	1-4Q	500	1-2Q	0		0	797	0
SAR/GMTI Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	0	390	1-4Q	940	1-2Q	0		0	1330	0
EO/IR/LD Developmental Testing	MIPR	DTC, Aberdeen Proving Grounds, MD	0	0		1049	2-3Q	0		0	1049	0
EO/IR/LD Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	0	0		993	2-3Q	0		0	993	0
Subtotal:			70	617		3482		0		0	4169	0

Remarks: Government, contractor, and test support for UAV testing contained in the ER/MP Platform.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 11A
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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
Program Mgt Personnel	In House	PM RUS, Ft. Monmouth, NJ	927	923	1-4Q	697	1-4Q	733	1-4Q	Continue	Continue	0
Subtotal:			927	923		697		733		Continue	Continue	0
Project Total Cost:			22690	20330		9550		4280		Continue	Continue	36665

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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						
	SAR/GMTI SDD	[Redacted]																																
SAR/GMTI DT					[Redacted]																													
SAR/GMTI OTE																																		
UAV Systems Integration & Test Support for SAR/GMTI									[Redacted]																									
(1) SAR/GMTI MS C																																		
(2) Award SAR/GMTI LRIP																																		
(3) EO/IR/LD Acquisition Strategy Review																																		
(4) EO/IR/LD MS B																																		
EO/IR/LD SDD					[Redacted]																													
(5) EO/IR/LD SDD Contract Award																																		
EO/IR/LD DT																																		
EO/IR/LD OTE																																		
(6) EO/IR/LD MS C																																		

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
7 - Operational system development		0305204A - Tactical Unmanned Aerial Vehicles					11A	
<u>Schedule Detail</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>
SAR/GMTI System Development and Demonstration (SDD) Contract		1-4Q	1-4Q	1-3Q				
SAR/GMTI DT			1-4Q					
SAR/GMTI OTE			4Q					
UAV Systems Integration & Test for ER/MP			2-4Q	1-4Q	1Q			
MS C for SAR/GMTI				1Q				
Award SAR/GMTI LRIP				1Q				
EO/IR/LD Acquisition Strategy Review		1Q						
EO/IR/LD MS B		2Q						
EO/IR/LD SDD		3-4Q	1-4Q	1-2Q				
EO/IR/LD SDD Contract Award		3Q						
EO/IR/LD DT			2-3Q					
EO/IR/LD OTE			4Q					
EO/IR/LD MS C				1Q				
Emerging Technology transition initiatives					1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 11B			
COST (In Thousands)	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)	15468	17076	7213	0	0	0	0	0	45407	

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

FY07 funding supports delivery of four fully tested prototypes to FCS.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
TSP SDD Contract Planning and Solicitation	0	0	0
SDD Phase	8618	12076	7113
Modeling and Simulation	200	100	100
WILDCAT - Concept Exploration	6650	4900	0
Total	15468	17076	7213

<u>B. Other Program Funding Summary</u>	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	2091	3766	4107	7013	7008	6933	6897	0	37815
WTCV G86100 Future Combat Systems	0	3000	0	0	0	0	0	0	3000

Comment: Future Combat Systems will provide \$3M to TSP in FY06. These funds will be used to pay for FCS directed modifications to the TSP configuration and fund the cost of prototype hardware.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

PROJECT

11B

C. Acquisition Strategy TSP 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).

WILDCAT has entered the Acquisition Cycle in the Concept Exploration (CE) phase. The Project will be executed by RDECOM/CERDEC, with the CE effort being awarded under a CERDEC Technology Development contract.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							11B		
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
TSP SDD Contract	CPFF	BAE Systems, Nashua, NH	2180	5100	1Q	7003	1-2Q	1371	1Q	0	15654	0
Modeling and Simulation	MIPR	TEC	200	200	1Q	100	1Q	100	1Q	0	600	0
WILDCAT - Concept Exploration	CPFF	Radix Technologies, Inc., Mountain View, CA	0	6650	3Q	4900	2Q	0		0	11550	0
Subtotal:			2380	11950		12003		1471		0	27804	0
II. Support Costs	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
Engineering Support	FFP	MITRE, McLean, VA	423	260	1Q	280	1Q	330	1Q	0	1293	0
Matrix Support	MIPR	CECOM, Fort Monmouth NJ	720	125	1Q	430	1Q	420	1Q	0	1695	0
Engineering Support	FFP	CACI, Eatontown, NJ	615	865	1Q	554	1Q	554	1Q	0	2588	0
Engineering Support	FFP	Various	280	160	1Q	0		0		0	440	0
SDD Engineering Support	MIPR	Various, Ft Monmouth, NJ	500	612	1Q	653	1Q	674	1Q	0	2439	0
Subtotal:			2538	2022		1917		1978		0	8455	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
Test Support	MIPR	EPG, Ft Huachuca, AZ	0	50	2Q	1600	1Q	889	1Q	0	2539	0
Continuous Evaluation	MIPR	ATEC, Ft Belvoir, VA	100	100	2Q	100	2Q	100	2Q	0	400	0
Test Platform for Flight Demo	CPAF	BAE Systems, Nashua,	100	946	2Q	1006	2Q	1675	2Q	0	3727	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles								11B	
		NH										
Test Support	MIPR	Various	0	0		0		650	2Q	0	650	0
Subtotal:			200	1096		2706		3314		0	7316	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
Program Management	In House support	PM, Signals Warfare, Fort Monmouth, NJ	342	400	1-4Q	450	1-4Q	450	1-4Q	0	1642	0
Program Support	C/T&M	Various	190	0		0		0		0	190	0
Subtotal:			532	400		450		450		0	1832	0
Project Total Cost:			5650	15468		17076		7213		0	45407	0

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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
	TSP System Development and Demonstration																											
TSP - SDD Contract	SDD Contract																											
(1) Preliminary Design Review	▲ 1 PDR																											
(2) Calibration Flight Demo	▲ 2																											
(3) Critical Design Review	▲ 3 CDR																											
(4) Flight Demo	▲ 4 Flt Demo																											
(5) Delivery - 1 Prototype, (6) Delivery - 2 Prototypes, (7) Delivery - 1 Prototype	▲ 5 ▲ 6 ▲ 7																											

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 11B	
<u>Schedule Detail</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>	
TSP SDD Contract	1-4Q	1-4Q	1-4Q					
Preliminary Design Review	2Q							
Calibration Flight Demo	4Q							
Critical Design Review		2Q						
Flight Demo		4Q						
Prototype Deliveries			1-3Q					

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT 123	
COST (In Thousands)	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)	2234	2318	2438	2262	2363	2483	2538	Continuing	21108

A. Mission Description and Budget Item Justification: The Joint Technology Center/System Integration Laboratory (JTC/SIL) is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e. TUAV Tactical Unmanned Control System (TUCS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Implement Tactical Common Datalink Model	0	100	0
Incorporate new technology sensors and platforms into the MUSE	150	0	0
Develop and upgrade Terrain and Target databases	230	80	80
Implement Advanced Sensor / Payload Simulations	0	50	75
Implement / Integration Weapons Simulation for Weaponized UAV	0	75	50
Incorporate STANAG 4586 Datalike Interface Standard	0	82	61
Upgrade HLA Certification and DITSCAP	213	0	0
Evaluate and integrate New Visualization Technologies into MUSE	0	75	75
Technical support of MUSE integration with IEWTPT	0	40	40
Enhance VTUAV Models	0	50	50
Provide MUSE Configuration Management and Help Desk Services	240	250	250
MUSE Equipment	335	328	348
JTC/SIL Management	236	308	394
Initial development of Multi-Spectral and Hyper-Spectral simulations	245	0	0
Prototype FIA interfaces and capabilities	120	0	0
Imagery generation upgrade conversion	160	0	0
Enhance IR and SAR model sets	90	100	100

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
7 - Operational system development	0305204A - Tactical Unmanned Aerial Vehicles	123		
Update interfaces to DoD models		215	80	80
Integrate UAV Survivability Models and Attributes		0	0	80
Enhance Fixed Wing UAV Models		0	50	75
Update MUSE HLA and DITSCAP		0	100	100
Enhance of Fixed Target Models		0	75	75
Common UAV Trainer Enhancements		0	80	80
Implement Tailored Auto Track and Auto Search Models		0	0	75
Incorporate Effects of Digital Payload Imagery		0	80	35
Continue C4I Enhancements		0	90	90
Continue OneSAF Vignette development		0	75	75
Continue Usability Enhancements		0	100	100
Enhance Small UAV Models		0	50	50
Total		2234	2318	2438

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
PE 0305204N Navy	1700	1700	1700	0	0			0	6800
PE 0305205F Air Force	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.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles								123	
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
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
MUSE Remote Support Capability	SS/CPFF	GDIS/Arlington, VA	415	0		0		0		0	415	415
Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	GDIS/Arlington, VA	235	0		0		0		0	235	235
Upgrade HLA Certification and DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	479	213	1Q	100	1Q	100	1Q	0	892	892
MUSE Equipment	C/FFP	Various	1775	146	1Q	328	1Q	348	1Q	0	2597	2597
MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	GDIS/Arlington, VA	237	0		0		0		0	237	237
Develop / Integrate and Implement TCDL into MUSE in Support of TUAV ORD	SS/CPFF	GDIS/Arlington, VA	150	0		100	1Q	0		0	250	250
Develop & Upgrade Terrain & Target Databases	SS/CPFF	Quality Research Institute/HSV, AL	809	230	1Q	80	1Q	80	1Q	0	1199	1199
Incorporate New Technology Sensors & Platforms into the MUSE	SS/CPFF	GDIS/Arlington, VA	200	75	1Q	0		0		0	275	275
Integrate Weapon Employment Capabilities into MUSE	C/FFP	TBD	124	0		0		0		0	124	124
Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	TBD	105	0		0		0		0	105	105
Link Fixed Target Database with DIA MIDB	SS/CPFF	TBD	245	0		50	1Q	75	1Q	0	370	370
Initial VTUAV/UCARS Vehicle models	SS/CPFF	TBD	165	0		50	1Q	50	1Q	0	265	265
Initial ATARS & TARPS Simulation model	SS/CPFF	SAIC/HSV, AL.	235	0		0		0		0	235	235

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles								123		
Initial effects-based fixed target behavior model	SS/CPFF	SAIC/HSV, AL.	190	0			0			0	190	190	
Initial development of Multi-spectral & Hyper-spectral simulation	SS/CPFF	GDIS/Arlington, VA	0	206	1Q		0			0	206	206	
Prototype FIA interfaces & capabilities			0	120	1Q		0			0	120	120	
Imagery generation upgrade conversion	SS/CPFF	GDIS/Arlington, VA	0	160	1Q		0			0	160	160	
Enhance IR & SAR model sets	SS/CPFF	GDIS/Arlington, VA	0	90	1Q		0			0	90	90	
Implement Advanced Sensor / Payload	SS/CPFF	GDIS/Arlington, VA	0	0			50	1Q		75	1Q	125	125
Implement / Integration Weapons Simulation for Weaponized UAV	SS/CPFF	GDIS/Arlington, VA	0	0			75	1Q		50	1Q	125	125
Incorporate STANAG 4586 Datalink Interface Standard	SS/CPFF	GDIS/Arlington, VA	0	0			82	1Q		61	1Q	143	143
Enhance Small UAV / IR / SAR & Fixed Target Models	SS/CPFF	GDIS/Arlington, VA	0	0			225	1Q		225	1Q	450	450
Integrate UAV Survivability Models and Attributes	SS/CPFF	GDIS/Arlington, VA	0	0			0			80	1Q	80	80
Evaluate and Integrate new Visualization Technology / System	SS/CPFF	GDIS/Arlington, VA	0	0			75	1Q		75	1Q	150	150
Common UAV Trainer Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0			80	1Q		80	1Q	160	160
Implement Tailored Auto Track and Auto Search Models	SS/CPFF	GDIS/Arlington, VA	0	0			0			75	1Q	75	75
Incorporate Effects of Digital Payload Imagery	SS/CPFF	GDIS/Arlington, VA	0	0			80	1Q		35	1Q	115	115
OneSAF Vignette development	SS/CPFF	GDIS/Arlington, VA	0	0			75	1Q		75	1Q	150	150
Usability Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0			100	1Q		100	1Q	200	200
Subtotal:			5507	1240			1550			1584		9881	9881
II. Support Costs	Contract	Performing Activity &	Total	FY 2005	FY 2005	FY 2006	FY 2006	FY 2007	FY 2007	Cost To	Total	Target	

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles								123	
	Method & Type	Location	PYs Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Complete	Cost	Value of Contract
Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	75	0		0		0		0	75	75
Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	175	0		40	1Q	40	1Q	0	255	255
Initiate MUSE TUAV Flight Performance Model Verification & Validation Process	C/CPFF	Dynetics/Huntsville, AL	465	0		0		0		0	465	465
Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	940	222	1Q	250	1Q	250	1Q	0	1662	1662
JTC/SIL Management	C/CPFF	TBD	200	80	1-3Q	0		0		0	280	280
MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	595	166	1Q	0		0		0	761	761
Incorporate New Technology Sensors & Platforms into the MUSE	C/CPFF	SAIC/Huntsville, AL	200	75	1Q	0		0		0	275	275
Update interfaces to DoD models	C/CPFF	GDIS/Arlington, VA	0	215	1Q	80	1Q	80	1Q	0	375	375
Subtotal:			2650	758		370		370		0	4148	4148
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
C4I Enhancements	SS/CPFF	GDIS/Arlington, VA	0	0		90	1Q	90	1Q	0	180	180
Subtotal:			0	0		90		90		0	180	180
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
JTC/SIL Management Personnel	In House	JTC/SIL/Redstone	868	236	1-4Q	308	1-4Q	394	1-4Q	0	1806	1806

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles							PROJECT 123		
		Arsenal, AL										
Subtotal:			868	236		308		394		0	1806	1806

Project Total Cost:			9025	2234		2318		2438		0	16015	16015
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Schedule Detail (R4a Exhibit)						February 2006	
BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles			PROJECT 123	
Schedule Detail	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	1Q	1Q	1Q	1Q	1Q	1Q
Evaluate and Integrate New Visualization Technologies into MUSE							
MUSE Equipment	1Q	1Q	1Q	1Q	1Q	1Q	1Q
Initial development of Multi-Spectral and Hyper-Spectral Simulations	1Q						
Integrate UAV Survivability Models and Attributes			1Q				
Common UAV Trainer Enhancements		1Q	1Q				
Enhance Small UAV Models		1Q	1Q				
Update interfaces to DoD Models	1-4Q	1Q	1Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT D09	
COST (In Thousands)	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)	0	92523	87283	37888	3691	4082	4274	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) will provide combatant commanders a much improved real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (4 Hellfire). As a follow-on to the aging Hunter system, ERMP addresses an ever-increasing demand for greater range, altitude, endurance and payload flexibility with mission change in flight. Each 12 aircraft system, with Electro-Optical/Infrared, Synthetic Aperture Radar, and communications relay packages, will support 10 key Army Divisions and be responsive to the lowest level of command for dynamic re-tasking. Ground equipment includes 5 Ground Control Stations, 5 Ground Data Terminals, 2 Portable Ground Control Stations, 2 Portable Ground Data Terminals, and other associated ground support equipment. The acquisition strategy has capitalized upon competitive forces, bringing cutting-edge improvements at the best cost and value that support the major thrusts of the DoD UAS Roadmap, a host of other studies, and the imperatives of Army modernization and Army Aviation Transformation. This includes backward compatibility with existing Army UAS systems, heavy fuel engine, 40 hours of endurance, Tactical Common Data Link technology, network connectivity that reduces information cycle time and enhances overall battlespace awareness through liberal dissemination, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. The ability to operate multiple ERMP aircraft simultaneously from the One System Ground Control Station, interoperability with the Shadow UAS, a 3,000 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improves take-off and landing performance, Automatic Take-off and Landing and the flexibility to operate with or without SATCOM data links are more of the characteristics that make this system a combat multiplier. With more weapons, payloads, and endurance than any other current system in its class, ERMP gives the Army the required capability defined by years of wartime experience and codified by the JROC.

RDT&E funds resource the System Development and Demonstration (SDD) phase for ERMP, as well as continuing improvements after SDD. FY06 activities entail design development, and work leading to the critical milestones of System Requirements Review, Preliminary Design Review, Critical Design Review, and Design Readiness Review (DRR). The DRR with the Milestone Decision Authority provides an assessment of the design maturity including key system characteristics and manufacturing processes. Engineering developmental tests and pre-production testing frame the major FY 07 activities. These activities prepare the system and lower risk for the LUT and Logistics Demonstration events in FY08, and the IOT&E and other events in FY09. Testing of prototype articles includes components of E3, environmental, and NBC as well as software certification, many of which run concurrently to conserve schedule.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Program Management	0	2742	3433
Government Furnished Equipment	0	3141	5353
Development Engineering	0	32909	27917
Prototype Manufacturing	0	52190	41006
System Test & Evaluation	0	1541	9574
Total	0	92523	87283

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT D09
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<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
TUAV - Extended Range / Multi-Purpose (B00305)	0	0	30869	101523	157257	297478	301247	CONT	CONT
Extended Range / Multi-Purpose - Weapons Capability Modifications (B10307)	0	0	15161	15207	15224	15244	15272	CONT	CONT
I-GNAT (B00305)	0	41647	0	0	0	0	0	41647	83294

C. Acquisition Strategy The ERMP ORD was approved by the JROC on 6 April, 2005, Milestone B occurred on 20 April, and the System Development and Demonstration contract was awarded 8 August, 2005 as a result of a competitive solicitation which included a vendor system capabilities demonstration. To meet the required capability, evolutionary acquisition will be employed to implement the incremental approach outlined in the ORD. The ERMP UAS will be matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL) with compatibility to Link-16, and integration of Government Furnished Equipment, payloads, appropriate Common Aviation Ground Support Equipment and the GCS. PM JAMS will develop the "P+" model of the Hellfire and participate in the integration and test activities for the entire ERMP system. PM JAMS will budget for the procurement of missiles for the fielded systems. Field Tests at the Electronic Proving Grounds in Ft. Huachuca, AZ, and integration tests at the Central Technical Support Facility in Ft. Hood, TX, are examples of the testing regimen planned to reduce risk in the SDD phase. A favorable Milestone C decision will allow award of a second contract for the LRIP and Production and Deployment phase. The LRIP will provide several things:

- a. Establish an effective and efficient production base for the system required to provide a solid foundation on which to build FRP systems.
- b. Permit an orderly increase in production rate, to mitigate risk.
- c. Procure production representative equipment to support test & evaluation.
- d. Support Doctrine, Training, Leadership Development, Organization, Materiel, Personnel and Facilities (DTLOMPF) and Tactics, Techniques and Procedures (TTP) development.
- e. Provide an opportunity to incorporate lessons learned from the comprehensive test and evaluation program into the production baseline.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							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
Target Location Error / OIF TUAV Enhancements	TBD	AAI, MD	2350	0		0		0		0	2350	2350
Acquisition Simulation & Demonstration	TBD	Camber, Huntsville, AL	1000	0		0		0		0	1000	1000
Long Lead Items for One System Integration & Test	TBD	Various Contractors	7633	0		0		0		0	7633	7633
Tactical Common Data Link Initial Integration	TBD	Various Contractors	4113	0		0		0		0	4113	4113
One System Initial Integration with Prime AV Vendor	TBD	Various Contractors	3651	0		0		0		0	3651	3651
Source Selection	TBD	Other Government Agencies	2146	0		0		0		0	2146	2146
Development Engineering	CPIF/AF	General Atomics / ASI - San Diego, CA	0	0		32909	2-3Q	27917	2-3Q	0	60826	60826
Prototype Manufacturing	CPIF/AF	General Atomics/ASI - San Diego, CA	0	0		52190	2-3Q	41006	2-3Q	0	93196	93196
Government Furnished Equipment			0	0		3141	2-3Q	5353	2-3Q	0	8494	8494
Subtotal:			20893	0		88240		74276		0	183409	183409
II. Support Costs	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
Contractor Engineering Support	MIPR / PWD	Various Contractors	1000	0		1236	1-2Q	1223	1-2Q	0	3459	3459
Government Engineering Support	MIPR / PWD	Other Government Organizations	330	0		1000	1-2Q	1400	1-2Q	0	2730	2730
Subtotal:			1330	0		2236		2623		0	6189	6189

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT D09
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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
System Test and Evaluation		TBD	0	0		1541	2-3Q	9574	2-3Q	0	11115	11115
Subtotal:			0	0		1541		9574		0	11115	11115

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
Program management	MIPR / PWD	PM UAV, Redstone Arsenal, AL	400	0		506	1-4Q	810	1-4Q	0	1716	1716
Subtotal:			400	0		506		810		0	1716	1716

Project Total Cost:			22623	0		92523		87283		0	202429	202429
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

Event Name	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) Milestone B	▲ ₁ MS B																											
System Development & Demonstration					SDD																							
(2) First Unit Equipped																	▲ ₂ FUE											
(3) Milestone C																	▲ ₃ MS C											
LRIP Production																	LRIP Production											
(4) Full Rate Production Award																					▲ ₄ Full Rate Award							
Full Rate Production																					Full Rate Production							
(5) IOT&E																	▲ ₅ IOT&E											
(6) Initial Operational Capability																					▲ ₆ IOC							

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT D09	
<u>Schedule Detail</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>	
Paper Downselect to two Venders	1-2Q							
Downselect to one Vender	2Q							
Government Furnished Equipment		2-3Q	2-3Q	1-3Q				
Development Engineering		2-3Q	1-2Q	1-2Q	1-2Q	1-2Q	1-2Q	
Prototype Manufacturing		2-3Q	1-2Q					
System Test & Evaluation		2-3Q	2-3Q					

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development						PROJECT K98	
COST (In Thousands)	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)	8108	5321	12	12	13	18	21	0	29589

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 multi-discipline 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 Electroptic/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.

Beginning in FY 2007, most of the funds from this line have been transferred to 0203744A, Project 028

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Continued spiral development and integration of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities for the ACS program	5008	0	12
Continued development of MTI/SAR Capability	0	5321	0
Continued Development and test efforts for HyLITE	3100	0	0
Total	8108	5321	12

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development	PROJECT K98
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<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	8111	5398	5599
Current BES/President's Budget (FY 2007)	8108	5321	12
Total Adjustments	-3	-77	-5587
Congressional Program Reductions		-23	
Congressional Rescissions	-3	-54	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			-5587

FY 2007 Funds transferred to 0203744A Project 028

<u>C. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
0203744A/028 ACS	120302	64980	32719	26584	171530	245991	349800	CONT	CONT
A02005 Aerial Common Sensor	0	0	0	0	4907	3456	4736	CONT	CONT

Comment:

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. The ACS SDD contract was terminated in January 2006. Development efforts will continue to mature 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 phases.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)							
COST (In Thousands)	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	54013	91859	120562	83369	75365	18749	11172	Continuing	Continuing
956 Distributed Common Ground System (DCGS) (JMIP)	17413	17153	11805	12181	12582	3130	3089	Continuing	135673
D06 DCGS-A FUSION INTEGRATION (JMIP)	8983	18040	24561	24706	22937	4483	1107	Continuing	106127
D07 DCGS-A COMMON MODULES (JMIP)	17589	46136	76070	34901	28251	6397	4319	Continuing	234810
D08 DCGS-A SENSOR INTEGRATION (JMIP)	9389	9894	7456	10910	10926	4074	2003	Continuing	55675
D15 MUSE & TES TADSS (TIARA)	639	636	670	671	669	665	654	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. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information and intelligence to synchronize the elements of Joint and Combined Arms combat power to See First, Understand First, Act First and Finish Decisively. The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. DCGS-A draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, 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 and Multi-INT automated fusion capabilities. Project D07 funds Technology Insertion of DCGS-A capabilities into Current Force systems, and System Development and Demonstration (SDD), to include a common set of ISR analysis tools. D08 provides sensor integration to include sensor control, tasking and interoperability. Project D15 funds Training Aids, Devices, Simulators and Simulations (TADSS) for the Tactical Exploitation System (TES).

DCGS-A includes hardware for Fixed and Mobile configurations and common software that is 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 Brigade Combat Teams (BCTs), DCGS-A provides the Mobile ISR capability as well as an embedded software application on the Future Combat System (FCS) FoS and other select platforms. At the Corps, Division and Echelons Above Corps (EAC), DCGS-A is composed of hardware and software in Mobile and Fixed site configurations. As a system of systems, DCGS-A will consolidate and replace the capabilities found in the following Current Force systems: All Source Analysis System (ASAS), CI/HUMINT Single Source Workstation, Tactical Exploitation System (TES), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), Prophet Control, Common Ground Station (CGS), Digital Topographic Support System (DTSS) and Integrated Meteorological System (IMETS), sensor control and processing of select UAVs and Enhanced Trackwolf processing capabilities. DCGS-A will also integrate the capabilities currently developed and deployed by the Joint Intelligence Operations Capability-Iraq (JIOC-I) as a Quick Reaction Capability (QRC) in support of Operation Iraqi Freedom (OIF). DCGS-A is a key component of Transformation and a top Army priority.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational system development

0305208A - Distributed Common Ground/Surface Systems (JMIP)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational system development	0305208A - Distributed Common Ground/Surface Systems (JMIP)		
	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	53911	91587	118891
Current BES/President's Budget (FY 2007)	54013	91859	120562
Total Adjustments	102	272	1671
Congressional Program Reductions		-10402	
Congressional Rescissions		-926	
Congressional Increases		11600	
Reprogrammings	102		
SBIR/STTR Transfer			
Adjustments to Budget Years			1671
Conference Language: Decrease of \$10 million due to funding ahead of need.			
Project D06: + \$1.1 million for Distributed Common Ground Station-Army			
Project D08: + \$3.0 million for Automatic Target Cueing System			
Project 956: + \$4.1 million for National Defense Imagery Processing Program (NDIP)			
Project 956: + \$3.4 million for Distributed Common Ground System			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)						PROJECT 956	
COST (In Thousands)	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)	17413	17153	11805	12181	12582	3130	3089	Continuing	135673

A. Mission Description and Budget Item Justification: Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for Army airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ forces more effectively. DCGS-A allows commanders at all levels to visualize, analyze and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project establishes the DCGS-A Federated Network Centric Enterprise, facilitating system integration and network-enabled capability of existing and future intelligence, surveillance and reconnaissance (ISR) ground stations, eventually consolidating these capabilities into a single system of systems. An enterprise level approach based on a Service Oriented Architecture (SOA) will provide Commanders' and Staffs' access to various ISR ground station information from any ground station, and data exchange between Army ISR ground stations for improved intelligence sharing and understanding. DCGS-A will achieve joint, allied and coalition interoperability through implementation of the 10.2 DCGS Integration Backbone (DIB) to access other Services data and information that is critical to the Land Component Commander.

FY07 funds design, development and test of the DCGS-A enterprise level architecture and completes integration of the JIOC-I capability into the DCGS-A product line.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Joint interoperability test and evaluation to include Version 3 CTSF testing and FCS 1.1.	200	520	1500
Design and development of DCGS-A enterprise level net-centric architecture in support of Current and Future Force systems.	16050	4965	9125
Evaluate, integrate and test JIOC-I and other existing and new software applications and components for incorporation into the DCGS-A baseline.	1163	4168	1180
Intelligence Data Exchange for Execution and Planning (IDEEP)	0	3400	0
National Defense Imagery Processing Program	0	4100	0
Total	17413	17153	11805

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT		
7 - Operational system development	0305208A - Distributed Common Ground/Surface Systems (JMIP)						956		
PE 0604321 CI/HUMINT Software Products (B41) (TIARA)	914	918	3278	1657	1724	3017	3223	CONT	CONT
BK5275 CI HUMINT Info Management System	33670	720	19694	26310	35087	10215	12494	CONT	CONT

C. Acquisition Strategy DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							956		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
SETA Support to Visualization/Data Sharing, Models, Simulation & Prototypes	T&M	Booz-Allen, Eatontown, NJ	5523	3088	1-2Q	2417	1Q	1780	1-2Q	0	0	0
DCGS-A Product Selection and Integration	CP	CERDEC/Battle Labs	0	11150	2Q	1580	2Q	5178	1-4Q	0	0	Continue
SIL Integration of Version 3 and JIOC-I	MIPR	CERDEC/RDCOM Ft. Monmouth, NJ	0	1125	2-4Q	3820	1-4Q	0		0	0	0
Intelligence Data Exchange for Execution and Planning (IDEEP)	MIPR	Battle Labs	0	0		3400	2Q	0		0	0	0
National Defense Imagery Processing Program	MIPR	Battle Labs	0	0		4100	2Q	0		0	0	0
Subtotal:			5523	15363		15317		6958		0	0	Continue
II. Support Costs	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
Objective Doctrine/TTP Development To Support a Milestone B for ODCGS-A	MIPR	Ft. Huachuca, AZ	5623	1000	1-2Q	100	2Q	0		0	0	0
Matrix Support	MIPR	CECOM, Fort Monmouth NJ	3774	600	1Q	500	1Q	600	1Q	Continue	0	Continue
Subtotal:			9397	1600		600		600		Continue	0	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
Joint Interoperability Test and	MIPR	INSCOM	1938	200	1-2Q	400	1-2Q	1500	2Q	0	0	0

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)							PROJECT 956		
Evaluation												
Test support for DCGS-A development	MIPR	CTSF, Ft. Hood	0	0	1-2Q	336	1Q	1997	2Q	0	0	0
Subtotal:			1938	200		736		3497		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
Project Management	In-House	PM, DCGS-A	4682	250	1Q	500	1Q	750	1Q	Continue	0	Continue
Subtotal:			4682	250		500		750		Continue	0	Continue

Project Total Cost:			21540	17413		17153		11805		Continue	0	Continue
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
956

Event Name	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) System Integration Lab (SIL) Standup	▲ ₁ SIL Standup																											
(2) Fixed Site Initial Operational Capability (IOC)								▲ ₂ Fixed Site IOC																				
(3) DCGS-A Version 3.0 Release								▲ ₃ Version 3.0 Release																				
(4) DCGS-A Transit Case Configuration IOC												▲ ₄ Transit Case IOC																
(5) DCGS-A Participation in FCS Ex 1.1												▲ ₅ FCS Ex 1.1																
(6) Version 4 BCT IOC												▲ ₆ Version 4 BCT IOC																
(7) Version 4 Corps/Div IOC																▲ ₇ Version 4 Corps/Div IOC												
(8) Milestone B												▲ ₈ Milestone B																
(9) Limited User Test																				▲ ₉ LUT								
(10) Low Rate Initial Production																								▲ ₁₀ LRIP				
(11) DCGS-A IOT&E																											▲ ₁₁ IOT&E	
(12) Full Rate Production Decision																												▲ ₁₂ FRP

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)					PROJECT 956	
<u>Schedule Detail</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>	
System Integration Lab (SIL) Standup	2Q							
Fixed Site Initial Operational Capability (IOC)		3-4Q						
DCGS-A Version 3.0 Release		3Q						
DCGS-A Transit Case Configuration IOC			2Q					
DCGS-A Participation in FCS Ex 1.1			2-3Q					
Version 4 BCT IOC			2Q					
Version 4 Corps/Div IOC			4Q					
Milestone B			4Q					
Limited User Test					3Q			
Low Rate Initial Production					4Q			
DCGS-A IOT&E						4Q		
Full Rate Production Decision							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)					PROJECT D06	
COST (In Thousands)	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)	8983	18040	24561	24706	22937	4483	1107	Continuing	106127

A. Mission Description and Budget Item Justification: Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project establishes DCGS-A sensor fusion and all source production capabilities, leveraging previously completed algorithm, on-going Future Combat System (FCS) and Science and Technology (S&T) developmental efforts to meet the requirements for battle management and situational awareness, intelligence preparation of the battlespace (battle damage assessments, course of action/predictive analysis, wargaming), target development (deliberate, time critical, high value/high payoff), collection/ISR management (requirement and mission), electronic warfare/countermeasures, force protection, indications and warnings, operational security, and battlefield visualization and presentation. The Sensor Fusion capability will address both traditional intelligence disciplines (signals intelligence, imagery intelligence, human intelligence, measurements and signatures intelligence) from organic, Theater, and National assets (systems and databases), and non-traditional sources (open source intelligence, fire support) to achieve a complete and universal understanding of the situation in support of the commander/warfighter, battle command databases, and the Common Operational Picture (COP). The sensor fusion capability will support all types of units across a broad spectrum of both traditional and non-traditional (e.g., SASO, SSC, NEO) operations, and improve interoperability with Joint, Allied, and Coalition forces.

FY07 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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Normalization and integration of sensor fusion process and Multi-INT sources, geospatial and weather data.	3656	6575	12583
Enhance controlled interface technology for improved product distribution at multiple security levels.	1000	2839	4262
Studies, analysis, and prototyping for porting sensor fusion mission applications into the FCS environment.	1500	1510	1899
Transition of sensor fusion processes and Current Force systems capabilities into DCGS-A architecture/SOA environment.	2827	7116	5817
Total	8983	18040	24561

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)	PROJECT D06
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<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
PE 654321, ASAS Evolutionary Acquisition	5353	7807	3462	3436	3417	3387	3387	CONT	CONT

C. Acquisition Strategy DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							D06		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Enhancement of interfaces between sensor fusion processes and various INT domains.	MIPR	PM IE, Ft. Belvoir	910	3327	1Q	7175	1Q	917	1Q	0	0	Continue
Integrate FCS fusion capabilities into V3 baseline	MIPR	PM UA, TACOM	0	3156	1Q	2116	2-3Q	2065	2-3Q	44000	0	Continue
Transition of sensor fusion processes and Current Force systems capabilities to DCGS-A	MIPR	CERDEC/RDCOM	0	0		5749	1-4Q	18679	1-4Q	0	0	Continue
Integration of Overwatch capability	MIPR	PM IE	0	0		1100	1-2Q	0		0	0	0
Subtotal:			910	6483		16140		21661		44000	0	Continue
II. Support Costs	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
Matrix Support	MIPR	CECOM/RDCOM, Ft. Monmouth, NJ	100	400	1Q	620	1Q	620	1Q	Continue	0	Continue
SETA Support	Competitive T&M	Sytex, Vienna, VA	150	1900	1Q	880	1Q	980	1Q	Continue	0	Continue
Subtotal:			250	2300		1500		1600		Continue	0	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
Prototype Test & Evaluation	MIPR	ATEC/EPG	0	0		150	1Q	950	1Q	Continue	0	Continue
Subtotal:			0	0		150		950		Continue	0	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)	PROJECT D06
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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
Project Management	In House	PM I&E/DCGS-A	150	200	1-2Q	250	1-2Q	350	1-2Q	Continue	0	Continue
Subtotal:			150	200		250		350		Continue	0	Continue
Project Total Cost:			1310	8983		18040		24561		Continue	0	Continue

Schedule Profile (R4 Exhibit)

February 2006

Event Name	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) System Integration Lab (SIL) Standup	▲ ₁ SIL Standup																										
(2) Fixed Site IOC								▲ ₂ Fixed Site IOC																				
(3) DCGS-A Version 3.0 Release								▲ ₃ Version 3.0 Release																				
(4) DCGS-A Transit Case Configuration IOC												▲ ₄ Transit Case IOC																
(5) DCGS-A Participation in FCS Ex 1.1												▲ ₅ FCS Ex 1.1																
(6) Version 4 BCT IOC												▲ ₆ Version 4 BCT IOC																
(7) Version 4 Corps/Div IOC																												
(8) Milestone B												▲ ₈ Milestone B																
(9) Limited User Test																												
(10) Low Rate Initial Production																												
(11) DCGS-A IOT&E																												▲ ₁₁ IOT&E
(12) Full Rate Production Decision																												▲ ₁₂ FRP

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0305208A - Distributed Common Ground/Surface Systems (JMIP)						D06
<u>Schedule Detail</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>	
System Integration Lab (SIL) Standup	2Q							
Fixed Site Initial Operational Capability (IOC)		3-4Q						
DCGS-A Version 3.0 Release		3Q						
DCGS-A Transit Case Configuration IOC			2Q					
DCGS-A Participation in FCS Ex 1.1			2-3Q					
Version 4 BCT IOC			2Q					
Version 4 Corps/Div IOC			4Q					
Milestone B			4Q					
Limited User Test					3Q			
Low Rate Initial Production					4Q			
DCGS-A IOT&E						4Q		
Full Rate Production Decision							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)					PROJECT D07	
COST (In Thousands)	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)	17589	46136	76070	34901	28251	6397	4319	Continuing	234810

A. Mission Description and Budget Item Justification: Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Objective Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.

This project provides for the design, development, integration and test of the DCGS-A system of systems at all echelons, from embedded DCGS-A up to Fixed Site operations. The effort includes system engineering, software integration and development, test & evaluation, and use of M&S to develop DCGS-A Mobile systems with common multi-function hardware and software combinations (i.e. user workstations) capable of performing all DCGS-A functions. Development will focus on common module hardware and software that is scalable to allow commanders increased flexibility in the intelligence force package deployed such that it can be tailored to the echelon, location, and mission that DCGS-A will be required to support. Included in the development will be the stand-up of a Federated Systems Integration Lab (SIL) to assess and implement existing and new candidate software applications and components into the DCGS-A baseline design. A common set of ISR Analysis Tools to support collaboration, exploitation, fusion and collection management will 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.

FY07 funds Technology Insertion of DCGS-A capabilities into Current Force systems, common module multi-function hardware, and the DCGS-A V3 Transit Case configuration Initial Operational Capability (IOC). 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.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
SIL design, planning and implementation to include integration of 10.2 DIB and the JIOC-I Brain.	5800	6550	3970
Embedded DCGS-A design/analysis and FCS support.	1500	2550	2950
Evaluate, integrate and test existing and new software applications. Integrate Best Value components from DoD wide systems into DCGS-A baseline.	3089	20653	38295
Two-way Battle Command to include Joint Command and Control (JC2)interoperability.	0	6033	8125

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)		PROJECT D07
Technology Insertion of integrated DCGS-A baseline into Current Force systems.	0	10350	22730
FIA/Migration of TES-M to DCGS-A Fixed Site.	7200	0	0
Total	17589	46136	76070

<u>B. Other Program Funding Summary</u>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BZ7316 DCGS-A Unit of Employment	10216	38003	65424	96042	100227	155275	167162	CONT	CONT

C. Acquisition Strategy DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							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
Embedded DCGS-A scalability design/analysis and FCS support	Competitive CPIF/CPAF	Boeing Corp, CA	3500	1500	2Q	2550	2Q	2805	2Q	Continue	0	Continue
System integration and test support for Spirals 1, 2 & 3	Sole Source CPIF/CPAF	Northrup Grumman, Linthicum, MD	3700	1873	1Q	0		0		0	0	0
Evaluate, integrate and test existing and new software applications and components into DCGS-A SOA	Multiple FFP/CPFF	TBD	3767	0		21460	2Q	30720	2Q	Continue	0	Continue
Technology Insertion of integrated DCGS-A baseline into Current Force systems	Multiple FFP/CPFF	TBD	0	0		10050	2-3Q	22330	2Q	0	0	0
SIL design, planning and implementation of 10.2 DIB and JIOC-I Brain	Sole Source	CERDEC, Ft. Monmouth	0	5000	2Q	5950	1Q	5580	1Q	Continue	0	Continue
FIA/TES-M Migration to Fixed Site	Sole Source	ASPO/Northrop Grumman	9600	7200	2Q	0		0		0	16800	0
Subtotal:			20567	15573		40010		61435		Continue	16800	Continue
II. Support Costs	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
Matrix Support	MIPR	RDCOM/CECOM, Ft. Monmouth, NJ	532	592	1Q	950	1Q	1125	1Q	Continue	0	Continue
SETA Support	Competitive T&M	Booz-Allen Hamilton	0	500	1-4Q	1138	1-2Q	0		0	0	0
SETA Support	Competitive T&M	TBD	0	0		1050	2-3Q	5175	1-2Q	0	0	0
Subtotal:			532	1092		3138		6300		Continue	0	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)	PROJECT D07
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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
Test support	MIPR	ATEC	0	97		1500	2Q	4000	2Q	0	0	0
Subtotal:			0	97		1500		4000		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
Project Management	In House	PM DCGS-A	1048	827	1Q	1488	1Q	4335	1Q	Continue	0	Continue
Subtotal:			1048	827		1488		4335		Continue	0	Continue

Project Total Cost:		22147		17589		46136		76070		Continue	16800	Continue
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Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D07

Event Name	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) System Integration Lab (SIL) Standup	▲ ₁ SIL Standup																											
(2) Fixed Site IOC								▲ ₂ Fixed Site IOC																				
(3) DCGS-A Version 3.0 Release								▲ ₃ Version 3.0 Release																				
(4) DCGS-A Transit Case IOC												▲ ₄ Transit Case IOC																
(5) DCGS-A Participation in FCS Ex 1.1												▲ ₅ FCS Ex 1.1																
(6) Version 4 BCT IOC												▲ ₆ Version 4 BCT IOC																
(7) Version 4 Corps/Div IOC																▲ ₇ Version 4 Corps/Div IOC												
(8) Milestone B												▲ ₈ Milestone B																
(9) Limited User Test																				▲ ₉ LUT								
(10) Low Rate Initial Production																								▲ ₁₀ LRIP				
(11) DCGS-A IOT&E																											▲ ₁₁ IOT&E	
(12) Full Rate Production Decision																											▲ ₁₂ FRP	

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0305208A - Distributed Common Ground/Surface Systems (JMIP)						D07
<u>Schedule Detail</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>	
System Integration Lab (SIL) Standup	2Q							
Fixed Site Initial Operational Capability		3-4Q						
DCGS-A Version 3.0 Release		3Q						
DCGS-A Transit Case Configuration IOC			2Q					
DCGS-A Participation in FCS Ex 1.1			3-4Q					
Version 4 BCT IOC			2Q					
Version 4 Corps/Div IOC			4Q					
Milestone B			4Q					
Limited User Test					3Q			
Low Rate Initial Production					4Q			
DCGS-A IOT&E						4Q		
Full Rate Production Decision							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0305208A - Distributed Common Ground/Surface Systems (JMIP)						PROJECT D08	
COST (In Thousands)	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)	9389	9894	7456	10910	10926	4074	2003	Continuing	55675

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.

FY07 funds transition, test and integration of new and Current Force sensors into the DCGS-A system design and architecture.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Isolate and integrate Current Force Multi-INT sensor (HUMINT, IMINT, SIGINT, MASINT) modules into the DCGS-A network.	6054	3840	3300
Planning and analysis of Future Force Multi-INT sensor modules for incorporation into the DCGS-A network.	755	950	1152
Refactor Current Force ISR capabilities in the DCGS-A infrastructure.	2580	5104	3004
Total	9389	9894	7456

B. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BZ7316 DCGS-A Unit of Employment	10216	38003	65424	96042	100227	155275	167162	CONT	CONT

C. Acquisition Strategy DCGS-A will be executed via an evolutionary acquisition approach, providing incremental capability through Technology Insertion of Current Force systems and system development and demonstration (SDD) of CDD requirements. Each increment will incorporate and validate select DCGS-A capabilities into the overall

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT

D08

DCGS-A system baseline, emphasizing migration of current force capabilities through integrated testing and continuous evaluation opportunities.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305208A - Distributed Common Ground/Surface Systems (JMIP)							D08		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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
Develop and Integrate DCGS-A Multi-INT Sensor Modules	MIPR	CERDEC, Ft. Monmouth	0	5827	2Q	5264	2Q	3567	1Q	Continue	0	Continue
Develop and Integrate components for sensor data distribution in DCGS-A	Sole Source CPIF	SRE, Susquehanna, PA	0	2498	3Q	3000	2Q	3339	1Q	Continue	0	Continue
Subtotal:			0	8325		8264		6906		Continue	0	Continue
II. Support Costs	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
Matrix Support	MIPR	CECOM	75	150	1Q	150	1Q	150	1Q	Continue	525	Continue
Subtotal:			75	150		150		150		Continue	525	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
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
Program Management	In House	PM DCGS-A	115	914	1Q	1480	1Q	400	1Q	Continue	0	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT		
7 - Operational system development	0305208A - Distributed Common Ground/Surface Systems (JMIP)						D08		
Subtotal:	115	914		1480		400	Continue	0	Continue
Project Total Cost:	1023	9389		9894		7456	Continue	1358	Continue

Schedule Profile (R4 Exhibit)

February 2006

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground/Surface Systems (JMIP)

PROJECT
D08

Event Name	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) System Integration Lab (SIL) Standup	▲ SIL Standup																											
(2) Fixed Site IOC								▲ 2																				
(3) DCGS-A Version 3.0 Release								▲ 3																				
(4) DCGS-A Transit Case Configuration IOC												▲ 4																
(5) DCGS-A Participation in FCS Ex 1.1								▲ 5																				
(6) Version 4 BCT IOC												▲ 6																
(7) Version 4 Corps/Div IOC																▲ 7												
(8) Milestone B																▲ 8												
(9) Limited User Test																				▲ 9								
(10) Low Rate Initial Production																								▲ 10				
(11) DCGS-A IOT&E																											▲ 11	
(12) Full Rate Production Decision																												▲ 12

Schedule Detail (R4a Exhibit)

February 2006

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
7 - Operational system development		0305208A - Distributed Common Ground/Surface Systems (JMIP)						D08
<u>Schedule Detail</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>	
System Integration Lab (SIL) Standup	2Q							
Fixed Site Initial Operational Capability (IOC)		3-4Q						
DCGS-A Version 3.0 Release		3Q						
DCGS-A Transit Case Configuration			2Q					
DCGS-A Participation in FCS Ex 1.1			2Q					
Version 4 BCT IOC			2Q					
Version 4 Corps/Div IOC			4Q					
Milestone B			4Q					
Limited User Test					3Q			
Low Rate Initial Production					4Q			
DCGS-A IOT&E						4Q		
Full Rate Production Decision							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program						PROJECT C92	
COST (In Thousands)	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	954	980	1031	1032	1032	0	0	0	5029

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Determine critical avionics (communications, navigation, surveillance, sensors, combat identification, mission planning, and interoperability) deficiencies, prioritize and conduct initial technology improvements effort.	600	600	610
Identify software techniques and opportunities associated with open system architectures targeted to reduce initial and recurring avionics integration costs.	306	333	370
Continue Program Management Support	48	47	51
Total	954	980	1031

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

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 2006)	955	994	1016	
Current BES/President's Budget (FY 2007)	954	980	1031	
Total Adjustments	-1	-14	15	
Congressional Program Reductions		-10		
Congressional Rescissions		-4		
Congressional Increases				
Reprogrammings	-1			
SBIR/STTR Transfer				
Adjustments to Budget Years			15	

D. Acquisition Strategy The Acquisition Strategy is to identify emerging avionics performance and obsolescence problems. AvCIP is an initiative that enables streamlined management of present-day common avionics/electronics critical readiness degraders, technology insertion opportunities and cost reduction solutions. The program will annually compete candidate solutions according to criticality of operational contribution, technical risk, return on investment, commonality and breadth of application across multiple platforms.

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0702239A - Avionics Component Improvement Program							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
Determine critical avionics deficiencies and initiate technology improvement efforts.	Various	AMCOM, Redstone Arsenal, AL	0	600	1-3Q	600	1-3Q	610	1-3Q	Continue	Continue	Continue
Identify SW techniques and opportunities associated w/open system architectures in reduction of cost	Various	AMCOM, Redstone Arsenal, AL	0	306	1-3Q	333	1-3Q	370	1-3Q	Continue	Continue	Continue
Subtotal:			0	906		933		980		Continue	Continue	Continue
II. Support Costs	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									
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									
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
PM Spt (AVCIP)	MIPR	LCMC, AL/PM AME, AL	0	48	1-4Q	47	1-4Q	51	1-4Q	Continue	Continue	Continue
Subtotal:			0	48		47		51		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS (R3)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program						PROJECT C92		
Project Total Cost:	0	954		980		1031	Continue	Continue	Continue

Schedule Profile (R4 Exhibit)

February 2006

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			
	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 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0702239A - Avionics Component Improvement Program					PROJECT C92	
<u>Schedule Detail</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>	
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 2006

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities							
COST (In Thousands)	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	100349	111788	68075	68639	69603	70081	70635	0	620829
E25 MFG SCIENCE & TECH	62459	67528	68075	68639	69603	70081	70635	0	600271
E71 SINGLE ISSUE TASKS	0	986	0	0	0	0	0	0	0
EA1 VENTURE CAPITAL	14270	0	0	0	0	0	0	0	0
EA2 MANTECH INITIATIVES (CA)	23620	43274	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 the goals and timelines of the Future Combat System (FCS), the Future Force and, where feasible, the Current Force by reducing manufacturing risks and/or costs associated with transitioning advanced and enabling technologies into Army systems. The program also fosters the transfer of new/improved manufacturing technologies to the industrial base. This program element contains 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. The Army Venture Capital initiative (EA1) is an opportunity provided by Congress to engage small innovative companies that normally do not do business with the Army. Project EA2 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 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational system development	0708045A - End Item Industrial Preparedness Activities		
	FY 2005	FY 2006	FY 2007
<u>B. Program Change Summary</u>			
Previous President's Budget (FY 2006)	88120	68505	73273
Current BES/President's Budget (FY 2007)	100349	111788	68075
Total Adjustments	12229	43283	-5198
Congressional Program Reductions		-490	
Congressional Rescissions		-1127	
Congressional Increases		44900	
Reprogrammings	12229		
SBIR/STTR Transfer			
Adjustments to Budget Years			-5198

FY 05 increase due to Venture Capital.

Twenty FY06 Congressional adds totaling \$44900 were added to this PE.

- FY06 Congressional adds with no R-2A (appropriated amount is shown):
- (\$2250) Advanced Modeling Technology - Large Structure Titanium Machine Initiative
 - (\$1250) Center for Optics Manufacturing
 - (\$1000) Durable Gun Barrel Steel
 - (\$2400) Electrodeposited Coatings Systems for Munitions
 - (\$2100) Laser Engineered net Shaping (LENS) Manufacturing Qualification
 - (\$1800) Laser Peening for Army Helicopters
 - (\$2250) Lean Munitions
 - (\$2000) Legacy Aerospace Gear Drive Re-engineering Initiative
 - (\$2800) Low Cost Domestic Titanium Reduction to Powder Initiative
 - (\$1000) Manufacturing Metrology for Weapon System Production and Sustainment
 - (\$2800) Manufacturing Systems Demonstration
 - (\$1800) Materials Joining for Army Weapons Systems
 - (\$4300) National Center for Manufacturing and Machining
 - (\$2600) Reactive Atom Plasma (RAP) Processing
 - (\$1000) Small Manufacturers (SMD) Initiatives
 - (\$2000) Smart Machine Platform Initiative
 - (\$6000) Spring Suspended Airless Tires for Convoy Protection
 - (\$1750) Super-Pulse Laser Processing Technology

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational system development

0708045A - End Item Industrial Preparedness Activities

(\$1400) Vehicle Common Armor - Affordable Modular Manufacturing Process (VCAMP)

(\$1400) Virtual Parts Engineering Research Center

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities						PROJECT E25		
COST (In Thousands)	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
E25 MFG SCIENCE & TECH	62459	67528	68075	68639	69603	70081	70635	0	600271

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 technologies that will enable the affordable production and sustainment of future weapon systems for Future Combat Systems (FCS) and other Future Force systems; as well as the affordable transition of new technologies that can enhance capabilities of Current Force systems. Objectives address advanced manufacturing processes, equipment and systems that can enhance quality of products while achieving reductions in cost and/or that can transfer improved manufacturing technologies to the industrial base. ManTech assists the Army in meeting FCS and Future Force performance, sustainability and reliability goals and timelines and has potential to reduce risks and costs of new technologies for weapons systems. Tasks have potential for high payoff across the spectrum of Army weapon systems; as well as significant positive 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. The current investment areas are: Aviation Systems, Fire Support Systems, Armor and Armaments, Sensors, Electronics/Power Systems and Precision Munitions. In the Aviation Systems area, Low Cost Light Weight Structures (LCLWS) matures processes for lightweight composite structures for aviation systems; Affordable Drive Train Housing, (ADTH) develops advanced manufacturing processes and technologies using composites, metals, and coatings to reduce weight and increase performance of helicopter and Unmanned Air Vehicle drive trains. In the Fire Support area, the Large Caliber Cannon Life Extension (LCLE) effort develops manufacturing processes to extend the service life and reduce the logistic burden of Army indirect fire systems. In the Armor and Armaments area, the Armor effort provides manufacturing processes for producing lightweight armor for vehicles; Durable Gun Barrel (DGB) matures manufacturing processes for ultra high strength steel, composite over-wrap and explosive coating applications for Army gun barrels; and the Titanium effort provides material and manufacturing processes for titanium used in M777 Howitzer and FCS. In the Sensors area, the Dual Band Focal Plane Array Manufacturing (DBFM) effort develops manufacturing processes for producing detector/electronic cooling assemblies for focal plane arrays (FPAs); Uncooled Focal Plane Array Producibility (UFPA) improves processes to make high-resolution uncooled infrared sensors. In the Electronics/Power Systems area, the Silicon Carbide Switches (SiCS) effort matures the fabrication processes for compact, power-dense SiCS devices for Army systems; the High Energy Density (HED) Capacitor effort matures pulse power manufacturing processes for advanced protection systems and weapons; the Very High Power (VHP) Batteries effort matures manufacturing processes for compact energy/storage systems; the Software Defined Radio (SDR) effort 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) effort provides manufacturing processes for On-The-Move line of sight and beyond line of sight communications and missile seeker applications; and the ManTech portion of the Flexible Display Initiative (FDI) provides manufacturing technologies required to enable the production of lightweight and rugged flexible displays. In the Precision Munitions area, Low Cost High-G Micro-Electro-Mechanical Systems (MEMS) Inertial Measurement Units (IMU) effort 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; MEMS Safe and Arm (S&A) matures MEMS wafer-based manufacturing processes and provides, miniature, high-G "inertial mechanical logic" to control position of explosive charge for S&A applications.

Accomplishments/Planned Program	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Aviation Systems - LCLWS: In FY05, designed and manufactured tooling for fabricating composite tail cones/pylons; fabricated and evaluated composite tail cone articles and forward pylon. In FY06, 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. ADTH: In FY05, analyzed and evaluated repair procedures and coating schemes for magnesium housings; completed material properties characterization	1737	1175	801

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
7 - Operational system development	0708045A - End Item Industrial Preparedness Activities	E25	
and tool design for gearbox housings. In FY06, finalize tooling design and initiate manufacturing of the outer gearbox housing. In FY07, will complete gearbox-housing manufacturing; will perform system integration, conduct testing and evaluation of gearbox housing, and complete flight qualification.			
Fire Support Systems - The LCCLE : In FY05, demonstrated manufacturing processes to deposit high performance coatings on the interior (bore) of large caliber cannons to extend the service life and reduce logistic burdens. Also, delivered full scale 120mm XM36 FCS MCS gun barrel for live fire testing; and completed post-firing of 120mm XM36 FCS MCS barrels and transitioned processes for making barrels to producers.	1854	0	0
Armor and Armaments - Armor : In FY05, demonstrated improvements in fabrication of ceramic materials that resulted in reduced cycle time and cost; and matured processes to bond tiles, which required joining dissimilar materials. In FY06, demonstrate a prototype production line and scale up the low cost titanium plate process and demonstrate processes to grind both sides of ceramic tiles without loss of material strength. In FY07, will automate and streamline subassembly processes and produce solid-state titanium plates; will demonstrate ability to integrate dissimilar material structures and will optimize assembly to maximize the strength of the combined materials and develop a ceramic tile encapsulation process. DGB: In FY05, scaled-up process to fabricate barrels with high strength steels; and completed fabrication of composite prototypes and clad barrels. In FY06, construct and evaluate the performance of full-scale demonstration barrels utilizing advanced steel. Titanium: In FY05, demonstrated automated laser hybrid welding process. In FY06, demonstrate ability to meet the stated manufacturing, cost and weight goals of \$11.65 per pound and a 40% weight reduction.	15774	19671	20919
Sensors - Military Lasers: In FY05, improved uniformity of epitaxial growth on 4" wafers, automated bar stacking and handling for coating processes and delivered final laser diode arrays. DBFM: In FY05, increased thickness of Molecular Beam Epitaxy (MBE) growth on substrate sizes from 16cm2 to 50 cm2; improved pixel processing yield from 2 to 8 usable pixels per wafer. In FY06, increase MBE yield to 60%, small pixel to 60%, with an acceptance of 25%; and reduce cost to \$60k per dual band FPA. UFPA Producibility: In FY05, increased 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 FY05, qualified the 6" display line and integrated flexible display technologies to produce 2.5" diagonal test displays, began installation of Generation II (GEN II) equipment. In FY06, 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.	22546	18301	7761
Electronics/Power Systems - SiCS: In FY05, demonstrated process to manufacture SiC diodes. In FY06, mature manufacturing processes for diodes and switches. In FY07, will reduce switch and diode costs from \$1.20/AMP to 40 cents/AMP for switches and from \$5/AMP to 60 cents/AMP for diodes. VHP Battery: In FY05, matured manufacturing processes for improved electrodes; evaluated cell construction automation; and initiated process, packaging and design improvements. In FY06, 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. HED Capacitor: In FY05 demonstrated producible capacitor films with high energy density. In FY06, improve packaging design for 5-fold increase in capacitor life. In FY07, will increase operating voltage on film with scale-up units leading to demonstration for high energy FCS applications. SDR: In FY05, completed engineering design analysis; defined a common SDR core transceiver and matured power management architecture. In FY06, complete analysis of manufacturing process and define methodology for qualification test. In FY07, will prototype and mature manufacturing sub-process for common SDR core transceiver. PSPA: In FY05, initiated automated manufacturing process improvements. In FY06, improve automated processes to increase operational switch life, process yields, throughput and reliability. In FY07, will reduce packaging and assembly costs, eliminate electrical malfunctions, and transition improved phase shifter design to WIN-T.	14556	21726	29002
Precision Munitions - The Low Cost High G MEMS IMU MTO: In FY05, matured packaging and manufacturing processes to improve	5992	6655	9592

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
7 - Operational system development	0708045A - End Item Industrial Preparedness Activities	E25		
performance parameters, meet volume, cost and yield goals. In FY06, produce smaller pre-production IMUs and begin performance testing. In FY07, will validate and demonstrate manufacturing processes for transition to production. The MEMS S&A MTO: In FY05, selected fabrication and loading processes and tested integrated MEMS S&As on the XM25 weapon. In FY06, implement micro-fabrication process, 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. Will demonstrate integrated Guidance and NAV MEMS IMU				
Total		62459	67528	68075

C. Acquisition Strategy Not applicable for this item